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PITMAN'S ECONOMICS EDUCATOR

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PITMAN'S
ECONOMICS EDUCATOR

A COMPREHENSIVE GUIDE
TO THE STUDY OF ECONOMIC PRINCIPLES AND THE PRESENT-DAY ORGANIZATION OF INDUSTRY AND COMMERCE

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VOLUME I

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PREFACE

THE ECONOMICS EDUCATOR consists of thirty sections, in which Economics has been interpreted broadly, and divided into thirty subjects, each of which is presented in serial form. Some subjects call for more lengthy treatment than others. The series of contributions on each of the former extends over twenty-nine sections, and may be called "full-courses"; the remainder consist of "half-courses." Some of the half-courses start in the first section and extend to the fifteenth; the others start at the sixteenth and continue to the thirtieth section, which is completed by a survey of the present economic position of this country.

Each section is as complete, and as independent of other sections, as space and the nature of the subject permit. Readers are thus able to concentrate attention, for the time being, upon those subjects in which they are more particularly interested: others may find the study of several branches at the same time more stimulating than the study of a series of monographs.

This method of treatment presents obvious difficulties. Economics is a science, not a geographic area which can be divided into parts separated by clear boundary lines. The same *material* is inevitably considered by the authors of different sections, though the problems which that material presents to the authors are not the same. Moreover, the discussion of some of the more difficult problems which appear in later sections necessarily loses some of its value if the reader is not acquainted with the elementary principles of economics. These principles are examined in the courses on Production, Distribution, Currency and Banking, and International Trade. Those who read these four courses should be able to follow with ease the more technical courses which appear at a later stage.

It was obvious, when the scheme was in preparation, that the first and more serious difficulty could only be overcome by the co-operation of economists who had specialized in the subjects upon which they wrote. It is a pleasure to record the fact that all those who were approached regarded the experiment as valuable, and that nearly all were able to accept the invitation to collaborate. The contributors include not only University teachers but also writers who have achieved distinction in public administration, in politics, in private business, and in the administration of semi-public institutions, such as associations of workers and employers. I had hoped that the articles (a minute fraction of the total number) which appear under my own name would have been contributed by others, but those who were invited were unable to accept. I preferred not to extend the original list of invitations.

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ECONOMICS EDUCATOR

ECONOMIC HISTORY AND DEVELOPMENT

By Professor J. F. Rees

I
INTRODUCTORY

"Anxiety for the future time disposeth men to inquire into the causes of things; because the knowledge of them maketh men the better able to order the present to their best advantage."—Thomas Hobbes, *Leviathan*, Part I, Chapter XI.

To understand the world in which we live it is necessary to have some idea of how human society came to be what we now find it. Without such knowledge we cannot attach any meaning to such things as the present distribution of population, the economic activities of different countries, and the institutions which bind communities together. For all these are the results of the interplay of forces over long periods of time. Whether we approve of existing conditions (and, therefore, wish to justify them), or whether we find them intolerable (and, therefore, wish to change them), we shall achieve little by way of defence or attack unless we know something of their history.

WHAT IS HISTORY?

What is history? It is sometimes taken to mean what has happened in the past in so far as it is known, for only a fraction of what has happened can be discovered, because records are lacking, or are imperfect, or are difficult to interpret. History however, is not merely a collection of details; it is also the arrangement of the facts in order to offer some kind of exposition of their meaning. So on the threshold of the study of history we must ask ourselves on what principles do we collect, sift, and combine facts. Is it possible to say *why* things have fallen out as they have? Or, is it only possible at the best to describe *how* they have happened? If we know *why*, we have a clue to the meaning of history. But if we can only say *how*, we can dispute about the underlying meaning (if any) and devote our main energies to attempting to gain some inkling of the operation of the laws of cause and effect. Possibly we shall be able to establish some general principles which help us to understand the present; but such principles will always be subject to modification with fuller knowledge. Sir Isaac Newton is said to have adduced from the fact that an apple falls to the ground the generalization that all bodies in Nature attract all other bodies—a generalization wide enough to offer a provisional explanation of what happens in the physical universe, and how the stars in their courses follow some order. But the principle does not explain *why* the universe should be so controlled.

A THEOLOGICAL INTERPRETATION

Men have thought that the course of history can be explained in terms of an original creation, sustaining providence, and ultimate purpose of a Divine Being. The whole process (which is wider than human history) has been conceived as directed by some power outside ourselves, a power, which, in the more optimistic creeds, is thought to be making for righteousness; that there is "one far-off divine event to which the whole creation moves." This view was accepted alike by mediaeval churchman and seventeenth-century puritan. The great Catholic apologist, Bossuet, according to Voltaire, wrote history "with the intention of insinuating that everything has been done in the world for the Jewish nation; that if God gave the empire of Asia to the Babylonians, it was to punish the Jews; if God set up Cyrus on the throne, it was to avenge them; if God sent the Romans, it was again to chastise them." And Bossuet has had his unconscious disciples in Protestant pulpits down to our own time. The Christian Church, indeed, accepted dispensations as part of her tradition. But it became increasingly difficult to read the Creator's purpose in the world's happenings, for the human interpreters spoke with opposing voices. We have only to compare the eighteenth-century controversy aroused by the great earthquake at Lisbon with our attitude to such occurrences to realize how far we have moved. Belief in Divine providence remains as an act of faith, but we agree that it is not susceptible to secular demonstration.

DETERMINISM

Some have held that man is the creature of his environment, necessarily obeying the laws which are inherent in material things. He has the illusion of free will; but as a matter of fact he is purely an organism operated upon by outside forces. There is no more purpose in the life of mankind than in that of the animal creation or the physical universe—all obey laws because it is inconceivable that they should do otherwise. What are these material forces? They are sometimes comprehended in the terms "nature" or "climate." Montesquieu, in the eighteenth century, suggested that the intellectual and moral life of man can be explained as the consequence of material conditions. But if physical forces were

all powerful, we should by this time have been able to infer more precisely how they work, so as not only to explain the past, but also to foretell the future. Physical environment is of course potent. What geographers call the subduing of Nature does in certain circumstances exact constant toil and, consequently, sets its mark on the character and outlook of people. All human life, indeed, is conditioned by its environment, but it also reacts on its environment; in some cases the reaction is slight, the environment being so restricted, but in other cases the reaction is so considerable that we are apt to lose sight of the control exercised by the environment. It is easy to trace control in primitive societies; it is not so obvious in the complex and settled communities of the temperate zone. Climate, then, is a condition of all human development, but it cannot be seriously contended that it is the determining cause of what we are and what we do.

NO OBJECTIVE EXPLANATION OF HISTORY

History cannot be explained objectively—there is no knowable force, divine, cosmic, physical, or what you will, which can be proved to be the prime cause of what we call history. With our imperfect knowledge we can only offer subjective explanations, and these have no final authority. We can exert ourselves to discover as precisely as possible what actually happened in the past, and we can attempt so to relate facts that they give us a more or less satisfactory clue to sequence of cause and effect; but all historical interpretation must depend in some degree on the personal factor. The individual himself will be influenced by the outlook of his own time. So there can be no definitive account of history. In the sciences proper personal predilections can have no place; no amount of presumption in favour of the Ptolemaic system will avail to bolster it up against the Copernican, and no personal partiality for a particular theory concerning atoms will justify one in holding it after facts have been discovered that make it untenable. Not so in history. No facts are ever likely to be found which will compel historians to agree that Charles I was right and his opponents wrong. That and many other issues are bound to be matters of contention as long as men continue to take any interest in them.

THE RE-WRITING OF HISTORY

It follows that history will always be required to be rewritten. Enormous advances have been made with respect to accuracy regarding facts and in the method of evaluating authorities. The chances of making serious blunders, if the historian takes good care, are much fewer than they used to be. But in the interpretation of facts differences of opinion still exist and must always do so. History, therefore, can be employed to prove a thesis without necessarily doing violence to facts themselves. It is indeed difficult, if not impossible, to write history without a purpose if one tries to make it coherent. The author may suppose that he is merely approaching it from what in his time seems a reasonable angle. In the nineteenth century the consciousness of nationality was so strong that it coloured all presentations of history. One would find it hard to say in particular instances whether the historian was writing with the purpose of fostering nationality or under the influence of the dominant assumptions of his time. For living issues react on our interpretation of history. Under their influence we become aware of things which did not attract the attention of an earlier generation. If what interests us most are industrial problems we re-explore history, seeking for economic causes and effects. These factors loom so large that we may adopt an economic interpretation of history. This is exactly what happened to Karl Marx. He became vividly aware of the economic factor. For him it was a canon of interpretation. His position on this question is often misunderstood. Marx did not believe that man is the mere creature of his environment. Men, according to him, make their own history, but not under self-chosen conditions; the conditions are always given and transmitted.

THE ECONOMIC INTERPRETATION OF HISTORY

Wherein was Marx original? The geographers had long recognized that external conditions were given, and that they necessarily exercise a control over the activities of men. Marx carried this a step farther. He inquired what effects the activities of men in society—for the life of isolated man is not relevant to our problem—would have on the structure of that society. All human groups exist in the first instance as means of solving the question of bare subsistence. The economic factor is fundamental. But since society is organic and evolves, changes are constantly occurring within it. What are the causes and consequences of these changes? Marx found the primary causes to be economic—changes in methods of production—and, therefore, the results to be modifications of class relationships. The changes in relations are class struggles—the "haves" are faced by the "have-nots." The resultant friction is the key to history. The prevailing notions regarding morality, religion, and art at a particular time are governed by the economic factor. There is a "culture," bourgeois or proletarian. This is the peculiar contribution of Marx to historical interpretation. It would be foolish to deny that it is an important contribution. Writers of all schools of thought have been influenced by it. The case of Marx has here been adduced to show that in our industrial age attention has been particularly directed to the economic factor in history. We cannot help looking at history through these spectacles. But we may not have such a clear vision of what happened in the past as Marx imagined he had.

THE GEOGRAPHICAL BASIS OF INDUSTRY

By Professor L. W. Lyde

I
INTRODUCTION

The value of Geography to the economist is a double one. It presents the whole physical setting of human activity, and it relates that setting to Man as an economic animal. There is rather a tendency to ignore the fundamental fact that, after all, man does live on the earth, and that he is just as much an economic product of the earth as any plant or beast. He may talk, and he does talk—especially as an engineer—as though he was master of the situation. At a recent conference the engineers made some remarkable assertions about this independence of geographical control, especially in relation to railways; but their own contribution to the discussion only emphasized the exact contrary of their assertions.

NEW YORK AND THE HUDSON

If New York has five out of the seven most remarkable bridges in the world, that shows how much *more* the city is under the "control" of the Hudson than it was a century ago. Then it is exceedingly probable that not 3,000 persons crossed the Hudson every day to and from New York; to-day nearly 3,000,000 do so. Consequently, the ferries cannot cope with the traffic; even the bridges cannot take the surplus traffic; the tunnels are crowded to excess. Why? Because the Hudson cuts the city off from the mainland on the west.

The total cost and upkeep of the ferries, the bridges, the tunnels, amounts to millions of pounds sterling. The engineers have done their best, but they cannot free the city from its relation to the Hudson.

But if the river is a great expense to the city, its valley is a great asset. New York is what it is almost entirely because the Hudson valley, with the Mohawk valley, gives a route to the interior *without climbing* the Appalachian plateau, i.e. a 2,000-ft. climb.

New York is nearly a hundred miles farther than Philadelphia from Chicago, but the New York Central Railway can run longer trains in shorter time at less expense than the Pennsylvania Railway, because it has not to climb that 2,000-foot scarp. If engineers are "no longer bound down by geographical chains," why does the Pennsylvania line not run from Philadelphia to Chicago in much shorter time than the New York Central?

THE PHYSICAL BASIS

Geography, on its physical side, deals with all these physical features, examining their distribution, describing them, discovering—with the help of geology—why they are in the particular place, and examining—with the help of economics—their relation to the other terrestrial phenomena, especially the distribution of man. There is throughout a causal link; and, if this is understood, it throws light on all the economic problems, and relieves the memory of a good many burdens. For, if one once *understands* a thing, one cannot "forget" it.

Besides all the inorganic foundations, geography is concerned also with the organic responses—of plant and beast and man. It does not ask whether any particular activity is physiological or mental or moral, but it does concern itself with any and every activity which determines distributions—whether of the wheat plant or the tsetse fly or man. The purely physical conditions are the basis of all. The area is either land or water; if land, it is either high or low, old rock or new rock, and the differences of rock mean differences of soil. These may be very important, e.g. in deciding the quality of a wine, or quite insignificant, e.g. for the growth of a poppy or a buttercup. There are 400 flowering plants within the Arctic circle.

The business of geography, therefore, is to explain how position, relief, climate, soils, vegetation, etc., cause differences between different regions, and how these differences give rise to differences of products, of opportunities, of types of man, etc. Obviously, the science has to borrow from a number of other sciences, and depends on them to a great extent; but they in turn have to borrow from geography its own proper contribution to knowledge—the scientific explanations of these distributions.

HUMAN WANTS

Fortunately, we can restrict our attention more or less in economic geography to the main *wants* of man, e.g. need of food, of clothing, of shelter, of "power," etc.; we may even interpret "wants" as including those things which are not actually necessary simply because we are human beings, but which we have been, or can be, trained to "want." So the vital objects of our inquiry must include: (1) the character and the culture of the different groups of people scattered over the earth; (2) what they need or can be trained to need; (3) of what they have a surplus; and

(4) how they can get what they need, and send their surplus to others. Every business in the world really involves these four factors, and they are essentially geographical.

Of course, man is not content in most regions nowadays simply with stark necessaries; he wants conveniences and comforts, and some of them have already become practical "necessaries." But *the class of necessary things* remains the same, though its items may change; and we may confine our attention mainly to "necessaries," especially the great food staples and the other raw materials needed for our manufactures.

FOOD

We may say at once that far the most important products are the cereals; if man does not live by bread alone, a good many men do live mainly on "bread"—whatever they mean by "bread" in the particular region. Next to "bread" comes another staple food—vegetables, the exact meaning varying again with the geographical position. Next to "vegetables" comes yet another food—meat and fish. Once more comes a staple food in "dairy products," which includes eggs. Fifth come the raw materials which we use for "fuel and power." Raw materials for "clothing" have about half the value of these.

So far, then, as primary production is concerned, food is overwhelmingly important, and a quarter of the world's whole "primary" efforts are concentrated on the supply of "bread." Indeed, from the moral and social standpoint, there is the further vital consideration that, in the poorer lands and amongst the poorer people, the total amount of effort and wealth spent on food, especially "bread," leaves almost nothing for other purposes.

The high relative importance of the raw materials used for fuel and power is due to the fact that heat and power play such a large part in the production of food, clothing, and shelter. Cooking—like lighting—does not consume anything like such a high proportion of the total as transport; and, now that so much of our food supply comes literally thousands of miles—from the ends of the earth—transport may fairly be considered as the most important of our activities next to agriculture. On the other hand, in proportion to the cost of the raw materials the amount of work expended on "manufacturing" foodstuffs is tiny compared with the amount similarly expended on our clothes, etc.; and so we are mainly concentrated in urban groups, and are guided in our political activities by our urban outlook—with a fatal neglect of, or even hostility to, rural conditions.

RELATIVE VALUES

It is almost impossible to estimate particular products with any precision, even for civilized areas; but, as the same difficulties occur in the case of all, and affect all in more or less the same kind of way, it is just possible to make some relative calculations. And one may venture to suggest that fully 40 per cent of the value of the world's chief products is represented by human food; and probably cattle, mainly in the form of dairy products rather than meat, contribute 14 per cent or 15 per cent. Rice certainly comes next, but with not much more than half the value; and potatoes probably come third. In the more civilized areas wheat is more important than both the rice and the potatoes. Swine come next to wheat, and above maize; but so much maize is fed to swine on the farms, especially in North America, that the maize must be reckoned as the more important, especially as the native production of maize—"mealies"—in Africa cannot be gauged. Sugar and millet ("bird-seed") are distinctly less important than the swine or the maize, but much more important than any other products, e.g. beans, oats, sheep. The only products that compete with these at all are coal, cotton, and "wood"; each may represent about 4 per cent of the world's chief products, while wheat represents fully 5 per cent.

USEFUL MEMORABILIA

These figures are given here with some hesitation for fear of encouraging what is a pernicious tendency. Far too much attention and weight are given to statistics in economic geography, especially in schools; and one must try to keep one's mind free from the tyranny of arithmetic.

The most accurate average rainfalls or crop percentages are, in strict accuracy, out of date before they get into print; and for that reason, if for no other, one avoids memorizing them. The only useful "statistical" habit is that of becoming very familiar with a few *typical* figures. To speak with something approaching reverence of a particular temperature as "about 50-15° F." is mere pedantry; but there is real use in remembering some facts about 50° F., e.g. that it is a typical temperature throughout the extreme south of Europe in winter, or throughout the extreme north of Europe in summer—in west-central Europe in spring and autumn—in east-central Europe as a mean annual temperature, etc.

Similarly, it is very easy to remember that the latitude and longitude of Japan are roughly 30° to 45° N. and 130° to 145° E.—that the core of Asia in the Pamirs is 37° N. and 73° E.—that typical winter temperatures in China are 30 F. in latitude 40° N. and 40° F. in latitude 30° N. So Havana, Calcutta, Canton may mark the north tropic, and Rio de Janiero, Walfish Bay, and Rockhampton the south tropic; Calcutta is 90° E., and New Orleans 90° W. This is probably the only form in which geographical statistics are both easily remembered and worth remembering. They obviously give one very sound standards of judgment, and they have a practical use in giving a certain precision to an answer in examinations.

PRODUCTION

By Hubert Phillips, M.A. (Oxon)
Late Head of the Department of Economics in the University of Bristol

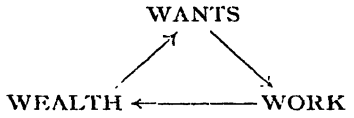
INTRODUCTORY

(1) WANTS, WEALTH AND WORK

We had better begin at the beginning.

Economics is one of the social sciences, and the special concern of the social sciences is a complex of organized activities—all those activities that make up the day-to-day existence of ordinary men and women. This complex of activities it is the economist's business to study from his own particular angle. So studying it, he finds himself especially interested in three seemingly simple notions, and one of his first aims is to analyse their precise significance and to work out the relation of them one to another. These are the notions of wants, of wealth, and of work. Our study of productive organization, if it is to be well-founded, must begin with a preliminary glance at these fundamental ideas.

Wants—wealth—work. We can start, not unreasonably, by presenting their relations diagrammatically in a tame "eternal triangle" of our own. As thus—



To which may be added some such caption as the following—

(*a*) *Wealth* is the means of satisfying human wants.

(*b*) *Work* is the means by which wealth comes into existence.

(*c*) *Wants* then constitute the incentive to human effort For wealth, if such effort is not put forward, cannot be produced; and, if wealth is not forthcoming, wants cannot be satisfied.

Here is a neat and symmetrical statement of certain preliminary relationships—a statement which, perhaps, as so often is the case, is a shade neater, a trifle more symmetrical, than the facts actually warrant. We shall see. In the meantime, we must try and rid it of uncertainty or ambiguity. We shall need, therefore, to elaborate it a little.

(2) GETTING AND SPENDING

The nature of our social organization has largely been determined by the character of human wants. This statement is historically true, but, as a general statement, it needs this qualification: that the character of these same wants, which are continually expanding, social organization itself plays a great part in determining. *Interaction* is one of the key-ideas of economic analysis. And the interaction of human wants and of the sort of lives that men and women, in endeavouring to satisfy them, condition for themselves, is all important. "Getting and spending," to quote a well-worn phrase, largely sums up our activities: "getting," the business of bringing continuously into existence the objects of our desires; "spending," the destruction, or, as the economist puts it, the consumption, of these same fruits of our labours, to the end that our desires may be satisfied. And in the process of "getting" is continually stimulated the desire for new forms of "spending," which serves in its turn to stimulate improvement in the processes by which "getting" is accomplished.

This interaction goes forward with ever-gathering speed. How long it took for man to differentiate himself from other animals, to learn to acquire and to utilize material things—weapons, implements, apparel, the first rude furnishings of a home—we have no means of knowing. Perhaps it took him hundreds of thousands of years. But in course of time these wants were added to the wants man shares with the animals—hunger, thirst, a craving for shelter and warmth, for the companionship of his own kind, for the consolations of a mate. On this foundation, so little altered after the lapse of aeons as still to dominate the character of the whole structure, has been erected our complicated edifice of material needs—needs which the fevered and oppressive activities of industrialized communities still strive in vain to satisfy.

This is not the place to describe these interactions historically. Enough that at some early stage there emerged the principle, which we shall need to consider in some detail, of the division of labour; that at some early stage the means to satisfy wants, i.e. wealth in its primitive forms, began to be accumulated; that at some early stage the notion of private property and, considerably later, the notions of bequest and inheritance, came into being. The division of labour, the accumulation of capital, the private ownership of wealth—these are the pillars of that social economy which we are seeking to understand. It is not, be it here remarked, our business to justify it or to condemn; it is our business to explain it.

(3) THE GROWTH OF WANTS

Wants, then, have for ages gone far to determine the lives we lead. And the circumstances thus imposed upon us continually bring new wants into being. The solitary brute of the prehistoric era—if solitary indeed he were—develops gregarious instincts. Man, the predatory hunter, organizes himself in tribes; the tribe nomadic, given leisure and a taste for experimentation, begins to cultivate the soil; in the process of cultivation there develops the idea of ownership; the tribe takes possession of the land. The division of labour is carried farther: some men dig; others fight; others make it their business to administer justice, or to commune with and propitiate the tribal gods. Products are exchanged; someone invents money, or, more probably, money by slow degrees invents itself; trade, as distinct from industry, springs up. At every stage new wants come into being. The wealth by which wants can be satisfied—the things, that is, that can be exchanged and that are the objects of human desire -grows ever more diverse. The tribe becomes a nation-state, with defined physical boundaries and a defined form of government; its denizens constitute a social-economic unit such as we are studying now. It develops manufactures; it exchanges its products against those of foreign states. At every stage the division of labour, the accumulation of capital, the elaboration of the technique of private ownership, are carried a stage farther. And all these things make for the emergence of new wants. "Standards of living" establish themselves and steadily broaden, side by side with increasing population. Such are the tendencies, sweeping onwards with accelerating momentum, that our own social economy has exhibited It is in terms of the conditions imposed by them that men and women have laboured, and that wealth, the product of their labour, and wants, the incentive to it, have reacted from time immemorial one upon the other.

(4) WANTS IN THE ECONOMIC SENSE

With all human wants, as a psychologist might assemble them, the economist is not directly concerned. His angle of vision shuts a number of them out. He takes no account of man's craving for affection, for the praise or the esteem of his fellows, for kindness, sympathy or understanding. He is not concerned with ambition, with the love of power, with the occasional itch for fame. He is not even concerned—save indirectly—with happiness; he is content to assume that an increasing production, and a better distribution, of wealth, make for happiness in the end. These limitations are easily explained. The wants that interest the economist are such as can be satisfied in one of two ways –by the acquisition of an exchangeable good, or by the rendering of a direct service. Unless they can be so satisfied they are not wants in the economic sense at all. For this reason, incidentally, i.e. because it does not take into account the higher range of desires, the science of economics has been characterized as dismal, and its expositors as sordid. These criticisms are based upon a sheer misunderstanding. The purpose of economics is to explain certain phenomena—the behaviour of men and women, as socially organized in a community like ours, in relation to the getting and spending of wealth. Such behaviour can best be understood if extraneous considerations are excluded, or at least are only included to the extent to which they are relevant, and in the form of agreed assumptions. The fact that the economist, *qua* economist, is not concerned with morality, or with philosophies of life, save in so far as these things determine the character of the material upon which he has to work, does not mean that he is himself indifferent to sound morals, or that he has no use for ideals. But his job is to contribute some of the data upon which the regime of the philosopher-king can be founded; not, by assuming in his own person a dual rôle, to muddle both his own analysis and the conclusions that social philosophy can properly be asked to draw from it.

(5) WEALTH IN RELATION TO WANTS

We can confine ourselves, then, to the problem of satisfying those wants which constitute in fact a demand for exchangeable goods or for the direct services of individuals. By a "good" we mean simply an object of human desire; by an "exchangeable good" a good which can be transferred from one person to another. Exchangeable goods, collectively, constitute wealth. And when we speak of production, it is the production of exchangeable goods or wealth, and of direct personal services, that we should properly have in mind. It is to such goods and services that the generalizations of the economist, in so far as they are concerned with something that can be quantitatively measured, are intended to apply; they are a part of the subject-matter of his science. But he aims also at explaining the character of those social relationships which the business of producing goods and services in fact determines, i.e. he is not only concerned with wealth, but with the indirect reactions upon the lives of men and women of transactions connected with it. "Economics," as Marshall says, "is the study of wealth, and a part of the study of man."

BUSINESS MANAGEMENT

Under the direction of the General Editor

I. INTRODUCTION

It is so unusual to include a section on " Business Management " in a work on economics that it seems desirable to devote an introductory article to an explanation of the procedure. Economics is a " social " science. The term " social," in this connection, has a twofold significance. It is intended to convey the fact that economics is a human science. Although the economist frequently deals with problems which appear to contain little or no human interest, his science is concerned, in the last resort, with people, not the things which they eat, drink, and wear, or upon which they make merry or sad. The adjective " social " is further intended to convey the fact that it deals with people in the mass, not as separate individuals. Its conclusions or laws take the form of general statements, that is, statements which are true of a large group (or, if we like, of the typical member of that group), though it may not be true of every individual of which it is composed.

CROWD PSYCHOLOGY

It is by no means easy to distinguish, at all times, between the individual and the group of which he is a member, nevertheless the distinction is a real one. The behaviour of the most phlegmatic individual among fifty thousand spectators of an exciting football match is different from what it would be if he were the only spectator. " Atmosphere " counts for much in our lives ; our feelings, desires, impulses, and powers of control are profoundly influenced by the " electricity " generated by a crowd. Politicians and propagandists understand (or fail to understand) " mass emotion." Scientists have realized that the study of mental philosophy should be supplemented by the study of " crowd psychology," which is the science dealing with the attributes and behaviour of crowds rather than the deeper and more stable and permanent instincts, desires, and other mental attributes of the individual. Business men, and all others engaged in economic pursuits, are influenced by their fellow-men. Speculative booms, lightning strikes, and other economic phenomena must be explained partly in terms of " crowd psychology." The " psychology of the crowd " is a phrase with which the economist has to reckon. But the behaviour of individuals in their daily life as workers or consumers is far more often the result either of deliberate calculation or of custom or necessity. The momentary influence of a crowd is generally absent, and emotion plays a smaller part than in any other aspect of human life. In no department of economic activity is deliberateness of action more marked than in business management.

ECONOMICS AND BUSINESS MANAGEMENT

The stress which has been laid by economists upon the term " social " has led to the neglect of the individual. In the hands of the earlier economists the science was largely abstract or hypothetical, that is to say, its teachings took the form : Given a certain combination of circumstances certain results will follow. Later economists paid greater attention to the actual conditions under which society lived and worked, but even they remained content with collective arrangements and results, and ignored the units in the collection. It was left to modern economists to study the action of the individual as distinguished from the group.

It is frequently argued, however, that business management does not form part of the science of economics. Management, it is said, is an art, not a science. This criticism is not convincing. Politics, too, is an art, but wise political action is based upon principles which emerge from the study of the " science " of politics. The Chancellor of the Exchequer is a business man, but his policy is, or should be, based upon fundamental truths which have been elucidated by the study of finance, which forms part of the science of economics. When the immediate purpose of policy has been fixed, the lines which should be followed are determined by the known consequences of the available alternatives, and the study of such consequences is a scientific investigation. The aim of business management is efficiency ; there is here no conflict of ideal or purpose. The form of management appropriate to any set of circumstances can only be determined by estimating the consequences of the possible alternatives, and that estimate or judgment is the result of scientific investigation.

Not only does business management lend itself to scientific treatment, but its study forms part of the science of economics. It lies, indeed, near the heart of that science. Management is one of the chief economic functions performed in society, and the forms of management adopted at any time constitute one of the most potent economic influences upon social progress.

THEORY AND PRACTICE

Sciences are frequently divided into two classes, the positive and the normative. The former are concerned with what has been, is, or may be; the latter (of which ethics is the chief example) are concerned with what ought to be. Economics, in its general sense, is essentially a positive science; social ideals differ so much and are determined so largely by factors outside the economic sphere that it cannot hope to become a normative science. But it often happens that society is agreed upon immediate aims, and if, in relation to those aims (of which the prevention of preventable unemployment may be cited as an illustration), economic science spoke with a clear voice, it would become, to that extent, a normative science. The ideals of business management are not the subject of serious controversy; they may be summed up in one word—efficiency. Not only, therefore, does it fall within the science of economics, but it may reasonably expect to become one of those branches of study which have been termed normative. It has not yet reached that stage, for its importance has only recently been recognized. Moreover, it is by no means easy to secure data for study. Management has been regarded as intimately bound up with the personality of the "manager" and as something incapable of scientific investigation; the intimate experiences of managers have rarely been recounted to others or committed to paper. For this reason the new study is in its early infancy. But it is a lusty infant, with a huge appetite. And the changes which have taken place during the last generation in the organization of capital have provided it with food which will enable it to increase its stature and strength. Much of what is now regarded as uncommunicable, if not, indeed, inexplicable, will be reduced in due course to a system available to all who wish to learn.

A WORD OF CAUTION

It is necessary, however, to introduce a word of caution at this stage. It is not the purpose of the writer to attempt to teach anyone how to manage a business. Knowledge can neither create, nor act as a substitute for, business ability. The power to organize or to lead in any direction is a gift which may be cultivated, not a product which can be manufactured at will. The aim of the writer is to describe what is inherent in management, to indicate some of the fundamental and permanent features which are present in all forms of control, and to describe some of those considerations which cannot be ignored in estimating the relative merits of alternative types of organization and administration. Some problems which would call for consideration in a volume on business management will be considered by other writers in this EDUCATOR.[1] The present writers will endeavour to avoid repetition, and to concentrate upon those problems of business management which are not considered elsewhere.

THE MEANING OF BUSINESS MANAGEMENT

The word management is used in its widest sense; it includes the initiation of a business, the organization of the methods by which it is conducted, the administration of the physical unit or units of which it is largely composed, and the determination of its policy. These functions are so closely interwoven that they cannot, in practice, be clearly distinguished, and often the words "organization" and "administration" are separately (and loosely) used to cover all four functions. But they do not appear to be so comprehensive as the term "management." Again, administration is so frequently confounded with organization that the distinction between the two has lost much of its significance. But the task of organization is to design and build the machine, while that of administration is to operate the machine. In both there appear problems of policy, but it will be shown that they are not the same problems. They appear in different spheres. Neither do they exhaust the problems with which business management, in the broad sense in which it is here employed, is faced.

We live in a world of change; change is, indeed, the only certain factor in life. Society is dynamic, not static. Nations come and nations go. Industries wax and wane; changes take place in their location and in their form and size and relative importance. Individual businesses rise and fall; the methods of control vary from time to time, and the forms of organization and methods of administration are frequently modified in the attempt to meet the new requirements of a changed environment. But the fundamental principles of business management remain; their practical application alone varies.

[1] Sir Henry Bunbury contributes a course on public industries, and Mr. David Finnie a course which will deal with many financial problems connected with business management. Mr. John Lee contributes a series of articles on *Industrial Leadership*. Separate courses appear on methods of remuneration and fatigue and human efficiency in industry, and these, too, are contributed by specialists in those branches of the subject. The features of modern capitalism, with special reference to the growth of trusts, combines, and syndicates, will be described in a separate course at a later stage.

FINDING CAPITAL

By David Finnie, M.A., C.A.

I
SCOPE OF THE COURSE

In the present course we shall discuss the methods of finding the capital necessary to start a new business or to develop an established one, and look at some of the ways in which this capital should be employed so as to attract to itself the resources of those credit and other institutions which, in many enterprises, supply the greater proportion of the real capital employed.

PRIVATE UNDERTAKING AND PUBLIC COMPANY

Our subject falls into two parts, finding capital for the private enterprise and for the public company. In the first case we have the undertaking where the management or their friends own the capital—generally speaking, the smaller type of business, whether it assume the form of one-man business, firm, or private limited company. In the second case we have the public limited company—generally speaking, the larger type of business, where the management and the ownership of the capital may be, and usually are, quite distinct. Capital for the first type of business is raised privately but for the second type it is as a rule obtained from the public, and the Legislature, in the course of the last hundred years, has found it necessary to regulate very strictly the manner and substance of the appeal to the public for capital so gathered.

The essential distinction between the two classes is the relationship of the management to ownership of the capital. There are instances where the form of a public limited company is used even although the capital is held in a few hands, but these are exceptional cases. They will probably increase in number when the revenue authorities succeed in surmounting the practical difficulties that confront them in assessing for super-tax on undistributed profits those private limited companies that are really one-man businesses.

We are justified in including the smaller kind of business in the first class and the larger sort in the second class. The normal progression is from the one-man business or partnership to private limited company, and then to public limited company. Usually a business is started through the enterprise of a few men; when it has proved itself, additional capital is obtained from friends, and a private company is formed to limit their liability; as it grows and its success is established, the public are invited to participate by subscribing the capital necessary for expansion. It was the introduction of the principle of limited liability that made possible the enormous aggregations of capital necessary to support the huge concerns that have sprung up as a corollary to the Industrial Revolution. There are enterprises of great size that take the form of firm or private company, but they are almost invariably family concerns that have grown during several generations, and it may safely be predicted that sooner or later they will pass into the second class. Some kinds of business, nevertheless, irrespective of their magnitude, do not seem to take kindly to the form of a public company. The best example is that of the contractor, which, even when it attains the importance of the enterprises controlled by the late Lord Cowdray, usually remains in the private class. The contractor's life, as contrasted with that of the man engaged in commerce or industry, is a strenuous, uncertain and speculative one. The prizes may be great, but success depends in an exceptional degree on the judgment and capacity of the management. Such businesses are usually family businesses, and the owners of the capital take a personal share in the management.

On the other hand, we need only look at the annual returns of the Registrar of Joint Stock Companies to observe the smallness of the capital of many public companies. Although this form of organization is primarily designed for the large concern, it can often be put to good use by smaller ones, especially when additional capital is sought for an old, well-established business.

Still, for the purpose of our discussion of the methods of finding capital, our division is a sound one. We shall consider first the private enterprise, dealing with the ways of finding capital for a new business, and raising additional capital for an established one, and then we shall treat at length of the public company.

FINDING CAPITAL FOR THE NEW BUSINESS

There are a hundred and one ways in which a man may seize opportunity. He may want to open a retail shop or start a wholesale business; he may have in mind the exploitation of an invention or an improvement on some process, he may have obtained a valuable contract and require the means to fulfil it, and so on. His problem is how to obtain the necessary capital to make use of the opportunity. The money may come from three main sources—

1. His own savings and resources.

2. His friends.
3. Outsiders to be taken into partnership.

It is axiomatic that the best way of financing a new business is to do it from—

ONE'S OWN RESOURCES

It is so much easier to find capital for extending an existing business than for launching a new one. The latter is always to a certain extent a leap in the dark; but if a man with his own capital tries out a new enterprise, a year or two's experience in a small way soon brings to light any flaws latent in his original scheme and shows him the most profitable avenues for development. Above all, on the basis of work done, he is in a position to draw up a statement of profits, and to make an estimate on solid grounds of future profits that would accrue from the introduction of fresh capital.

BANKS AND THE NEW BUSINESS

We have not mentioned banks as a potential source of capital. What banks can do in regard to the new business is best included under the heading of one's own resources. To lend money a bank must have security. It is no use going to a bank manager and asking him to lend money against a promise to make over to him as security at a later date the buildings, or plant, or stock which it is proposed to acquire with the proceeds of the loan. In the first place, he is the custodian of other people's money and he will not take risks. In the second place, there is much competition among his clients for loans, and he accommodates those who have the most easily realizable securities to offer and who want the money for the shortest term. When the business is running and the client can produce audited accounts, the bank can help in many ways, but this is another subject, and one that we shall discuss at a later stage. On the other hand, if the borrower's relations with his banker are good, and he can hand him the title-deeds of his house or other property, his life-policy, approved stocks and shares quoted on the exchanges, or similar security, he may obtain the necessary advance under conditions; but he is then, in point of fact, financing the business from his own resources. The bank will demand a valuation of the land or property by an independent valuer approved by them, and it is essential that there be no existing mortgage or prior claim on such assets. A bank as a rule will not lend money on a second mortgage, and, indeed, if a second mortgage is desired on any property on which the large banks hold a first mortgage they may require the mortgagor to repay his loan to the bank; the reason being that if the borrower, as he usually does in the ordinary course of business, repays from time to time part of the money lent under the first charge, and at a later date reborrows it, the amounts reloaned in this manner rank in law after a second mortgage of prior date.

It should be remembered that a bank does not give long term loans and, no matter in what form a loan is granted, there is a saving clause giving the bank a right to recall it on giving due notice. The borrower must take the risk of the bank, in times of financial stringency, requiring repayment. The people who are asked first to settle their debts in such times are those whom the manager does not regard as good customers or whose liabilities to the bank are proportionately heaviest. It is of the greatest importance for every business man to build up with his banker a reputation for integrity and capacity. The old adage ran: "Deceive not thy confessor, thy physician, nor thy lawyer." Your banker should nowaday be added to the list. He should be treated with complete frankness and straightforwardness, for he can be a very present help in time of need.

CONTINENTAL AND BRITISH BANKS

There is a big difference between the British and the Continental banker in regard to the financing of new enterprises. The British banker regards himself primarily as the trustee of the funds deposited with him, and he conceives it as no part of his function to bear any of the risk involved in establishing a business. Before lending money he insists on having ample security. This is quite in accord with our individualist philosophy, for in business we are still intensely individualist.

On the Continent it is a common practice for banks to assist in the formation of new enterprises. In Germany, during the thirty years preceding the war, banks were prepared to act almost as partners in developing new industries; there were even industrial banks which specialized in this form of business. The war was a testing time for all financial institutions, and our banks, with their conservative policy and their refusal to share in the risks of trade, emerged in an impregnable position. Yet in justice it must be said that, while Germany lost the war and was thereafter plunged into financial chaos, the German banks have survived in a sufficiently sound condition to enable them to assist very powerfully in the reconstruction of German industry and commerce. The Briton about to open up a new business often sighs for a little of the same spirit of enterprise among our bankers.

MARKETING

By The Rt. Hon. William Graham, M.P., M.A., LL.D.

I
INTRODUCTION

In the definition of market, a word of numerous meanings, attention is usually directed to the presence of a group or groups of people who desire certain things and others able to supply them; it also suggests that the demand is effective and that, as regards the supply, there is ability, if within limits, either to withhold or to increase it in response to pressure from the side of demand. In other words, in every market there is the play of forces of the kind described by these somewhat technical terms. The collective feeling as to prices or other conditions is summarized in the use of such phrases as strong or weak markets. Reference is constantly made to them as if they were human beings.

Markets vary remarkably in size and commodity. A market in certain articles may not extend to more than a village, or even portion of a village. It may be confined to a town or district. It may be restricted to those interested in a single commodity, such as wheat, or copper, or cotton. On the other hand, the transactions in some forms of wealth involve communication with practically every part of the world. This effort constitutes a world market. And the development of world markets is rendered much easier by the growth of transport facilities and the extension of the telegraph and telephone, together with the increasing use of wireless messages in commercial transactions. It is often said that this progress has widely distributed demand and supply in the modern market.

MIDDLEMAN SERVICES

In the study of marketing much depends on the analysis of the services rendered by the middleman. In *Organized Produce Markets* Professor J. G. Smith classifies these services in the following way: (1) The seeking out of commodities and buying them from producers in all parts of the world; (2) The holding of stocks of goods at convenient points, warehousing and storing; (3) the assumption of risks due mainly to price fluctuations, changes in quality, and possible loss by fire or accident; (4) financing (i.e. the providing of credit when and as required); (5) selling, including preparation therefor; and (6) transport each time the commodity changes hands. But in this sphere, as in practically every other department of economic progress, a detailed and often highly technical specialization is a leading characteristic. The warehousing and other control of goods is usually entrusted to special firms. To a large extent risk is undertaken by the insurance companies. The provision of transport is no longer wholly the business of the buyer or the seller. Innumerable factors and agents search for producers; others are equally diligent in the pursuit of purchasers. In the third of the services which have been classified above middlemen tend to specialize also in the assumption of risk which is due to price fluctuations; but most of the students of marketing agree that progress in that matter is laborious, and up to the present time success has been attained in only a small number of commodities.

ORGANIZED MARKET PROCEEDINGS

In an organized market proceedings may be governed by written rules, or they may be conducted merely in terms of unwritten conventions or market customs which are, however, generally just as binding as the written word. Exchange is the dominating feature. It may be undertaken by private individuals or by voluntary associations of dealers, who may trade in one or more commodities; there are many markets of that kind in the United Kingdom. A broad division is possible between markets in which individuals or firms deal in Government securities and industrial stocks and shares and those in which exchange refers to commodities or produce. Members of markets buy and sell on their own account, or they may be merely agents for others. In their original form many of these markets or exchanges were little more than informal meetings in which men gathered for the discussion of mutual business interest and for the purpose of obtaining advice. In many cases that informality gradually gave way to definite arrangement, often in the desire to maintain a uniformity in rates; with the growth of population, whose needs in food and raw material must be readily and conveniently met, organized markets became essential. Most of these exchanges are private organizations; American stock and produce exchanges are in that category, like those in Great Britain; but in America some derive their authority from charters granted by the States in which they are situated. In France the Paris bourse, or stock exchange, is a private monopoly under strict Government control. For the produce exchanges the organization is prescribed in a commercial code; control lies with the local chambers of commerce; the Government control of markets in France is broadly regarded

as complete. In Germany, on the other hand, with one or two small exceptions, there is little or no uniformity in the local status of the exchanges. In Prussia the governmental supervision is more strict. Municipalities in Holland have certain powers in the supervision of exchanges but apparently they are infrequently exercised. In short, the practice varies considerably from country to country.

MATERIAL FOR ORGANIZED MARKETS

So long as people could be satisfied with the few products or commodities which they produced themselves, or which they could obtain from their immediate neighbours, no large-scale problem of marketing could emerge; but when the surplus exceeded the local demand the problem grew in importance. Every article is not, however, appropriate material for treatment in an organized market. In substance it must fulfil several conditions. Professor J. G. Smith considered that in the first place it must be sufficiently durable to enable stocks to be carried for a reasonable length of time when the market is unduly depressed, a condition which rules out, or tends to rule out, highly perishable commodities, although there is now the counteraction in greatly improved cold storage facilities; secondly, the product must be one that can be numbered, weighed or measured with accuracy plain to everybody; thirdly, the quality or grade should be capable of a ready test yielding the same results when applied by trustworthy officials at different times and in different places; fourthly, the dealings in the commodity must be sufficiently frequent to occupy large bodies of buyers and sellers; and, fifthly, there must be fluctuations in price, that is, the commodity must be one whose supply cannot be varied quickly by rapid changes in the rate of production; otherwise, according to this summary of conditions, there would be no opportunity for professional dealers to make a living, and all transactions would take place between producers, merchants, and consumers, owing to the ease with which the supply could be adapted to the demand On the basis of this review of essential conditions in the commodity before it becomes appropriate as the subject of trade in an organized market, it is observed that, apart from securities, there are not many material things which fulfil all these terms so completely as to meet the needs of dealing on a large scale in organized fashion. The list includes some agricultural products and metals; products like raw cotton, wheat, coffee, can be shipped from one country to another in large quantities. The wheat and cotton-growing parts of the world are widely scattered; and from them it would be impossible for importers and exporters to collect as required small quantities of specific grading.

GRADING FOR MARKETING

In grading for marketing there are many difficulties, of which coal is a good illustration. Even within the same coalfield it varies very much in character. In the London coal exchange there is almost every variety; but it is generally regarded as having attained some success in securing uniformity in the movement of prices of different kinds. Still, in the coal trade throughout the world local markets have the commanding position; and apart from certain changes within recent years, to which the Royal Commission on the Coal Industry, 1926, directed attention, economists have been unable to point to the growth of anything resembling a world market in this mineral. There are, of course, fundamental differences in the circumstances which govern the production and the marketing of wheat, cotton, coffee and agricultural produce as compared with metals. In one case the supply is not produced continuously; it depends on the yield of harvests falling within assigned parts of the year, but the demand of consumers is continuous, and practically uniform over the year. Except to a small extent in the case of metals, the supply does not depend on seasonal variations during the year: the demand fluctuates, and is generally uncertain. In iron and steel, certain cases apart, the dealings are not comparable to those in an organized market; and partly or wholly manufactured articles cannot be brought within that category. In that sphere many of the purchasers want merely small quantities, and they very often buy after personal inspection. For these reasons what are described as the large number of small distributing points tend to remain; the growth of an organized market, with large scale exchange, is not in fact encouraged.

In development of the conditions under which produce is exchanged many countries have associations which include all the exchanges dealing in the leading commodities; the Council of the North American Corn Exchanges is a case in point. Its chief objects are to increase the efficiency and the extent of the usefulness of exchanges trading in agricultural products; to promote uniformity in customs and usages; and, among other purposes, to advance the welfare of the grain trade, its allied interests, and the interests of those engaged in the production, handling, marketing, and consumption of agricultural products. Among the general objects of organized markets are the distribution of information of all kinds bearing on the supply of or the demand for the commodity in which trade is conducted; the collection of trustworthy news regarding the condition of growing crops, and the estimate of the probable yield; for this purpose there is elaborate machinery for reporting crop conditions at every stage of growth.

VALUE AND DISTRIBUTION

By HUBERT PHILLIPS, M.A. (Oxon)
Late Head of the Department of Economics in the University of Bristol

I
THE PROBLEM STATED

1. THE subject-matter of economics is wealth and its reactions upon men's and women's lives. More particularly, it is the *social dividend*, that aggregate of exchangeable goods and services which is brought into being by the community's collective efforts to satisfy the community's collective needs. The economist's central problem is that of determining the relations between the getting of the social dividend and the spending or the disposal of it. It is to this end, as we shall see, that he wants a theory of value. For the relations of getting and spending, taking them as a whole, resolve themselves into an equation having a myriad unknowns—the myriad transactions of exchange, of buying and selling, which day by day make up the community's business. To these equations the theory of value is the key. It does not, as we shall see, determine our unknowns for us, but it does make intelligible to us the structure of the equation.

2. We will begin, that we may better appreciate the character of the transactions to which this equation must have reference, by presenting, in as clear a light as we can throw upon them, three "snapshots" of an economic order in being. Our aim is to exhibit the community of which we are members—the nation-state as organized for the satisfaction of its wants—from three different points of view. We can give our "snapshots" some such titles as these—

(*a*) How the social dividend is brought into existence. (Production.)

(*b*) How the social dividend is shared among those producing it. (Distribution.)

(*c*) How the social dividend is spent. (Consumption.)

If we can successfully indicate the nature of these various activities—and the "if" is not a small one—we shall at least have no difficulty in making clear to what range of problems we are addressing ourselves, or what precisely it is that in this section, *Value and Distribution*, we are trying to explain.

3. OUR FIRST "SNAPSHOT." HOW THE SOCIAL DIVIDEND IS BROUGHT INTO BEING

Every member of the community is a consumer, but not, in the technical sense, a producer. In fact, in our own community of forty-five millions, producers, as the economist understands the term, number about twenty millions only. The point is that a person is not, technically, concerned in production unless he or she is directly remunerated, in money or its equivalent, for work done or services performed. This matter is one of convenience, not of principle; if we do not keep to this definition, we shall tend to blur distinctions which it is important to observe. Our object must be so to frame our definitions as to enable us to make the largest number of valid, and useful, generalizations. And, on the whole, this object is best achieved, where we are dealing with economic relationships, by our confining our attention to those transactions which are definitely capable of a monetary valuation. If we find it useful for any purpose to take other transactions into account, we can do so, but we must then put in a special interpretation clause.

4. Our twenty million producers, therefore, is exclusive of a number of men and women—of women, particularly—who are, in fact, as much engaged in "production" as those whom we include, were we adopting any criterion of what constitutes "production" other than direct money payment. It excludes, for example, the seven million dependent wives and mothers, whose unpaid services, in any objective valuation of the work which is being performed within the community, would need to be taken into account. Mrs. Brown, who prepares Mr. Brown's breakfast, but is not directly remunerated for doing so, is clearly no less a producer of wealth than is the restaurant-keeper who subsequently prepares Mr. Brown's lunch. And Mrs. Jones, who spends most of her day looking after her three young children, keeping them amused and laying the foundations of their education, is doing, gratuitously, precisely what Miss Thomson, at the nursery school up the road, receives a salary for doing. Nevertheless, the services of Mrs. Brown and Mrs. Jones do not enter *directly* into our calculations. Indirectly, we shall find, they do. We mention the point here because it is an important one, to which later we shall return; its importance is bound up with the fact that the social unit in the community we are discussing is not the individual but the family. And that is a fact which, in any discussion of the principles of distribution, must be kept prominently in the foreground.

5. The remainder of the twenty-five million persons who are not concerned directly in

production can be more briefly dismissed. Ten million of them are children, the potential producers of the future; the community itself lays it down that they shall not be eligible for employment until they have attained a certain age. Others, though of an age at which employment is permissible, are continuing their education at secondary schools or universities. A considerable —though diminishing—number of young women are living at home, engaged in what are vaguely called "domestic duties"; these are technically non-producers, too. Finally, there are those who are too old to work, or too ill, or too lazy, or too well-off. The social dividend which the combined efforts of the community produces has to support all of them somehow.

6. Now let us turn to the producers themselves. Twenty millions—in round numbers—of whom three out of every ten are women, are engaged day by day in this business of production. Life and toil, for the majority of these, are very nearly synonymous terms. But not quite. It is just because production yields a surplus of enjoyable goods, because

We travel not for trafficking alone,

that the problems of distribution matter. Moreover, with every advance in productive technique the standard of potential enjoyment rises, and hence the determination of the lines along which the enjoyable surplus is disposed of has a steadily increasing significance.

7. The precise composition of our army of producers is to be set forth in tabular form elsewhere (in our section on *Production*). That table, therefore, need not be reproduced here. But reference should be made to it if the facts as to productive organization, which we are now about to consider in some detail, are desired in summary form.

(*a*) Out of our twenty million workers, rather more than a million are engaged upon the land. This figure is, in itself, an indication of the extent to which our community has become urbanized. The contrast between the overcrowded activities of our industrial centres and the empty spaces of our countryside must thrust itself continually upon the notice of all who travel by train. That contrast emphasizes under what conditions, and at what price, so small a country as ours is able to maintain so large a population.

(*b*) Another million and a quarter are engaged in "producing" coal—or would be, if the world demand for coal were anywhere near its maximum. Indeed, it is a significant comment on the nature of our industrial economy that more men work below the soil than on the soil itself. But as things stand at present, nearly a quarter of a million of these potential producers are producing nothing at all. This is a part of the heavy price we have had to pay for the industrial dislocation of the post-war years; perhaps it is the most serious item in the whole post-war account.

(*c*) Next we come to what is the largest, and, in our own economy, by far the most important group—the eight million men and women who are engaged in construction or manufacture. Women comprise about a third of the total. Their activities are distributed over a vast range of industries, of which statistical statement alone, however detailed, can give no satisfactory picture. Nevertheless, we will glance in passing at these various avocations; we want our problem to shape itself concretely. About a million of these workers are engaged in building, in the supply and maintenance of durable capital goods. Another million are concerned with engineering and shipbuilding. A million and a quarter more, of whom two out of three are women, are engaged in the production of textiles; half of these are employed in the cotton industry. Another half-million are occupied in the manufacture of clothing, and half a million more in one of our "basic" industries—the production of iron and steel, and of various iron and steel products. Chemicals, glass and pottery account for another quarter of a million; motor cars for a quarter of a million; printing for a quarter of a million; the production of food and drink for a quarter of a million or more. And there are still between two and three millions to be accounted for, whose activities cover the whole exciting range of a modern community's needs—soap, ink, brushes, leather goods, musical instruments, toys. The diverse wants that the social dividend must satisfy; the new wants that are continually thrusting their claims upon it—all we can do here is to note their existence, and pass on.

A high proportion of all these workers are, of course, producing not directly for our own community but for export; their products will be exchanged against other products that we cannot or do not desire to produce ourselves—the raw materials of our staple industries, cotton, wool, rubber, copper, tin; foodstuffs, of which we raise from our own soil far less than we need to consume; luxuries, such as pineapples, olives, the pelts of animals, that we cannot produce at home.

(*d*) The production of wealth, as we have explained elsewhere, is the production of utilities, and utility is added to material things either by working upon them or by moving them about. A million and a quarter persons are engaged in the production, direct or indirect, of place-utilities —in moving things or people about. This total includes the three-quarters of a million who operate our railways, the drivers of trams, buses, and other public vehicles, the drivers of carts and lorries, and the quarter of a million or so of labourers who handle goods at the docks. The extent to which productive effort needs to be devoted to just this business of moving things is of some significance.

CURRENCY AND BANKING

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I

INTRODUCTION. THE MEANING AND THE FUNCTIONS OF MONEY

IN this section of the EDUCATOR a number of problems have to be considered which have assumed considerable practical importance within recent years. Since 1914 all countries have experienced very violent changes in prices and, in some cases, as in Germany and Russia, paper money ultimately became quite worthless. This does not mean that price movements of this kind did not occur before the war, but apart from special disturbances they were not conspicuous. Thus, if we take the United Kingdom and examine the period from about 1830 to 1914 we find that whatever changes did occur were so gradual that the ordinary person might be excused for supposing that the value of the pound was always the same. But since 1914 it has been a common observation that "the pound is not now worth what it used to be." There is the idea that a pound "would go further" in 1913 than "it goes" in 1927 and that it "goes further" now than "it went" in 1920. This illustrates one of the types of problem which will have to be considered in this series, but a number of preliminary conceptions must first be worked out. What do we mean by "money"? What is meant by "the value of money"? Why do prices rise or fall? What reactions follow from these changes? What are the features of a sound monetary system? To answer these and other questions we have to consider what is called "The Theory of Money" and that will be found to involve a discussion of the principles of banking. In this chapter we shall be concerned simply with a number of elementary ideas on the general subject.

MEDIUM OF EXCHANGE

The writers of economic textbooks are in the habit of training their readers to think of economic processes first of all apart from money. They show in what way industrial development in its broadest outline is the growth of division of labour and how specialization leads to the emergence of skilled groups of craftsmen, merchants, and of those who render "professional services." This is a prime condition of greater efficiency and the production of more wealth per head of population. But this complex division of labour has as its counterpart the exchange of goods and services against other goods and services, and in discussing "the theory of value" the textbooks again train their readers to think of exchange-value apart from ideas of money and price. Such an approach to the subject is of great importance because, as will be seen later, it is possible for the prices of two or more articles to rise or fall together in such a way that the exchange-values of the different articles in terms of one another remain substantially unchanged. What that means is that "exchange-value" and "price" are not necessarily the same. But, as the theoretical discussion is developed it must be brought nearer to reality. Only under very primitive conditions would we expect to find individuals exchanging goods and services directly against other goods and services in the form of barter. And, historically, we find that even very primitive communities do not as a rule follow this method of direct exchange What happens is rather that goods and services are exchanged for some other article which in turn can be given in exchange for other goods and services. This "other article" is something which is "generally acceptable" for the purpose. It passes from hand to hand in ordinary transactions of sale and purchase. It circulates. It is something which is not necessarily desired in itself but which is employed to overcome the obvious difficulties which would arise under a purely barter economy. Hence it is called a "medium of exchange," and in its widest sense the term "money" may be taken to include all those instruments which perform this function.

This introduction to the subject has frequently been treated historically. It has been shown that different articles have been used by different peoples at different stages of their history to serve this purpose. Some pastoral communities used to employ cattle. Cubes of rock salt were used in Abyssinia, and tea and tobacco were employed in Russia and Virginia. These had all the same quality that where they were used they were "generally acceptable." But later the articles employed for the purpose came to narrow themselves down to a group of metals—e.g. tin, platinum, silver and gold—and to the last two in particular. These were durable metals, and they were used for other purposes apart from the purely monetary. In that connection gold had special attractions. It was easily recognizable. It was one of the "precious metals" and small quantities of it were of high value. Thus, it came to have the added qualification that a considerable value in gold was easily portable, certainly much more

so than silver, which was more plentiful and less valuable, weight for weight.

The use of paper money in the form of notes issued by a Government or a bank will be considered in more detail later. It will be found that subject to certain conditions a note issue yields important advantages, but that it is open to grave abuse. It is clear that paper money can be manufactured easily, and if this were carried to excess it might happen that notes became no longer acceptable as means of payment. This point will be clearer when we have examined the other functions of money and the meaning of the phrase " the value of money."

STANDARD OF VALUE

Money is not used simply to facilitate exchange transactions. It plays a part in the ordinary system of accounting. When we express the values of different articles we do not express them in terms of one another, as we might conceivably do. We do not ordinarily speak of one ton of coal as being worth four quarters of wheat, or a barrel of oil, or three loads of wood. Rather do we speak of these quantities of coal, wheat, oil and wood as being worth so much money. That, however, only expresses the point loosely. What we have in mind is that we require some convenient standard for the measurement of economic or exchange-values in the same way that we require standards for the measurement of weights and lengths. It is in that sense that money may be regarded as the " measuring-rod " of value, and having fixed on our standard of value we can express the values of other articles in terms of this standard, and when we do this we have the phenomenon of " price,"—the price of an article being its exchange-value as measured by and expressed in terms of our standard of value.

This provides us with the second function of money, viz., that it serves as a " standard of value." But there is a difference between certain media of exchange and the monetary standard. Bank of England and Scottish Bank notes are used in transactions but they do not constitute the standard of value in this country. Similarly, where banking facilities are developed money payments are frequently made by cheque. Nevertheless, these notes and cheques are expressed in terms of the monetary standard, and it is this standard which is of primary importance.

STANDARD OF DEFERRED PAYMENTS

That leads to a third consideration which is of considerable practical moment. Let us suppose that all transactions are effected simultaneously once each day. Under these conditions we could change our standard each day and inflict no handicap on any of the parties concerned, and similarly as regards our standards of weight and length. But transactions are not, in fact, effected in this discontinuous manner. They are often spread over time and involve contracts and deferred payments. Hence, the importance of having a standard of value which is stable over a period of time. It will be found later that gold lent itself to this purpose because of the high degree of stability of value which it possessed, but even before the war it did not provide us with a perfectly stable standard. The analogy may be drawn between an unstable standard of value and a somewhat elastic yard-stick, and different schemes have been evolved for the purpose of giving still greater stability to the " gold standard " in its present form.

THE SOVEREIGN

Theoretically, in selecting our standard of value we have an infinite choice. J. S. Mill, quoting Montesquieu, tells of some African tribes which had a standard of value which did not represent any real thing. It was called a " Macute " and represented only a conventional unit of account, and the practice was to speak of the value of any article as so many macutes. Most communities, however, have preferred a concrete standard. In this country the " pound " which is the standard of value and unit of account was originally a pound weight of silver, but, in the course of centuries, and for different reasons, this weight was reduced, and in 1816 the standard of value was changed to a given weight of gold. By law the standard of value is the gold sovereign, which is represented by a gold coin containing 123·27.44 grains of standard gold, having a " standard of fineness " of eleven-twelfths ; i.e eleven parts of pure gold and one part alloy ; so that there are 113 grains of pure gold in the sovereign. It is not necessary that there should be actual gold sovereigns in circulation. In fact, the Gold Standard Act of May, 1925, was partly designed to prevent gold coins from returning to circulation as formerly, and it is no longer possible to take a five-pound Bank of England note to the Bank of England and demand five gold sovereigns in exchange for it. But it is possible to obtain gold at the Bank of England in minimum quantities of 400 oz. troy and to do so at a fixed price per ounce which corresponds to 113 grains of pure gold to the pound sterling.

It is important, however, that while the standard may not itself circulate, other forms of money which do circulate should effectively represent this standard. In other words, we may make payments with paper notes, but under an effective gold standard we should be able to purchase with a pound note exactly what we could purchase with a gold sovereign. If we could only buy less with a pound note than we could with a gold sovereign, the value of the note would be depreciated in terms of gold.

INTERNATIONAL TRADE

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I
INTRODUCTION

IN this section it is proposed to give some descriptive account of the problems of international trade, the factors which influence the development of that trade, and the main lines of development which have occurred. The theory of international trade will be discussed more fully in the section of the EDUCATOR on "Currency and Banking."

At the outset of the present discussion there are certain general considerations to be noticed. From an economic standpoint the development of international trade must be regarded as part of a wider evolution, affecting all industry. It is, indeed, a further extension of the same principle of specialization which results in the localization of industry within a particular country. And just as particular districts come to specialize in particular forms of production on account of the special advantages which are to be obtained, so nations come to adopt a special line of specialization, to enable them to take full advantage of the peculiar opportunities which they possess. Hence, international trade has been described as the outcome of the territorial division of labour. We must, therefore, consider what factors are relevant to that territorial specialization.

POLITICAL FACTORS

In that connection it may be observed that for many centuries the exchange of goods and services as between territorial areas was largely confined to articles of luxury or semi-luxury. That was at a time when the nation-state had not fully emerged. The idea of national unity is a relatively modern conception. In the Middle Ages the term "foreigner" was applicable to a person from another town as well as to a person from another country. And the real importance of international trade only emerged after a certain degree of economic unity had appeared within the different nation-states. Industrial organization within the different countries might then be said to have reached a new stage. Local barriers which made for exclusiveness were broken down, and the localization of industry tended to become more intensive. This stage, however, was not reached uniformly in all countries. But the general result was to develop the territorial specialization of industry over a wider area and to give rise to more important commercial relations between the different countries.

NATURAL RESOURCES

Several factors contributed towards this result. Geographical and climatic conditions were necessarily important, since upon these depended the particular fertilities of the soil and the distribution of natural resources. And the full development of natural resources was conditioned by the suitability of transport facilities, and it frequently happened that rich mineral resources remained untapped through lack of satisfactory means of communication. Thus the growth of railways and the steamship in the nineteenth century was an important factor in the rapid material progress of that period

The utilization of natural resources depends upon the human factor and the special aptitude of a people for industrial organization. In that respect this country enjoyed special advantages which gave her a favourable start in comparison with other countries. Special opportunities of this nature, however, tend to diminish in importance with the spread of knowledge and ideas and with the breakdown of old barriers which made for exclusiveness. Dr. Marshall[1] has pointed out in that connection that "the percentage of the world's trade which is governed by differences in natural resources is increasing, while that which is governed by differences of industrial phase and of aptitude for particular sorts and grades of manufacture is less now than formerly; but yet its absolute volume is increasing. . . . It seems probable that advantages which any particular country has gained from an early start in the industrial race will diminish; for nearly every place will gradually develop her resources up to a fairly high level."

Superimposed upon these more fundamental factors are those factors which depend upon national policy. The influence of protective duties and particular fiscal policies will be considered more fully in a later chapter, but, for the present, it is sufficient to note their existence. With reference also to current problems, the influence of the war and monetary disorganization will have to be examined. In the meantime certain more general points may be noticed.

Dr. Bowley, in his *England's Foreign Trade in the Nineteenth Century*, points to a rather important change which occurred in the 'seventies of last century. During the period 1790 to 1870 the world might be divided into two groups of

[1] *Money, Credit and Commerce*, page 105.

trading countries. The new countries were important as sources of the supply of raw materials, and the old countries were important as manufacturing centres. From the 'seventies that distinction tended to become less definite and the new countries became more important in manufacturing industries. In the earlier period this country enjoyed a great relative advantage over other countries which later became its chief competitors in markets overseas. Consequently, from the 'seventies the rapid industrial and commercial development of the new countries, together with certain of the older countries of Europe, tended to obscure the less spectacular progress which was maintained by the United Kingdom.

PRICES AND TRADE RETURNS

Over long periods comparisons of the value of foreign trade, expressed in terms of money, are confronted with difficulties. The chief difficulty arises from changes in the general level of prices, the causes and extent of which are discussed in the section on " Currency and Banking." It is obvious, however, that the same volume of trade will be nominally increased in money values if prices have risen, and will be nominally reduced in money values if prices have fallen. Unfortunately, for the earlier period index numbers of prices are not so reliable as might well be wished, but for our present purpose we shall employ the index number of prices which is cited in Layton's *Introduction to the Study of Prices*,[1] and which extends back to 1800.

In 1820 the total imports and exports of this country amounted to £81,500,000. In 1854 the total was £268,000,000. Between the two years prices had fallen by 20 per cent, so that in terms of 1854 prices the total trade of 1820 would be valued at about £68,000,000 instead of £81,500,000 as on 1820 prices. Taking the total trade of the country in these two years, and eliminating the effect of price changes, we get a real increase from £68,000,000 to £268,000,000, or approximately fourfold.

The following table shows the growth of the foreign trade figures for the United Kingdom per head of population since 1861, together with index numbers to show the real growth in terms of prices in 1861.

The total exports include goods which are imported from abroad not for domestic consumption but for re-export, and are, therefore, considerably in excess of exports of United Kingdom produce The index numbers which have been given provide only a rough idea of the real changes

[1] Appendix, Table 11

	1861	1871	1901	1911	1921	1924[1]
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Total imports	7 10 2	10 10 1	12 11 4	15 0 2	22 19 4	28 8 11
Exports of United Kingdom produce	4 16 5	7 1 7	6 14 10	10 0 5	14 17 8	17 16 9
Total exports	5 10 5	9 0 0	8 7 7	12 6 5	17 2 7	21 0 5
Total imports	100	137	236	245	196	263
Exports of United Kingdom produce	100	145	197	250	182	257
Total exports	100	160	214	273	198	264

[1] Excludes Irish Free State.

which have occurred, and which are obscured by changes in general price levels. In particular, the low figures for 1921 reflect the post-war depression at its worst, and, while the export trade had greatly improved by 1924, the level of 1911 had not been reached.

GENERAL CHANGES SINCE 1870

The period since 1870 is of particular importance in view of the many changes which occurred in all countries. That year may be selected for several reasons. For the American continent it takes the United States past the more important dislocations of the Civil War (1861-64), and it takes the Dominion of Canada immediately after the inception of its present constitution. On the Continent of Europe it marks the unification of the German States and the development of Imperial Germany. In France development was less spectacular, but the ultimate results were of great importance. In the late 'sixties, Austria and Hungary were united, and the new Austro-Hungarian Empire constituted a unique economic unity, the dissolution of which has had important reactions in post-war Europe. It was also an age of rapid progress in scientific invention in the spheres of transport and communication and the technique of production. The railways of the world increased roughly five times, from 140,000 miles in 1870 to 690,000 in 1910. Telegraphic mileage increased from 281,000 miles in 1870 to 1,401,000 miles in 1912, and cable mileage from 15,000 to 320,000 miles. The world's steam mercantile marine increased from 3,000,000 tons in 1870 to 26,500,000 tons in 1913. The world's coal production increased six times, the cotton production almost four times, and the production of pig-iron six times over the period. And the world's commerce increased from £2,190,000,000 in 1870 to £8,320,000,000 in 1910[1]—an increase of more than four times when allowance is made for the fall in prices. The fuller significance of these illustrations will be more apparent in the subsequent chapters.

[1] Cf. *United States Statistical Abstract.*

THE TRADE CYCLE

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I
INTRODUCTORY

THE trade cycle is the standing mystery of the economic world.

Every period of trade prosperity, no matter how favourable prospects may appear to be, sooner or later meets with a check. Trade rapidly declines and usually remains depressed for some two or three years. At the end of that time a gradual revival becomes noticeable, which eventually develops into full-fledged trade prosperity; only to be followed by yet another slump and later another revival--the whole trade cycle over again.

For more than a century now economists, business men and social reformers have sought to account for this recurrent falling off in trade. As long ago as 1895 an industrious German economist was able to collect some two hundred and thirty different theories of the trade cycle. Since then, and particularly from 1920 onwards, theories have multiplied apace. It is now generally regarded as the outstanding economic problem. And, in the opinion of most competent judges, it still remains unsolved.

THE NATURE OF THE TRADE CYCLE

Needless to say, an unsolved problem with some hundreds of different theories as to its nature and causation is one on which it is difficult to write with assurance. There are those who deny that there is such a thing as a "trade cycle." There are others who admit that there are more or less regular fluctuations in trade, but who refuse to regard them as "cyclical." There are some who look forward to the elimination of the trade cycle with something like a religious enthusiasm. And there are some who argue that the trade cycle is not half so black as it is painted, and probably does nearly as much good as it does harm.

In the maze of controversial opinions, however, there are a few points on which there is fairly general agreement. Most economists these days believe that there is such a thing as the trade cycle, provided that by the term "cycle" is meant not some definite and regular period of time, but simply a regular sequence of events.

This modern conception of the trade cycle was not arrived at all at once. In the early days of the nineteenth century each trade crisis was regarded as an occurrence by itself. After a time it was noticed that crises had occurred in England in 1837, 1847, 1857, and 1866, and theorists at once jumped to the conclusion that trade crises occurred every ten years. Since then cases have been made out for an eight-year cycle, a seven-year cycle, and, within recent years, for a forty-month cycle. Extensive research over a number of countries for a large number of years has shown fairly conclusively that the trade cycle has nowhere a regular period, but may on occasions be as short as one year or as long as fifteen.

The trade cycle, then, is simply a regular sequence of events. This sequence is usually divided into four phases. Some writers reduce these phases to three, others increase them to five, and various names are given to them. But any such classification is in fact arbitrary, and one does just as well as another so long as we understand clearly the meaning of the terms we use.

To adopt the classification used by Prof. Wesley C. Mitchell, a trade cycle may be regarded as falling into four phases prosperity, recession, depression, revival. When the prosperity phase is strongly marked it is sometimes termed a "boom." The recession in trade is often referred to as a "crisis," or, if it is accompanied by great financial strain, as a "panic." The two phases, recession and depression, are sometimes classed together as a "slump."

PROSPERITY

The characteristic features of the prosperity phase are, first of all, brisk buying and plentiful employment. Rising prices, rising wages, rising costs of production and increased borrowing from banks are other main features, all more or less interconnected. It is a time of large total output (although production per man-hour may be relatively low) and general business optimism.

The latter half of 1919 and the first six months of 1920 was a strongly marked "boom" period in most industrial countries.

RECESSION

The characteristic features of the ensuing phase of business recession are precisely the reverse of those of the prosperity phase. Buying falls off. Sometimes it is merely a gradual fading away. More often "the bottom falls out of the market" without apparent warning. Unemployment increases. Business houses suffer great losses and sometimes fail altogether. Prices fall even more rapidly than they rose—wholesale prices first, retail prices some time later. Wages fall, but usually not so readily or so rapidly as prices.

Costs of production are reduced, partly by the fall in wages, partly by increased efficiency, partly by reason of the economy measures introduced. Borrowing from the banks increases for a short while but then falls off. Total output decreases, although production per man-hour frequently increases. The bounding optimism of prosperity gives place to a pessimism and fear for the future which expresses itself in a policy of "hand-to-mouth" buying, no merchant or manufacturer daring to hold more goods than he can see his way to disposing of before a further fall in prices occurs.

The latter half of 1920 and the beginning of 1921 was a period of business recession amounting to a "crisis" in the great majority of countries, with Austria and, later, Germany the only outstanding exceptions.

DEPRESSION

The depression phase of the trade cycle is one all too familiar to those who have lived in Britain during the years 1921-26. It is a period of slack trade, unemployment, business losses, and bankruptcies. Prices tend to remain steady or to decline somewhat; wages tend to decrease still further; producers strive to lower their costs of production; borrowing from the banks increases slightly. The volume of production still remains relatively low although production per man-hour is often relatively high. The prevailing business outlook is gloomy, with faint tinges of optimism here and there.

REVIVAL

Trade revival, when it comes, is usually heralded by an improvement in the unemployment situation. Prices tend to rise slightly. Borrowing from the banks increases. Wages in certain industries take a turn upward. The business world regains some of its optimism and "talks prosperity" in the hope of inducing it. Merchants and manufacturers at last feel safe in enlarging their operations and laying in larger stocks. And with the gradual merging of trade revival into prosperity another cycle begins.

Except for the passage from prosperity to recession, and not always then, the evolution of one phase into another is usually almost indistinguishable. Only on looking back is it possible to say about such and such a time depression changed into revival, and so many months later revival turned to prosperity. It is, accordingly, difficult to estimate with any exactness what are the relative lengths of the various phases. recent study by the (United States) National Bureau of Economic Research[1] covering 166 business cycles in 17 different countries estimates that there is one year of depression for every 1·07 years of prosperity, while rather less than a quarter of the whole period of the trade cycle is occupied by the intermediate phases of revival and recession.

[1] *Business Annals*, by W. L. Thorp and Wesley C. Mitchell, 1926.

TWO STRIKING CHARACTERISTICS OF TRADE DEPRESSION

Such in bare outline is the trade cycle. There are two main points about it which make it the standing economic mystery that it is.

The first point is that it is so universal, universal in a double sense. Trade depression affects not merely a few industries, but practically every industry. It is true that in some industries the slump is more severe than in others. Constructional industries—industries making machines, etc.—feel the depression more, and in some cases earlier, than industries making goods for consumption. Industries making durable goods suffer more than industries making goods which are quickly used up. The so-called "unsheltered" industries, manufacturing largely for the international market, are frequently harder hit than the "sheltered" industries mainly dependent on the home market. But practically no industry escapes altogether.

The other sense in which it is universal is that no country practising modern methods of production is free from it. Every industrial country from the time it becomes industrialized is subject to the trade cycle. New countries and old countries, countries predominantly engaged in agricultural production and countries predominantly engaged in manufacture, countries exporting a large proportion of their produce and countries practically self-contained, none of them is immune from the day it adopts modern methods of production.

The second strange point about the trade cycle is that it seems, as we should say in everyday parlance, so utterly unnatural. The famine described in the Old Testament—the seven fat years followed by the seven lean years—foreseen and so capably handled by Joseph, is sometimes spoken of as an early example of the trade cycle. In point of fact, it was in one way the very opposite of a trade cycle. Joseph was dealing with a famine of *goods*. The period of business recession and depression in the modern trade cycle is anything but a famine of goods. Goods are there in abundance. It is *buyers* that are lacking.

This is a singular situation. That goods should be in short supply and the people of the world should suffer as a consequence is understandable. But that goods should be plentiful and the world should suffer as a consequence savours of Alice in Wonderland. It is understandable, too, that the demand for this or that particular type of goods should occasionally decline. Tastes and fashions change and new inventions replace old. But it is incredible that the demand for *goods in general* should from time to time fall off. And yet it is precisely this incredible thing that appears to happen.

SURVEY OF INDUSTRIES

(This series has been written under the direction of the General Editor)

INTRODUCTION

WORK may be both a discipline and a pleasure, but it is also a necessity. We work in order to live, and to live as well as possible. The pleasure or disciplinary effect is incidental to the main purpose, which is to secure the means of satisfying our needs and desires.

Society is engaged upon a bewildering variety of occupations, but these are all shaped to one end, namely, the provision of the means of satisfaction. Taken collectively, the multitude of occupations forms a sort of mosaic. The picture may not be all that we desire, nevertheless it is a picture. Some pieces form the basis of the pattern, and cannot be removed without destroying the picture as a whole. It is the purpose of this series of articles to describe some of the outstanding economic features of those manufacturing and constructional industries which may legitimately be regarded as constituting the basis of the pattern, at any rate in this country. Before this is done, it seems desirable to indicate the chief questions which present themselves to the economist in an endeavour to understand the organization of any industry.

CLASSIFICATION OF INDUSTRIES

It is customary to classify industries in different ways. For some purposes a distinction is drawn between those which deal with tangible concrete commodities and those which are engaged in the provision of services. Again, those industries which belong to the former class are frequently divided into agriculture, mining, manufacture and distribution. This classification does not represent any fundamental distinction. Services, for example, may be divided into two groups, namely, those (such as medical service) which may be regarded as "final" or "consumption" services, and those which may be regarded as instrumental in the provision of concrete goods. Thus, for example, the services of the banker, the accountant, the merchant and the lawyer are usually required in order to facilitate the production of commodities in general. In other words, many of the people who are employed in those industries which are concerned with concrete goods render services which are sometimes differentiated from such industries.

Industries are frequently distinguished according to the type of commodity which they supply. A distinction is drawn between those industries which make machinery and other capital goods, those which provide raw materials or semi-manufactured products, and those which directly make final consumption goods. This distinction, like the other, should not be pressed too far. The coal industry, for example, may be engaged in supplying coal either for steel works or for the homes of the people; in the one case the coal is a raw material, in the other it is a commodity ready for final consumption.

Some economists draw a distinction between what may be termed manipulative industries and assembling or constructional industries. The iron and steel and textile industries are engaged in converting raw materials into finished products, and may be submitted as illustrations of the first type. In the ship-building and house-building industries materials are assembled from various sources and joined together in such a way as to form a single, though highly complex, product. Even this distinction, however, is one which can only be defended within limits. The engineering industry is partly engaged in making products which become constituent parts of a complex machine completed in the same premises; it is, therefore, both a manipulative and a constructional industry.

DIFFICULTIES OF DEFINITION

The classification of industries along one of the lines indicated above may be extremely useful for some purposes, but it is only important in so far as it has a bearing upon other problems, which will be indicated as we proceed. Nor is it necessary for our present purpose to devote much space to an attempt to construct a precise definition of an industry or trade. During the war, when most of the important industries of this country were under direct Government control, serious difficulties were encountered through the failure of the economic system to lend itself to a simple division along industrial lines. The Ministry of Munitions failed to discover any logical method of defining the engineering industries; the Coal Mines Department discovered to its cost that the ramifications of the occupations under the control of the Miners' Federation extended beyond coal mining, and included such subsidiary industries as firebrick making, ironstone mining and quarrying, limestone quarrying and other industries.

Since the war, the Trade Boards Department of the Ministry of Labour has encountered equally serious difficulties in its attempt to define the limits of operation of Trade Boards set up in

selected industries. Thus, for example, the "waste" industry was found to include not only the "rag and bone" merchant who passes our doors shouting his willingness to buy anything we have to sell, but also the shipbreaking firm working with large capital and employing highly skilled workers at relatively high rates of pay. Efforts to secure some basis of classification, such as the character of the raw material, the nature of the process, or the character of the product resulted in a compromise dictated by expediency. We may follow the example of the Trade Boards Department, and allow the exact boundaries of the various industries to be determined by practical considerations.

GEOGRAPHIC DISTRIBUTION

When an economist makes a survey of an industry he frames a number of questions, and his investigation represents an attempt to find the answers to those questions. The first which he asks is: Where is the industry situated and why is it to be found in that region rather than in some other region? He is, however, interested not only in the actual geographic distribution of the industry at any given time, but also in any tendencies which may be observed likely to produce a change in that distribution. The cotton industry is concentrated mainly in Lancashire, and has grown to such an extent as to form the most important exporting manufacturing industry in the country. The chief markets are to be found in India and China, where competing industries exist, in which until recently the product was made by hand rather than by machinery. During the last generation, however, there has been a marked tendency for the machine industry to develop both in India and in Japan (and to a less extent in China) at the expense not only of the local domestic workshop, but also of the Lancashire industry.

The distribution of an industry is determined by the relative strengths of three factors, namely, power, raw material, and the market. The substitution of one form of power for another has produced a material change in the distribution of industry. The growth of transport facilities has enlarged the market and thereby tended to concentrate particular industries in certain well-defined regions. In recent years the substitution of electrical power for steam power has profoundly influenced the distribution of industry as between large industrial areas and semi-rural areas. The effect of these two factors has been so far-reaching as to call for closer examination in future issues of this EDUCATOR.

CHARACTERISTICS OF THE PRODUCTION UNIT

The second question which the economist sets himself to answer is: What determines the size of the typical business unit in the industry? It is found, for example, that in a large and growing number of industries the scale of the individual undertaking is so large as to make it impossible for one individual either to secure the necessary capital or to control the undertaking with any degree of success. Again, it is found that in some industries there is a marked tendency for the successive stages of manufacture to be brought under the control of a single firm. This may be due partly, as in iron and steel production, to technological causes (such as the need for conserving heat), or, as in engineering, to administrative and commercial economies which are brought within reach. The precise economic influences which determine the nature and size of the business unit thus constitute a problem of considerable importance.

The third question is closely connected with the second. The economist naturally desires to know the extent to which competition is an active force in the industry. Some industries, such as coal mining, are strongly competitive, while others, such as railway transport and the provision of gas, electricity, and water, are essentially monopolistic in character. Intermediate between these cases there are, however, a large number of industries which are not essentially monopolistic but within which the competitive force has been modified or entirely removed by the formation of price agreements, syndicates and combines. The social consequences of the existence or absence of competition are obviously of importance to the community, and the discovery of the extent and conditions of monopolization therefore constitutes a problem with which the economist is deeply concerned.

The fourth question is also closely connected with the second of those already indicated. Some industries are engaged upon the manufacture of a simple, well-defined product, while in others the production of one commodity inevitably means the simultaneous production of other commodities. Thus, for example, the production of gas necessarily means the production of coke. The production of coke may be so controlled as to secure the maximum production not only of gas but also of other by-products. The Coal Commission of 1926 declared that one of the greatest problems confronting the coal industry was to secure from every ton of coal, not the maximum amount of any one of the constituent products of carbonization, but the maximum amount of energy.

Again, industries differ according to the extent to which production has been standardized. Those trades the products of which appeal to the artistic sense are, from the nature of the case, far removed from standardization. In other industries, such as steel manufacture, the product is essentially standardized, though the method may not be. In yet other industries the method,

as well as the product, may be standardized. There is clearly a connection between the degree of standardization which has been reached and the size of the undertaking, although the experience of Mr. Henry Ford in America shows that standardization and mass production are consistent with decentralization and do not, therefore, necessarily involve large industrial establishments.

THE URGENCY OF DEMAND

The fifth question which arises in any economic survey of an industry is concerned with the degree of urgency of the community's need for the product. The economist, for reasons which need not be elaborated at this stage, draws a distinction between the "urgent" and the "important." Not only is the need for gas, electricity, coal, and transport service continuous, but the industry must be constantly at work in order to meet that need. Boots and shoes also constitute important needs, but the boot and shoe industry could enjoy a long holiday (at its own expense) without any serious break in the continuity of supply. As economic society becomes more complex and industries become more highly specialized and depend more largely upon each other, the proportion of industries which must be continuously in operation is probably increased. It will immediately be evident that the degree of urgency is bound to influence the ultimate relation between industry and the State. The necessity for a continuous flow of any commodity makes it impossible for the community to tolerate a long interruption of work in the industry which supplies it, but an interruption of work in an industry supplying goods of which large stocks already exist, or goods which are not urgently needed, is not so likely to call for decisive action on the part of the State.

INDUSTRIAL FLUCTUATIONS

The sixth question is concerned with the extent to which the industry suffers from fluctuations, either in demand or in supply. A large proportion of our industries experience busy and slack seasons. In some cases the seasonal fluctuation is due to a change in demand, in others it is due to causes outside human control. The demand for ice-cream is greater in summer than in winter. The building trade is busy in summer and slack in winter, not on account of variations in demand, but solely on account of climatic changes. The clothing industries also experience seasonal fluctuations, due partly to climatic changes, but also partly to the power wielded by a few Parisian fashion makers.

Seasonal fluctuations are not, however, the only ones experienced by industries. An examination of the history of the last half-century will show that industries experience booms and slumps which alternate with such great regularity as to create a presumption in favour of the existence of what is called a "trade cycle," that is to say, a tendency on the part of trade to move in cycles as the result of inherent forces. Not only do industries move in cycles, but the cycles for the different trades correspond very closely with each other. A boom in one industry is likely to be found at approximately the same time as a boom in most other industries, or, if they occur at different times, the difference in time is itself a regular occurrence. Some industries are more susceptible than others to fluctuations of this character. The swing of the pendulum in the shipbuilding industry is probably wider than in any other industry, while in some forms of public employment it is hardly noticeable. The extent of the swing is determined by a number of influences which will be investigated in future issues. It is sufficient at this stage to state that the problem of the trade cycle is one which is intimately bound up with the problem of unemployment, and that those who seek the causes of unemployment are compelled to seek the answer to the question we have here indicated.

COMPETITION

The next problem with which the economist is concerned is connected with the markets for the product of the industry. In some cases the firms in the industry supply local, well-defined markets; in others the markets extend to all parts of the world, and the organization of distribution and transport constitutes an extremely important department of the industry.

Some industries, not only among those supplying distant markets but also among those supplying the domestic market, are subject to keen competition from foreign rivals. Such competition may be fairly simple in character (as was usually the case in the nineteenth century), or it may be a much more elaborate competition from monopolistic organizations in other countries. Thus, for example, steel imported into Great Britain may represent an accidental surplus produced by a Continental syndicate, which is eager to get rid of it at any price which it will fetch in the market. Again, a Continental or American syndicate or combine may do more than export an accidental surplus or even a supply which is specially made during a depression in order to keep the works going; it may be able to produce a commodity more cheaply than our own manufacturers and sell it in this country at a lower price (making a profit on such sale) and at the same time charge a much higher price in its own country, where it is protected from foreign competition by heavy import duties. These are but illustrations of types of competition which have become common and which will require careful examination at the appropriate time.

Again, it is found that the prospects of different

industries in foreign markets vary considerably. Some, such as the cotton industry, are encountering increasing difficulty as the result of the desire of other countries to manufacture supplies for themselves. In this connection the war has bequeathed to the world in general, and to this country in particular, a legacy which may prove to be more a liability than an asset. For the time being the tendency towards world specialization and the growth of international trade has been checked. Many countries, actuated by the desire to be less dependent upon others, have pursued a policy which is generally called " economic nationalism," and, by imposing high tariff barriers, have encouraged the growth of local manufactures. This tendency has inevitably reacted upon those British industries which rely largely upon exporting their products to other countries. It has also increased the difficulty of the marketing problem, and tended to increase the complexity of market organization.

SOCIAL SIGNIFICANCE OF FACTORS ALREADY DESCRIBED

The questions which have already been submitted are concerned mainly with the organization of capital and of markets. The characteristics to which they refer are of profound social significance. Forces which make for industrial change may favour one district within a country as against another; they may cause (say) the steel industry of South Wales or the north-east coast to grow at the expense of the competing industry in the Midlands. Such a result is not regarded as socially harmful, nor does it excite any desire to " protect " one district against the pressure of the other. But if similar forces result in the growth of a foreign industry at the expense of a competing industry in this country many people become alarmed and press for Government interference. They draw a distinction between a community and a State, and even when State interference is not required to secure a political end it is frequently advocated by such people in order to achieve an economic end, the value of which would be disputed by those who deny the validity of the distinction.

The concentration of industry in selected regions has meant the growth of large urban districts. Towns have become congested; streets are huddled together in shapeless masses; thousands of people dwell in small areas under conditions which make healthy living difficult, if not impossible. The advantages resulting from invention and organization have been accompanied by difficulties and evils which the community endeavours to overcome, and the cost incurred by that effort has to be set against those advantages.

Again, the growth in the size of the production unit in many industries has completely altered the objective conditions under which people work. Whereas, at one time, they worked with elementary tools, in isolation or in small groups, they now work with heavy, intricate (and often noisy) machines, erected in large buildings, and they are employed in hundreds or thousands. This change in factory organization has necessitated a form of discipline which was formerly absent, and created problems of a new type, which will be considered in other parts of the EDUCATOR.

The change in the organization of capital is hardly less significant. At one time the production unit was controlled by a manager who was also the owner. He was followed by a joint stock company of a comparatively simple type, controlled by directors who were large shareholders and known in the district. Gradually the capital became more widely spread, and the nature of control changed. Businesses were amalgamated and fell under the control of directors of a different type. An industrial undertaking may now be largely under the control of a German investment trust with depositors drawn from other parts of the world. The investment trust may, indeed, be largely under the control of some other industrial undertaking, and the manufacturing business under its own control may itself hold a controlling interest in other manufacturing companies in the same country or elsewhere. Capital is interlocked and cosmopolitan. Nor should it be forgotten that the business units in an industry may be under the control of a syndicate which may itself form a party to an international syndicate. This combination of cosmopolitanism and internationalism is one of the outstanding features of modern capitalism, and constitutes a social problem of the first importance, particularly in Germany and America.

Finally, it will be evident that any serious discussion of the possible or desirable relation of the State to industry must take account of those characteristics to which reference has been made. The railway system is essentially monopolistic within its own limits; it provides an urgent service; it is almost free from the complications of foreign competition; the various occupations within it are clearly defined; the " method of production " is highly standardized. The motor-car industry is new and speculative; it is essentially competitive; neither the product nor the method of production is fully standardized; its markets are world wide, but the demand, though important, is not " urgent." Clearly, the differences between the two industries are so important as to justify the State in adopting different methods of regulating their activities.

LABOUR

The study of the economics of an industry is not confined to the organization of capital and the problems of price fixation and marketing; it extends to the organization of labour and the

conditions of employment. The latter are partly controlled by statute. Certain Acts of Parliament refer specifically to certain industries, such as coal mining, but the majority have a wider application, and may, therefore, be ignored in a survey of selected industries. The labour problems with which a special investigation is concerned are of a different character

The first question which an economist would ask is, what type of labour is employed in the industry ? In practically all industries carried on in large establishments men are employed on maintenance work and in operations which are incidental to the main processes of production. Masons, carpenters and joiners, and unskilled workers are employed in maintaining the establishment in a state of repair ; plant engineers and others are required to repair the machinery and keep it in a state of efficiency ; boilermen, floor sweepers and general labourers perform various kinds of work which exist in all types of establishments ; a clerical staff is also a necessity in all undertakings. The ratio of such indirect workers to the total number employed in an industry varies according to the characteristics of the industry. As the production unit increases in size the machinery becomes more powerful, and the market extends over a wider field ; the ratio tends to grow larger.

The type of labour employed on " indirect " work of the kind indicated in the previous paragraph does not vary much from one industry to another, and for this reason the workers concerned possess a mobility which is not always shared by the direct or process workers, that is, those workers who are employed on the production processes. The latter may plough fields, hew coal, work on a rolling mill, weave cloth, make saddles, or perform any one of a hundred such operations. It is among such workers that the chief differences occur. In some industries, such as coal mining, men alone are employed ; in others, such as cotton manufacture, both men and women find employment. Some industries require both adults and juveniles, in proportions which make it possible for the juvenile workers to find employment for life in such industries. Others can be carried on largely by boys and girls, who thus find themselves in " blind alley " occupations, from which they are dismissed when they reach the age at which they require " adult " wages. In some industries a relatively large proportion of the workers are highly skilled ; in others the process work may be performed by unskilled or semi-skilled workers. Industry in general is made up of an enormous variety of occupations, calling for varying degrees of skill. Some skilled occupations, such as engineering, cut across most other industries, and the workers employed in them possess a corresponding mobility ; but they cannot easily cross into other skilled occupations. Other occupations requiring skill are restricted to particular industries, and those who follow them flourish or suffer along with the industries to which they are attached.

TRADE UNIONS

The second question is closely connected with the first. How is the labour employed in the industry organized ? The majority of the workers employed in industry are still unorganized, that is, they are not members of any trade union ; nevertheless, strong unions exist in nearly all the important industries of this country. The unit of organization is not always the same. Boilermakers and riveters, engineers and foundrymen, coppersmiths and sheet metal workers, joiners and shipwrights and a number of other skilled workers are employed in the shipbuilding industry. They are all skilled workers, but they belong to different crafts and are organized along craft lines. The semi-skilled and unskilled workers belong to a union of general workers. Thus the industry contains a large number of unions, many of which extend into other industries employing similar classes of skilled workers. In both the railway and the mining industries the great majority of the workers normally belong to the same union, which seeks to control the industry without extending its membership beyond that industry and those allied industries which appear appropriate. The considerations which dictate the type of organization form the subject of articles in another series, and therefore call for no further comment. Nor is it necessary to discuss the methods of negotiating agreements between such unions and the corresponding associations of employers, which would form part of a complete study of the economics of any industry.

METHODS OF PAYMENT

The methods of remuneration form the next subject of investigation. The precise method is determined by the nature of the processes upon which the workers are employed For various reasons it is impossible, in many occupations, to find any satisfactory substitute for payment according to time ; in others, however, systems of payment by results may be established. Experience shows that the average worker, when paid by results, works harder than he does under the time-work system. The direct and obvious advantages of the former method are supplemented by the economy effected in superintendence and by the fact that the whole organization of the establishment is " tuned up " to the key struck by the workers.

" Payment by results " is a comprehensive phrase which covers many methods of remuneration. Some are strictly individual in character, others collective ; some are based upon a guaranteed time rate, others are not immediately connected

with such a rate. Piece-work and premium bonus systems employed in engineering are strictly individual in character, and are based upon an agreed and guaranteed hourly rate of wages. Tonnage rates in coal mining and steel manufacture are individual rates, but they bear no relation to any agreed time rate. In brass and copper manufacture groups of workers form a producing unit; they are frequently paid collective piece rates and the earnings are divided in agreed proportions. Workers employed in blast-furnaces are paid individual day rates, but their earnings are usually supplemented by a collective bonus on output, the proceeds of which are divided among the workers in proportions determined by their relative day rates. It is, therefore, impossible to discuss methods of remuneration without reference to the precise characteristics of the industries in which they are employed or to submit useful generalizations which may be applied, without modification, to all the industries in the community. The subject, however, is so large and important that it is separately considered in a series of contributions by a specialist.

REGULATION OF WAGES

The method of remuneration may be clearly distinguished from the amount or rate of remuneration and any variation which may take place in that rate. The relative rates of payment are determined by a number of influences, such as skill, risk, etc., which will be considered in the section on distribution. Periodic variations of such rates are governed by both general and special influences. In some industries and occupations, such as railway, municipal and Government services, general variations are mainly governed by variations in the cost of living. The same factor also influences wages in engineering and shipbuilding, but since these are subject to foreign competition and to fluctuations due to world factors, the influence of the cost of living is not so marked as in the more "sheltered" occupations, and the prospects of trade play an important part. In the iron and steel industries a sliding-scale system has long been in operation, under which wages are varied according to variations in the price of the product. A similar system was once employed in the mining industry, but it has now been discarded in favour of a system under which variations in the collective "profits" of a district govern the variations in wages rates. Different methods of varying wages according to approved indices will be examined in appropriate parts of the EDUCATOR.

FINAL CONSIDERATIONS

The questions which have been submitted by no means exhaust the subjects in which the student of industrial organization is interested. Nor is it suggested that they are in all cases of the same importance. Some industries are classed as "dangerous," and the objective conditions under which people work would attract more attention than other economic problems which they present or illustrate. Other industries are still in the early stages of mechanization, and the effects of the change from handwork to machine work constitute the most urgent problem. The investigator must obviously allow the precise character of his investigation to be determined by the nature of the industry. Nevertheless, he should possess a general idea of the economic problem, and the questions already submitted are intended to indicate the general features of that problem.

Again, the occupations of the people of any advanced community may be divided into two main classes, the basis of classification being the real centre of economic interest. The function of a banker is of greater interest to the economist than the organization of a bank. The latter does not differ essentially from the organization of any other large administrative enterprise. But the function of a manufacturer is of less interest to the economist than the conditions under which the function is performed. The banker and the manufacturer may, therefore, be said to fall into separate classes, and most of the questions which have been submitted refer more particularly to the latter. Where the function is the real centre of interest it forms the subject of a separate series of articles. Transport provides a case in which the interest is almost equally divided between the function and the objective conditions under which the service is provided, and the series of special articles on the subject will take that fact into account. The studies of separate industries contained in the series of which this article is the first instalment will be concerned less with the technical function of such industries than with the conditions under which they operate. Moreover, they will be devoted to an examination of what is peculiarly characteristic of those industries rather than that which is common to all industries, and which will, therefore, be the subject of treatment in other parts of the EDUCATOR.

LABOUR ORGANIZATION

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I

ATTITUDE TO THE MODERN VIEW OF TRADE UNIONS

THE organization of the working class in trade unions is to-day an accepted social fact. Professional men are even following the example of the wage-earner, and during the last two decades have framed many new associations which are actually or in effect trade unions.

It is somewhat difficult for the younger generation to realize how new is this tolerance of trade unionism. Fifty years ago trade unions were still generally regarded as a social danger. In 1875 Alexander Macdonald, a miners' leader, and one of the outstanding working men of his time, waxed enthusiastic over the recognition of trade unions by employers in words which would sound rather naïve to a modern labour audience. "Twenty-five years ago," he said, "when we proposed the adoption of the principle of arbitration, we were then laughed to scorn by the employing interests. But no movement has ever spread so rapidly or taken a deeper root than that which we then set on foot. Look at the glorious state of things in England and Wales! In Northumberland the men now meet with the employers around the common board. . . . In Durhamshire a Board of Arbitration and Conciliation has also been formed; and 75,000 men repose with perfect confidence on the decisions of the Board. There are 40,000 men in Yorkshire in the same position." (Quoted--Webb's *History of Trade Unionism.*) It is to be noted that the words "conciliation" and "arbitration" are used with much less precision than we would use them to-day. As we shall see in later sections, "conciliation" and "arbitration" are different methods of industrial negotiation, the extended use of which has led to the creation of much negotiating machinery since 1896, when the first "Conciliation Act" was passed. The State during the past thirty years has played an increasing part in the regulation of industrial relations.

But to the trade union leaders of 1875 these words often meant merely a meeting with employers for argument and discussion. Such meetings had become much more common between 1867 and 1875, and in the same period very many boards of conciliation and arbitration were established in our leading industries. We may, therefore, say that the modern era of industrial relations begins about this time. Nevertheless, employers generally continued to be somewhat unwilling to negotiate with trade union officials right up to the end of the nineteenth century, and it was not until the war of 1914-1918 that trade unions were officially recognized by most of the leading British railway companies.

WHAT IS A TRADE UNION?

At this point it will be well to define as exactly as possible what we mean by a trade union. The standard definition is that with which Mr. and Mrs. Webb begin their *History of Trade Unionism*, namely, "a continuous association of wage-earners for the purpose of maintaining or improving the conditions of their working lives." Three things should be noted about this definition. The first is that temporary ephemeral combinations of workers (e.g. for a strike) are not trade unions. The second is that a trade union is primarily an association of wage-earners, that is, of men and women who earn a living by selling their labour power for a daily, weekly, or fortnightly wage, measured either by time or by output. By common usage, however, the term is now also applied to associations of salaried professional workers--such as the National Union of Teachers, the National Union of Scientific Workers, the Association of Officers of Taxes. To say, however, that the British Medical Association is a trade union is to stretch the term beyond its legitimate use. The bodies which govern the medical and legal professions are not trade unions, in spite of much loose talk to the contrary. The third point to notice is that in its original form the final words were not "of their working lives" but "of their employment." The change (in 1920) was apparently a concession to the more radical thinkers in the trade union movement who object to any phraseology which implies that "employment" under the capitalist or wage system is to be a permanent condition of the working man's life. The change is significant, however, only as showing that trade unionism is to-day more aggressive and more concerned about the problem of "control" in industry than it was fifty or sixty years ago in the days of Alexander Macdonald, George Odger, and the "Junta." How this has come about we shall see in later sections dealing with the changes in trade union aims and methods. Students of trade unionism should not be deceived, however, by the theorizing of the "advanced" wing of the movement. Most trade unions to-day are still what they were when the typical craft unions of

the later nineteenth century were established—great trade *friendly* societies—in which mutual insurance plays as prominent a part as collective bargaining. It is true that in the bigger "industrial" unions—miners, railwaymen, transport workers—the strike fund plays a more important part than it did in the "new model" craft unions of 1850 to 1880 (e.g. the Amalgamated Society of Engineers, established 1850, and the Amalgamated Society of Carpenters, established ten years later), but the modern trade unionist remains a man very like his grandfather—far more concerned with security, stability, and a living wage, than with schemes for abolishing the wage system, and disinclined to strike if he can avoid it.

GROWTH IN NUMBER OF TRADE UNIONISTS

The definition of a trade union given above is confirmed by official practice in the statistical and other publications of the British Government. In the *Eighteenth Abstract of Labour Statistics* (Ministry of Labour, 1926) there is the following note (page 173): "The statistics relate to all organizations of employees—including those of salaried and professional workers, as well as those of manual wage-earners—which are known to include among their functions that of negotiating with employers with the object of regulating the conditions of employment of their members." These statistics show that there were in 1892, the first year for which statistics were available, one-and-a-half million trade unionists (1,576,020), and in 1924 approximately five-and-a-half millions. In the 'seventies of last century the number of trade unionists in the country was probably about 1,250,000. At the Trade Union Congress held in Sheffield in 1874, when the representation was exceptionally large, 153 unions, with 1,191,922 members, were represented. As the total number of trade unionists has remained round about five-and-a-half millions since 1922, we may, therefore, say that the numbers to-day are considerably more than four times as many as they were fifty years ago when the practice of collective bargaining first began to be recognized by employers in general, and public opinion began to accept trade unionism as an inevitable social phenomenon.

In handling figures relating to trade unions, the difference between the figures given in the annual report of the Trade Union Congress and those given in Ministry of Labour statistics should be clearly understood. Government figures give the total membership, at home and abroad, of all unions with head offices in Great Britain or Northern Ireland. These figures are compiled from returns collected by the Chief Registrar of Friendly Societies, the Registrar of Friendly Societies for Northern Ireland, and the Ministry of Labour itself. They thus include all trade unions. The Trade Union Congress figures, on the other hand, include only those unions which are affiliated to and represented at the annual congress. Thus, in 1920, the year in which trade union membership reached its peak in this country, the total number in official figures is 8,334,362, while the Trade Union Congress figures are 6,505,482. The discrepancy here is larger than usual, but in recent years the difference has usually been over a million. Thus, in 1925, out of about 5,500,000 trade unionists in the country, 4,300,000 were represented at the Scarborough Congress. The number of different unions represented was only 727 out of over 1,100. We may say then that about 400 trade unions are each year unrepresented at this "Parliament" of organized labour, but they are for the most part small and unimportant unions.

The Chief Registrar of Friendly Societies has been mentioned above as collecting returns of trade union membership. This comes about because, under the Trade Union Acts, a union may, if it so desires, become "registered." Registration is not compulsory, but it has certain advantages, and many unions have availed themselves of the opportunity. The total number so registered at the end of 1924 was 503, representing about five-sixths of all the trade unionists in the country. The advantages of registration (which is open to any union which complies with the provisions of the Trade Union Acts of 1871 and onwards) are that certain rights are conferred. Of these, the most important are the right of any union so registered to the exclusive possession of its own name, the right to own or lease land, the right to own unlimited personal property, the right that its property shall vest in trustees, and the right to exact penalties by summary proceedings from such of its members or officials who may have misapplied its property. Further, the trustees of a registered union can sue or be sued, prosecute or be prosecuted in their own names, in any proceedings concerning the property of the union. Registered unions also obtain certain advantages under the Income Tax Acts with regard to that part of their funds which is applied to the provision of benefits. In return for these advantages the trade union must have rules containing certain specified particulars, it must provide certain documents to the Home Secretary, and it must render annual financial and other returns to the Registrar. The most important practical difference between a registered and an unregistered trade union seems to be that the latter cannot proceed summarily against defaulting officials or members.

The question of the general legal position, status, and powers of trade unions will be discussed in later sections.

METHODS OF REMUNERATION

By ROBERT WILSON, M.A. B.Sc.

I

INTRODUCTION

THE title is that commonly used in economic writings to describe a variety of methods adopted in the payment of wages. Though well established, it is not an exceptionally apt title; it will be an advantage therefore to note briefly, but a little more fully than may be conveyed by the title, the matters which it is proposed to discuss. The remuneration referred to is by means of wages only; we are not concerned with other forms of payment—profits, rent, etc.—except in so far as profit sharing is a method of wage payment. We shall study certain aspects of wages: the various forms assumed by rates of wages, time rates, piece rates, etc.; the inter-relations of workers employed on the various forms; various rules or customs which are used to regulate or condition the form of payment in particular trades; and certain methods of adjusting changes in wages.

It should be noted that the last-mentioned part of the subject-matter—certain methods of adjusting changes of wages—is somewhat distinct from questions relating to the form of payment. The discussion of this part of the subject-matter will not extend to the general question of collective bargaining for increases or decreases in wage rates, but only to certain forms of regulation which it is profitable to study alongside of the rates in order to gain an idea of the complete wages systems operating in particular industries. For example, reference will be made, in connection with the iron and steel industry, not only to the piece or tonnage rates, but also to the selling price sliding scales under which increases or deductions are made to the wages in that industry; and, similarly, to the "division of proceeds" to determine the percentages to be paid on the basis rates—piece or time—in the coal mining industry. This is one respect in which the limits of the subject-matter must be determined, to some extent, by considerations of convenience. Again, in so far as the form of rate cannot adequately be treated as something quite apart from other aspects of the wage bargain, for example the hours of work, it will be necessary to make at least incidental reference to various other subjects in order to explain those in which we are specially interested.

The wages, with certain aspects of which we are concerned, may be settled by one or other of a variety of methods, by an individual bargain between an employer and a worker, or by some form of collective bargain made by a trade union and an employers' association. They may have varying degrees of operation. They may apply to whole trades, to particular districts, or to individual factories; they may be paid under purely voluntary arrangements, or under decisions which are enforced by the law of the land. In Great Britain the method of collective bargaining is so important, both directly and indirectly, that it may be regarded as the principal means for the determination of wages. Commonly in the collective bargains the aspects of wages with which we are concerned are settled in combination with hours of work and other working conditions affecting wages to a greater or less degree.

Before dealing with the different forms taken by rates of wages, reference is made to certain general features which are related to the system of collective bargaining, and an understanding of which is necessary to a study of the problems of wage payment. These features are dealt with as: the distribution of trades into time-working trades and piece-working trades: the standard rate; the common basis of the different forms of payment. The reader should note that there is a certain amount of vagueness in the expressions time-working and piece-working as used at this stage of the discussion.

DISTRIBUTION OF TIME-WORK AND PIECE-WORK

The simplest broad classification of the various forms of payment is into time-work and piece-work. The broad distinction, between payment by the time worked and payment by the piece worked or by output, is well enough understood for our immediate purpose. Using the terms with this general meaning, so that piece-work includes various of the forms of payment by results which are described later, an important feature which demands notice is that certain industries or trades are largely piece-working, while certain others are mainly time-working. Such a division may be made at any particular time, though it will not be quite simple or clear, but in many places subject to various qualifications; though there are many industries or trades in which work may be performed either by the time or by the piece; and though the important matters for study are often the conditions under which the form of payment is applied rather than the form itself. If a comparison of two dates separated by a considerable period of years is desired, allowance must be made for a variety of changes—not only changes from time to piece, or from piece to time, but

changes in the conditions under which piece-work, say, is employed

Time-work is common in the following large industrial, or occupational, groupings: Transport, agriculture, the building trades, the woodworking trades, the food trades (baking, etc.), the distributive trades, clerical work, gas production, electricity supply, and other public utility work. Piece-work is common in mining, iron and steel production, pottery making, glass making, textile manufacture, the clothing trades, boot and shoe making, and in certain important occupations in shipbuilding. Groups where either time-work or piece-work may be found, to a considerable extent or in definite sections, include dock labour, engineering, and printing. A more detailed examination of almost any large group—particularly what may be referred to as an industrial group (e.g. mining) as opposed to an occupational group (clerical labour)—would reveal more variety in methods of payment.

FACTORS DETERMINING THE METHOD OF PAYMENT

Numerous influences may be at work in determining the method in any particular case, but certain general factors of importance can be isolated. That time-work is used in some instances is due, apart from other reasons, to the fact that in the nature of the work any other method is generally impracticable. This statement may be considered in relation to some of the examples, given above, of time-working industries and occupations (agriculture, transport, etc.), it being borne in mind that cases of piece-work—for example, in agriculture at harvest time, or in certain forms of carting in the transport industry—may be only the exceptions that prove the rule.

The consideration of the nature of the work will not, however, give as clear an answer in some of the cases as in others; for example, it may not be so clear that time-work is necessitated by the nature of the work in the building trades, or in the wood-working trades, as by the nature of transport or agricultural duties. In attempting to explain the less obvious cases, it may help if we make a slightly more detailed analysis. We can take for purposes of illustration large sections of workers, within the groupings already given, so that nearly all the workers in some sections are piece-workers and nearly all the workers in other sections are time-workers; for example, cotton spinners, cotton weavers, coal hewers, and iron and steel "producers" are piece-workers; carpenters, masons, and bricklayers are nearly always time-workers; most printing trade operatives (including compositors) are time-workers, but compositors on newspaper work in London are piece-workers. Why should a cotton spinner be paid by the piece and a bricklayer be paid by time? A principal reason is that in both of these trades collective bargaining is well developed, and the forms of payment are those which the workers, acting through their trade unions, have been able to establish more or less generally. This choice of time-work or piece-work as the case may be, is due to the fact that the workers have considered the particular method necessary to the preservation of the *standard rate*. The meaning of the standard rate is dealt with in the next section.

THE MODERN TENDENCY TO PAYMENT BY RESULTS

It is not possible to give statistics of the numbers employed in industry generally on time-work and piece-work respectively. In 1906, when a general inquiry was made by the Board of Trade, it was found that of the workers employed in the great majority of the principal industries for which returns were received three-fourths were paid by time rates and one-fourth by piece rates or other forms of payment by results. On the other hand, an analysis of the views of trade unions, made by Mrs. and Mr. Sidney Webb in their *Industrial Democracy* (first published in 1897), suggested that the number of piece-workers, in the trades covered by their analysis, was greater than the number of time-workers. The analysis, however, did not extend to a number of industries, including transport, in which there has since been a large growth in organization; also the analysis had reference mainly to well organized trades, in which the trade union attitude to the method of payment was more clearly defined than it is in many which have become strongly organized subsequently; again, in some of the trades covered by the analysis there have been subsequent changes. Though it is not possible to give anything in the nature of exact statistics of the existing proportions, it is generally assumed that the tendency of recent years has been towards a more general adoption of payment by results. There was a large extension of payment by results during the war, particularly on munitions work, but in many of these cases a reversion to pre-war conditions took place after the war. In some industries, however—including one, engineering, most strongly affected by the war—there had before the war been a tendency to the increase of payment by results; particular methods connected with this change, including the introduction of the premium bonus system, are referred to later. The Committee on Industry and Trade, appointed by the Government, in their report—"Survey of Industrial Relations"—published in 1926, confined itself to the general statement that "it seems not improbable that the proportion of workpeople paid by results is now higher in some industries than in 1906."

UNEMPLOYMENT

By N. B. Dearle, M.A., D.Sc.

I

UNEMPLOYMENT: ITS MEANING AND CAUSES

WHO ARE THE UNEMPLOYED?

The terms "unemployment" and "the unemployed" cover not one but a number of problems, and require careful definition, which should be neither too narrow nor too wide. The unemployed, for instance, are a far smaller body than the total of all the persons not working at a particular time, since the latter include, besides those on holiday, the sick and injured and all whose age or infirmity excludes them from the labour market. There are, further, the workers on strike or locked out, whose numbers vary very widely, and the "unemployable," who will not work, though work is available for them. Thus the "unemployed" total must exclude sick and injured, most of the aged and infirm, and for many purposes the strikers. But it should cover the unemployable, so far as they are capable of work, whilst some of the aged and infirm are on the fringe of the labour market, being employed or not according to the state of trade.

But the total of those fully unemployed in this sense does not represent the whole problem, and to confine ourselves to this would be to ignore certain important aspects of it. For there are many workers—in some trades, like dock labour, they represent a big proportion of those employed—who are not unemployed in the sense of being entirely out of work, but obtain at any time an inadequate amount of it. Moreover, in calculating the total loss of employment, account must be taken of time lost by those who are working short time. These things, in fact, represent a considerable addition to the losses caused by total unemployment.

UNEMPLOYMENT AND UNDER-EMPLOYMENT

The distinction just made between the "unemployed" and the "under-employed" is of great importance. The former may be defined as workers who in a given period are definitely without work. The under-employed are those who, without being fully unemployed, secure work in such inadequate quantities, that, even when getting as much as they are ever likely to get, they do not obtain sufficient employment for reasonable maintenance. Sometimes such under-employment is practically continuous. In other cases spells of regular employment may alternate with periods of under-employment, or, again, periods of full unemployment may be so numerous and frequent that the men who suffer from them must be regarded as under-employed. Thus, the two things shade into each other and are often difficult to separate in practice. The Unemployed Workmen Act (1905), for instance, attempted to distinguish between the regular workman temporarily unemployed and the under-employed casual, with the intention of limiting provision of work to the former, but this was found to be difficult.

DISTRESS FROM UNEMPLOYMENT

From this first distinction arises another of great importance, between unemployment as such and the distress which arises from unemployment. This assists to make clear the more and the less serious aspects of the problem. Thus the "men normally in regular employment but unable temporarily to obtain suitable work" of the Unemployed Workmen Act suffer inconvenience and hardship, but, if their unemployment is of moderate duration, may be saved from severe distress and privation by their savings and by trade union benefits. This was one reason why they made little use of the Unemployed Workmen Act. On the other hand, the casual under-employed, even when getting their usual amount of work, are often in chronic distress, so that a reduction in their work slightly below the normal causes them serious privation. This distinction is brought out with special clearness in the definitions of the unemployed given by the late Charles Booth to the Committee on Distress from Want of Employment (1895). He first treated them as fully unemployed, the men "who at any particular time desire to find remunerative work and fail to do so," but later substituted, on an under-employment basis, the definition of "those whose periods of lack of employment are excessive, so that their earnings fall under the needs of life."

DEFINITION OF UNEMPLOYMENT

Thus, an adequate definition of the problem must combine these two definitions. For there is severe distress from unemployment before earnings fall definitely below the needs of life, and discomfort and inconvenience without severe distress; whilst, in any case, spells of unemployment or short time involve loss to the community by depriving it of what the unemployed might be producing. Perhaps the phrase used under the Unemployment Insurance Acts is the most suitable, namely, that the unemployed are those who "are

capable of work and unable to obtain suitable employment." The Acts, being concerned to exclude from benefit those not properly entitled to it, insist further that applicants shall be "genuinely seeking work" But the definition, without this addition, appears to cover the ground adequately; for, as already suggested, it is desirable that it should cover the unemployable as well as the unemployed, since these are an essential part of the problem. To cover the under-employed, however, the definition should be broadly interpreted to cover failure to get employment in sufficient quantities.

"SURPLUS" OR "RESERVE" OF LABOUR

A final distinction must be made between a surplus and a reserve of labour. A *surplus* of labour exists in a trade or country when the labour available is definitely in excess of what is required or can find employment. It is specially likely to occur in declining trades. It may involve either complete unemployment of some of the workers or irregular employment of a much larger number. But in some industries, and to some extent in all, a *reserve* of labour is needed. Owing to fluctuations in business and other causes, the numbers employed vary widely from time to time; and sufficient labour must be kept in reserve for busy times or special emergencies. Thus some of the workers are needed to stand by until required, and, when not required, are unemployed. In short, the reserve is necessary to the trade, however much its members may be unemployed; and if the men composing it were to be removed, others would have to be found to take their place. This distinction is very important.

NATURE OF UNEMPLOYMENT

The nature and underlying causes of unemployment are admirably summarized by Sir William Beveridge. "Unemployment is a problem of industry, not of pauperism"; it is "the problem of the adjustment of the supply of labour to the demand for labour." In short, unemployment arises originally out of causes which spring from the organization and the fluctuations of industry. Thus, in the first place, the problem is to discover the nature of these causes and investigate the means of mitigating or removing them. This is the primary feature of the problem. For, while it is a mistake to suppose that it is entirely one of prevention, yet the re-organization of industry, to remove these causes, is the first task, and remedial measures take a secondary, if still important, place. Moreover, unemployment is not solely an industrial problem, but personal influences are also at work.

CAUSES OF UNEMPLOYMENT

The causes of unemployment fall into three main groups. First, there are those causes which spring from the organization of industry, and cause the demand for labour to vary from time to time. These include cyclical variations over long periods, seasonal fluctuations within the year, discontinuous employment of different kinds, and the more permanent changes in demand due to the rise and fall of trades and to alterations in materials and methods of production. Secondly, certain causes produce unemployment through failures in industrial relations. Strikes and lock-outs, and still more the underlying industrial unrest, affect industry by hampering production. Restriction and limitation of output, whether by workpeople or employers, prevent the smooth working of industry and hinder its development. Thirdly, there are the personal causes of unemployment, inadequate training, old age, ill-health, laziness, drunkenness, which make employment more difficult to obtain for individuals and often hamper the progress of industry

These causes react upon each other, so that the unemployment of particular men may be due to a number of influences. Sir William Beveridge quotes the case of a riverside labourer at Wapping in February, 1908, whose unemployment might be the combined result of chronic irregularity of employment, seasonal and cyclical depression in his trade, shifting of trade farther down the river (permanent change), and his own deficiencies of character and education. Thus the permanent cause of distress may be chronic under-employment which the other influences aggravate, or it may be found in the combination of a number of influences. In Sir William Beveridge's words, "classification of men according to the causes of their unemployment is, strictly speaking, an impossibility; the only possible course is to classify the causes or types of unemployment themselves."

REMEDIAL MEASURES

But when everything possible has been done to remove these causes there will still remain much unemployment which, if not dealt with, will continue to cause serious distress. Hence, remedial measures are definitely required as well as preventive. "No analysis of its causes," says Beveridge, "can hope, within the range of practical politics, to dispense with the need for providing against its results." The old method of relief work handled the problem from the wrong end, attempting to prescribe the medicine before fully diagnosing the disease, and the prescriptions in consequence were ineffective, if not actually injurious. It treated the subject too much from the point of view of relieving temporary distress, and did little either to fit the unemployed for better things in the future, or to build up a permanent system of provision; and there is consequently the further problem of providing adequate remedial measures.

BOY LABOUR AND APPRENTICESHIP

By N. B. Dearle, M.A., D.Sc.

I
THE PROBLEM STATED

To treat the boy labour problem simply as one of apprenticeship, or of training for skilled work, is to take a view that is too narrow and that is becoming more so. For machine production tends to reduce the scope both for ordinary manual skill and for unskilled labour, in favour of semi-skilled machine workers and a smaller number of highly skilled men, like the toolmakers and toolsetters in engineering. Moreover, to some extent, purely manual skill is being replaced by forms of work in which care, intelligence and technical knowledge take their place. This sometimes gives wider scope for training outside the workshop and reduces the part which the latter can play. Apprenticeship, therefore, is essentially a section of the wider problem of boy labour.

MEANINGS OF BOY LABOUR

Boy labour has really two meanings. Its wider meaning includes apprenticeship, and covers the whole employment of boys and their preparation for their work as men. In its narrower meaning, boy labour is opposed to apprenticeship, and is concerned with the boy employed as a labourer, as distinct from the boy learner. The two matters are equally vital. Whatever he has done in boyhood, the boy must eventually take his place in the ranks of male labour and must be fitted for this during boyhood. That is to say, the problem is not merely to train skilled workers, but to give the whole adolescent population suitable preparation for their life's work. The community's success in dealing with the problem, therefore, must be judged not merely by its production of skilled workers, but by the extent to which it prepares the whole juvenile population for adult employment. This is frequently more difficult in the case of the unskilled boy than of the learner. For the learner has a definite aim and a definite course of training. The boy labourer, indeed, has less to learn, but there is often difficulty, just because there is so little on which to base the preparation, and because often the boy is doing different work to that which he will do as a man.

NUMBERS OF BOY WORKERS

The problem, therefore, is to find the proper methods of dealing with the three hundred thousand boys in the United Kingdom who start work each year. The period of apprenticeship may be roughly regarded as terminating at 21, though a year or two more may elapse before the apprentice takes his place as a fully qualified journeyman. The change of the boy labourer to men's work usually comes at about 18 to 19, though some further supervision may be needed. Thus the boy labour problem appears to cover about 1,300,000 boys with a limit of 18 years, and over 2,400,000 if 21 is the limit. The problem, however, is usually restricted to the wage-earning grades, manual and clerical, so the total figures must be somewhat reduced. Not every individual in these immense totals will require detailed care. They simply indicate the numbers of boys preparing for adult life.

TRADE AND OCCUPATION

Thus the problem may be taken to cover roughly boys in all trades and occupations of the grades included in the Health Insurance Acts. As between trade and occupation, the latter is the wider term and includes the former. It can be used broadly to cover all employments which provide a livelihood for adult men. Trades, however, can be limited to employments, of whatever type, which require long preparation and training, and so can be regarded as skilled. The " tradesman " can thus be definitely distinguished from the semi-skilled and low-skilled workers, who require only a short actual training. The term low-skilled is better than unskilled, since entirely unskilled jobs are few, and growing fewer as a result of modern developments (machinery and specialization).[1] The distinction between these grades indeed is a very general one, and the border line between them is often very narrow.

BLIND ALLEYS

A further distinction of vital importance has special reference to boys' as distinct from men's work. In many classes of boys' work, especially in skilled work, employment as a boy leads directly to employment as a man. Other forms of boy labour last only for the period of boyhood, and do not lead directly to adult employment, so that, usually at about 18, a youth has to make a definite change and find other employment. Thus some trades, after allowing for wastage, fully provide for their boys as men ; others provide for a larger or smaller proportion of them, but not for all ; and yet others, the blind alleys *par excellence*,

[1] " The really unskilled " have less chance now than formerly, for we specialize more every day."- (The late Sir Benjamin Browne.)

retain few or none of their boys after they reach manhood.

TRAINING AND PREPARATION

In dealing with boy labour a number of important problems arise. There is, first, the problem of training and preparation. Here one may distinguish, on the one hand, training as applying to all employments in which a long period is required of more or less direct teaching of the actual work which the boy will perform as a man. It covers all trades still subject to apprenticeship or to other forms of regular training. Preparation may be applied to those occupations which can be acquired in a short time, and in many of which a change has to be made at the close of boyhood to a new job. Here training in the ordinary sense is hardly possible. What is needed is rather some definite general preparation to make the boys steady, intelligent and adaptable workmen, so that, when they come to manhood, they shall be able to do some definite job and do it well. Thus the two types of preparation can be definitely distinguished; but the problem is essentially one, and methods of dealing with it must be judged as a whole.

METHODS OF TRAINING

A second problem is concerned with the actual imparting of training. It is not sufficient to discover and establish suitable methods of teaching unless adequate means are provided for giving the actual detailed training. To make the best of it the boys must be taught rightly, in the right way, and by the right people, and must be given a sufficient experience of their work. Under modern conditions, too, training is divided between the workshop and the technical or trade school, and the latter is playing a growing part in it. Hence, provision has to be made both for workshop training and for training in the school and for the proper co-ordination of the two.

RECRUITING AND CHOICE OF JOB

The third problem is that of recruiting and distributing the available supply of boy labour between different occupations, skilled or otherwise, according to their needs and the boys' capacities. Here the supply must be dealt with as a whole. It needs to be so distributed that every occupation gets and takes its fair share of the supply. If some trades get more than their share of the boys or of the more capable boys, and others less, the best use is not made of them. Similarly, if by undue restriction of the proportion of apprentices certain trades do not provide for their proper share of the rising generation, too many will be forced into other trades or into unskilled labour.

But in addition to distributing the supply properly between different occupations, it is necessary to get the right boys into the right employments, directing the more capable to the better jobs. Serious waste may occur if less able boys enter highly skilled trades which they are not capable of mastering completely. Far more serious is the dissipation of the abilities of capable boys in blind alley work, which is only too frequent under present conditions. To avoid these evils, it is necessary to get hold of the boys as, and before, they leave school, and to direct them to the right work. Thus recruiting is a problem both of distribution and of direction.

WELFARE

Finally, the problem of welfare embraces the general care and oversight of juvenile labour. It is not of itself a problem of training. It excludes much that is concerned with training and includes much that is not. It interests itself with many matters as they affect boys, hours and conditions of employment, safety and sanitation, and factory regulations generally.[1] Modern welfare work, also extends to the boy's leisure, seeking to help him in this, and concerns itself with matters like physical fitness. Such work affects training only indirectly, though this indirect influence is considerable; but in other matters the influence of welfare is direct, as in choice of employment or job, promotion, continued education. Above all, the problem of welfare definitely underlies the whole problem of training, for it is concerned with all the conditions of boy life and work. In this sense the question of welfare is vital. For the work to be done is not merely to prepare boys to do particular forms of work, but to develop their whole characters, mental and physical. The aim of welfare is to make them strong and healthy, steady and honest, intelligent and adaptable. Such qualities are the necessary basis of all sound work, and in the less skilled occupations they are nearly everything.

Such, in brief, are the problems of boy labour and apprenticeship, and the subsequent articles will attempt to work them out in more detail. Following a brief sketch of the past history of the subject, they will examine the main questions arising in regard to training, recruiting, and welfare, and discuss certain special problems that have arisen out of the Great War, and other important questions, like juvenile unemployment. Finally, they will attempt to indicate both the action already taken to deal with these problems, and the lines upon which solutions are to be sought in the future.

[1] Compare the title of the first Factory Act (1802)—the Health and Morals of Apprentices Act.

LEADERSHIP IN INDUSTRY

By JOHN LEE, C.B.E., M.A., M.Com.Sc.

I

THE FUNDAMENTALS

IT is a legitimate presumption that the student of these pages has aspirations to be a leader of his fellows. He is prepared to sacrifice some of his present pleasure to the end that he may equip himself for a position of responsibility, and very probably the position of responsibility will include some elements of human leadership. I prefer to put it in this way rather than in the form of direction or command. It is significant that in the most advanced and complex system of organization, which I think must be said to be the military system, though the words " in command of a battalion " or " in command of a regiment " are still in use, there is more of the art and science of true leadership than in any other organization of human beings. In fact, if the student cares to examine the modern War Office official handbooks he will find in them the most careful and considerate study of leadership which in its subtlety and its anxiety for general welfare is totally different from the blind autocracy which might be expected from the phrase " in command of."

In fact, it is significant that no one to-day has absolute authority. The very basis of organization is that all functions are correlated, including the function of management. Management has its relation to the owners of capital who have deputed the responsibility of ownership to those who conduct the " management " of the industry. That is clear enough, but what is becoming more clear day by day is that management has its relation to the workers, whom it can be said to direct and control, and that it can only direct and control them by the frank recognition of the fact that it has a responsibility towards them. True management comes, therefore, to be a balance between responsibilities and its knowledge of the technique of the industry, and its skill in applying that knowledge must stand in a definite relationship to a knowledge of human nature and what we may describe as skill in applying that knowledge. As a matter of fact we may begin our study by taking up the somewhat paradoxical position that skill in the management of human beings is not a science of the schools which can be imparted. It demands a deeper foundation upon which it can be raised.

THE FOUNDATION OF SYMPATHY

That deeper foundation can best be described as sympathy, and by " sympathy " we mean the strict Greek meaning of feeling-with, or, as it has recently been admirably expressed, " feeling parallel with." But even that is not enough. The sympathetic administrator has points in common with the sympathetic parent. Not everything for which the child makes appeal is to be granted. Out of true sympathy, out of the parallel feeling with the child's better self, there must be denials and, indeed, blunt denials. Kindliness is not always the soft word and the conceded request. But the denial must be a sympathetic denial. It must not be a refusal. It must give evidence of reasoning and of thought, and not merely of obstinacy. It is not necessary to give the reasoning and the thought. There is something in Lord Mansfield's advice to give a decision, but not the reasons for that decision. But Lord Mansfield did not mean that there were no reasons. On the contrary, he meant that the decision was clearly to be the deduction from a reasoning process. More than that, in individual leadership it is necessary to indicate that the reasoning process is not purely a hostile process. It has weighed in the scale the advantages and disadvantages to both sides. In short, it is (again in a strict sense of the word) a sympathetic process.

Thus we state the foundation. While, therefore, the art of industrial leadership is not to be regarded as a readily communicable art, it is just as well to state the canons of the art in such a way as to encourage and not to discourage aspirants. In the aspiration of leadership there is nothing of which one need be ashamed. Leadership is a service. " I am come among you as one that serveth " applies to industry just as it applies to kinghood. The possession of authority is a lure, of course, but there is nothing inconsistent between authority and service. I think we might do well to examine the history of the world for light on industrial leadership. For the history of the world has been the history of leadership. If we could find the secret which lay behind all the leaderships since the earliest days, we might do something for industrial leadership. For when all is said and done, industrial leadership is an enterprise in common, for common ends. It is true that the commonness of the ends is not sufficiently realized, and that at this point there is a shadow over industry, but it is also true that even in the worst conditions, there is far more of commonness of aim than in many of the exploits of the Middle Ages, of which historians have been wont to write so glowingly. Thus we may say that while the art of leadership in industry is not communicable,

and that while the particular personal gifts required are not so widespread as is sometimes imagined, the realization of the common aim can be so widespread as to react upon the efficiency and the worth of leadership, and on this ground general aspirations are to be encouraged, and every industrial soldier may well imagine that in his knapsack is the baton of leadership.

So far by way of a defence of a general interest in the subject. We may proceed to suggest that it would also be well for industry if the day-by-day process were also regarded as part of the training in leadership. The general conception is that the day-by-day process will reveal the qualities necessary for leadership, but that the cultivation of those qualities is a matter of individual culture. The assumption which lies behind this theory, of course, is that the natural possession of the qualities is all that matters. We may wish to take what is not so much a middle course as a combination of the different ideas. Granted the initial possession of the necessary qualities—and to some extent the ardent desire for leadership is an evidence—there is place for individual culture and there is place for some organized practice in the field. Industry must train its leader for to-morrow as well as perform the work of to-day. It is this need which makes the difference between English and American practice. In America it is commonplace that the process of industry shall give opportunities for trial and for development to the leader of the future. More than that, there are systems of actual teaching, lectures and the like, in many of the larger industries. In England this obtains in very few, though systematic substitutions at times of vacation or of absence due to illness are coming to be more frequent.

THE COMMON AIMS

After all, this is a matter for the industries In this place we are more concerned with the principles of industrial leadership as they may appear to the student who wishes to qualify We may begin by a consideration of the common aims, as we have described them. What are the common aims? To achieve the production of a certain article for consumption or for further production is the obvious answer. It is only part of the answer. In an article in *Harper's Magazine*, Mr. Aldous Huxley paints the " machine age " as being the age which has given us greater leisure together with the incapacity for spending that leisure. Everyone associated with the direction of industry must be haunted by the feeling that he is engaged in an enterprise which exacts its price from humanity. Yet he must see, as part of his common aim, as I have called it, that he is working for human freedom, and for the possibility of enjoying that freedom. He must be contented, under the second heading, with waiting for the possibilities of that freedom. It is for other agencies to work towards the fulfilment, and sometimes we must again be haunted by the suspicion that education, in particular, has not succeeded as we should have expected in this direction. Nevertheless, it is easy to be too pessimistic. There has been an enormous advance in the possibilities of freedom. Industry has achieved much in the wider distribution of goods and in the wider distribution of possibilities of freedom. Herein lies the common aim. We are producing goods, but we are also producing agents for the greater freedom. We may agree with Mr. Aldous Huxley's somewhat pessimistic outlook, but we cannot accept his pessimistic prophecy.

Then we may consider the training or the equipment of the industrial leader. In the first place, we may consider one aspect of his equipment in particular, leaving to a further chapter the discussion of equipment in general. It is obvious that an industrial leader must be a thorough master of the technique of the particular industry, and yet it should be remembered that to be a thorough master of the technique is not a sufficient qualification in itself for leadership. It may be a disadvantage if it reacts, as it may react, upon the attitude which the master of technique often adopts towards those who are not masters. The possession of knowledge which suggests the spirit of monopoly is an irritant to others. The industrial leader or the would-be industrial leader must emphasize in his possession of knowledge that it confers the responsibility of service In some instances that service is exceedingly difficult to offer with a good grace, for those who take the offer of knowledge are often those who themselves might readily have acquired it. Even in such circumstances the knowledge must not be withheld. There must be no fear of lack of appreciation. Sooner or later, the world will recognize the possession of true knowledge, and this is so sure that any attempt to hasten that recognition is at a peril. For this and similar reasons the student must not over-estimate the value of the knowledge of technique.

An instinct tells us that we must strive to regard our daily work in its place in the world of effort. The workers pay a mute tribute to this instinct when they show their pride in one of their fellows who is a good cricketer or a good billiards player. Indeed, we may quote Mr. Aldous Huxley at this point and suggest that he is right in protesting against " machine-made " methods of spending leisure. It is to the general question of the relationship of the unit industry to the world outside that the leader of industry will need to devote himself, and he may get some guidance, if he seeks it, from the leisure-desires of the workers. Wages and work are not everything in life. There must be room for expansion, and true leadership will allow for the need.

PUBLIC FINANCE

By The Rt. Hon. William Graham, M.P., M.A., LL.D.

I
INTRODUCTION

Public finance is now a very comprehensive term. Conditions following the European War have added greatly to the importance of the subject. Observe the complicated structure of modern societies, and the great expansion of the functions of the State. For these reasons a simple grouping, such as under the heads of production and consumption, or of supply and demand, is impossible. Public finance has been conveniently defined as the manner in which public authorities obtain their income and spend it; these public authorities are mainly central governments, federal and provincial state governments, and local authorities, such as municipalities, councils and district boards. Funds are collected from the citizens for State and local purposes. In the general problem the claims of the State as central authority must always be related to the claims of the local authorities.

LEADING DIVISIONS

The chief divisions are: (1) public expenditure; (2) public revenue or income; (3) public debts; and (4) financial administration, which has within recent times assumed a much greater importance. The last branch includes the framing of budgets and audit, which in turn means that check or review which ascertains whether the money has been applied to the strict purpose for which it was voted by Parliament or by the local authority, and whether the expenditure was precisely in terms of the governing Act of Parliament or local statute. Financial administration also includes the financial work of the legislature. It is, therefore, clear that many direct and indirect results of these financial processes must be considered before it is possible fully to understand their operation or to judge their merits. The precise treatment which is broadly possible in many spheres of taxation is not applicable to the same extent in expenditure.

Certain general principles must always be kept in view. Most authorities on public finance have shown the close relationship of its principles to those of economic science. In any complete analysis, detailed consideration of the conditions governing State outlay is indispensable. The conditions in different states vary remarkably; expenditure which may be very valuable in a lightly taxed state cannot be defended in one which is struggling under heavy burdens. In revenue and expenditure the general aim of statesmen is to secure the highest or maximum advantage for the community; expenditure and revenue are balanced with the object of securing that result. Economic principles emerge at almost every turn. It is sometimes urged, for example, that problems relating to consumption have not received sufficient attention from economists. Intricate points regarding the incidence of taxation (or its strict burden for the different classes of the community) can only be adequately understood when sound principles regarding the distribution of wealth are applied. Much discussion turns on the effect of taxation on the accumulation of wealth; and that point is closely associated with the conditions of effective production.

CONTINUITY IN FINANCE

Practically every country in the world has at some time examined the taxation of the people with reference to their capacity or ability to bear it. In Great Britain and elsewhere during the European War financial control was necessarily relaxed; after the war problems of economy and retrenchment figured largely in public and private debate. In the United Kingdom the Committee on National Expenditure in 1921 presented a comprehensive review; a similar task was undertaken in India by a Committee under the chairmanship of Lord Inchcape. But the underlying principles remain. In each country there are special financial features which arise from previous history; they are associated with the sentiments of its people. Even a practical revolution like that of the World War cannot break this connection with the past. In that way a system which is admirably suited for one country may be quite inappropriate in another. Compare the financial systems of Great Britain and of India, which show remarkable differences; yet under both very solid results have been attained. A distinguished Indian finance minister once remarked that "finance is not mere arithmetic; it is a great policy. Without sound finance no sound government is possible; without sound government no sound finance is possible." The groundwork of public finance is largely that of full and accurate statistics. That was of very great importance in war-time conditions, in the control of food, shipping and other services. The value of the statistical basis has been recognized to an appreciable extent in subsequent legislation, e.g. the Railways Act, 1921, which for all practical purposes regulates the finance of the four large railway amalgamations in this country.

In historical review of public finance it is difficult to trace scientific treatment of the problem in the experience of the Roman Empire; the different conceptions underlying the constitution of societies in Greece and Rome, and the importance attached to the power of the State, influenced the attitude to public expenditure and credit; but many of the difficulties of the period recall the simple fact that State finance depends ultimately on the production of wealth by individuals. Professor C. F. Bastable considered that the mediaeval period showed little trace of financial theory; there was, however, the revival of methods of practical finance in the German and Italian cities, which were in many cases free from external control; they show some of the first efforts in theoretic discussion. At that time public revenue was often grouped under seven heads, of which the most important were: (*a*) the public domain; (*b*) import and export duties; and (*c*) direct taxation. The conceptions usually described as mercantilism affected the attitude to public finance in the seventeenth century. Much interesting material is found in the elaborate and comprehensive administration of Colbert in France; there and elsewhere present-day students are impressed by the contrast between the apparent prosperity of the State and the extreme misery of large sections of the people. In the second half of the eighteenth century there was considerable development of financial theory, including its international aspects. By Mr. Findlay Shirras and other writers that has been attributed to the custom of men of culture to travel; the frequency with which books were translated into foreign languages; and the introduction of new taxes in one country which very often required the thorough examination of the working of these taxes elsewhere, often under different conditions. In the quarter of a century prior to the publication of Adam Smith's *Wealth of Nations* in 1776 there was further development of the discussion of financial theory, e.g. Montesquieu and the advantages of progressive taxation. There are the essays of David Hume in 1752, and in 1767 Sir James Steuart's principles of political economy and the discussion of public credit and taxation.

Here reference is made to only one or two of the leading works; in a sense *The Wealth of Nations* co-ordinated all previous effort. Superior to earlier analyses it was valuable, among other things, for its review of the expenses and the revenue of the sovereign, and for its abundance of illustration; for its comparative treatment of systems of taxation; for the thorough understanding of the practical aspects of finance, in which his reputation was not in any way undermined by the argument that previous writers had dealt with many of the questions he discussed, and for that "renovated political economy" with which, according to a multitude of followers in every land, he solved some of the most difficult financial problems. *The Wealth of Nations* was speedily translated into the leading European languages; and, beyond all doubt, it exercised a powerful influence on the development of financial doctrine.

The teaching of Adam Smith had not, of course, uniform effect in all countries. After the Napoleonic wars complaint was made that public finance did not occupy the minds of men in Great Britain to the same extent as on the Continent. It has been suggested that the growth of financial theory is hindered when, allied to general prosperity, there is a sound revenue and budgetary system; in other words, financial and fiscal discussion is encouraged when there are clear or obvious defects in economic life. Nevertheless, immediately before and after the Battle of Waterloo (1815) much attention was devoted to the national debt of Great Britain and Ireland. Of the writers of the period, other than Adam Smith, the chief is perhaps David Ricardo, in studies of the principles of political economy and taxation; the great development of the pursuit of financial theory in the second half of the nineteenth century included that of John Stuart Mill (1806-1873); while many American writers undertook the historical review of taxation and problems of public expenditure and revenue in Great Britain. That effort, and notably many valuable contributions by Professor E. R. A. Seligman, may be said to bring us down to the vast financial literature of the European War, including the analysis of the incidence of taxation, the reports of innumerable conferences dealing with international debts, reparations and kindred subjects, such a work as the report of the Royal Commission on the Income Tax in Great Britain, issued in 1920, and many other documents the mere summary of whose titles would fill volumes.

THE ECONOMIC FUNCTIONS OF THE STATE

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I

THE STATE AND OURSELVES

Anyone of my readers who has been, or intends going, abroad, knows to his cost that he cannot enter or leave this island, or any other country, without being the bearer of a document, termed a passport, that certifies him to be a British subject or a citizen of some duly-constituted State.

This membership of a State is, as a matter of fact, one of the most immediate realities of daily life. Our birth has to be declared to a State official by a doctor who has received from the State the right to practise his profession; we are vaccinated in our infancy because of a State regulation to that effect; the State forces our parents to send us to a school which is either wholly or partly controlled by another series of State regulations; our education finished, at the age settled for us by the State, or perhaps later, we enter the world of business, to find that the number of hours we work, the amount of air we are given to breathe in shop or factory, the system of weights and measures used, are all fixed by law, and the same laws fix deductions from our wages for various forms of insurances, whether we approve of insurance or not. Starting business on our own, we find the State helping or hindering us at every turn; there are more than a dozen occupations which we may not take up without a State licence; the State enforces the contracts into which we enter; it prosecutes us for adulteration of the goods we manufacture, or helps us to recover damages if we are defrauded; it interferes with our desire to buy freely certain foreign articles and puts duties on some of our own manufactures; in fact, not only does it take our money in this indirect way, but it takes it directly by levying a tax on all our earnings. In addition to interfering at every point with the way in which we make and spend our money, it claims the right to turn us into soldiers, whatever the risk to our lives; and when we think we are at last at peace from its multifarious activities, we discover our death has to be reported to its agents, and that the very place where our coffin or cremation urn will be deposited is hedged round with regulations from this ever interfering authority.

ITS DISTINCTIVE FEATURES

The State is, of course, not the only community of which we are members. We belong to a family —we may belong to a church, to a trade union, to a club, to groups of all kinds. But membership of a State has certain features of its own.

In the first place it is *involuntary*. We do not choose the State into which we are born, although in certain cases we may transfer our membership to another by naturalization. And, what is more important, we are bound to belong to *some* State. Special circumstances may place an individual in the position of having lost his membership of one State without having acquired membership of another, but that occurrence is too rare to need taking into consideration. Members of some State we have to be and have to remain if we want to lead an ordinary civilized life. We cannot divest ourselves of such membership, however much we may wish to; we are held as in a vice, even to the possibility of having to sacrifice our lives to its existence if it chooses to turn us into soldiers. We may resign our membership of church, trade union or club; we may not resign our citizenship except by the State's permission, and, even then, only to take on the citizenship of some other country.

In the second place, it is *exclusive*. We cannot belong to two States at the same time. No breadth of outlook, no international sympathies, can enable us to enjoy double citizenship. This is due to the fact that States are, in the world of to-day, competing units, and that each must be free to command the full allegiance and loyalty of its members. We have only to imagine the wretched situation of a man who, in 1914, would have been both a Britisher and a German to realize the impossibility of a divided allegiance in the present-day world. This does not mean that an international reorganization is not conceivable, in which the nature and powers of States would be so altered that multiple membership would become practicable—but such an idea is too far removed from present-day conceptions of citizenship to be worth discussing now.

In the third place, membership of the State is *compulsory*; that is, the State has power to enforce its demands—brute, material, coercive force—and it is the only group which has such a power over its members. In the last resort it can compel; or at least (for you can never *compel* a man to do something he is determined not to do, whatever be the cost of refusal) it can control the bodies of its members by imprisonment, and, in some cases, death, for those who disobey its laws. Now, no other group has such power. Your family may disown you, your church or union may cast

you out if you refuse to conform to any of their rules or traditions, but they cannot deprive you of two things, your property and your personal liberty, without themselves breaking the laws and being liable to punishment by the State. On the other hand, you may break off all intercourse with your relatives, leave your church or union, and they can do nothing ; they have no legal hold on you ; as against them you are a free agent, within the limits, of course, of any agreements into which you may freely have entered with them.

But, as against the State, you are not a free agent. You may not leave it ; you must obey its laws, however absurd you may think them to be ; you owe it a lifelong allegiance, however unworthy you consider it ; you must pay the taxes it levies, whatever you feel about their rightness ; you may only leave its territory with its permission. You are only free to do what it does not prevent you from doing, and it may choose to interfere at every point of your life, to decide the clothes you may not wear, the kind of woman you may not marry, the sort of religion you may not follow. You only break its rules at your peril ; retribution follows surely and (nowadays) swiftly.

ITS DUTIES TOWARDS US

There is, of course, another side to this picture. The advantages are not all on one side. If you owe allegiance to the State, it owes you protection ; it has obligations of all kinds to you, and supplies you with all kinds of useful things, from drains to education. Every law which you obey is at the same time a law that defends you ; every limitation on your liberty to interfere with others is also a limitation on their liberty to interfere with you ; the money taken from your pocket is expended on matters of general utility, in which you have your full share. You may feel, naturally, that you would rather have less interference, even at the cost of less protection, keep more money in your own pocket, and have less articles of common utility to enjoy—that is a point we shall consider later, but it is only a matter of degree. In a word, the activities of the modern State are reciprocal ; it is perpetually receiving and giving back ; each of the hindrances it sets up is somebody's guarantee of freedom.

This is particularly true of the modern democratic State. After all, the State is not something outside us ; you and I *are* the State. In the measure in which political power is put in our hands we control the instrument which in its turn controls us.

The story goes that an American, visiting a dockyard, wanted to get on board a man-of-war, and was stopped by a sentry who asked him who he was to dare proceed in this way. " One of the owners," he replied. In a sense he was right. The ship belonged to the American State, of which he was one of the responsible elements, although he had, as a matter of fact, delegated his share of control to the Admiralty of the United States.

FORCE AND THE STATE

We saw a moment ago that one of the characteristics of the State is that it has power at its disposal. Does this warrant us in saying that the State is *based* on force ? Surely not. Autocratic despotisms, in which the mass of the governed had no means of controlling the Government, and no way of getting rid of it except armed rebellion, were indeed based on force, since only force could remove them ; but a modern State, the complete transformation of which, political, economic, social, is legally possible by constitutional methods, obviously rests on the consent of the people. The force at the disposal of the Government is only given to it for a common purpose, and is, as a matter of fact, so small that it could not prevail for long against the whole nation if it endeavoured to use it to thwart the national will. The physical force enjoyed by the State is but the symbol of the truth that existence in a civilized community is impossible without a minimum of conformity to the manner of life desired by the greater number of that community, or, at least, of that part of the community that has a conscious view of life, of which it desires the predominance

STATE AND PEOPLE

We touch here on a second problem. In what sense is the State the whole people ? Are there not whole classes of the population, infants, women under 30, criminals, soldiers, lunatics, bankrupts, and boys under 21, that have no direct share in its control ? Further, is not this control often purely theoretical ? We may have political equality, but as a matter of fact does not power actually belong to a few, even in a so-called democracy ?

Those questions are, of course, fundamental to the issues with which we are dealing, but it is too early to face them now. We shall only say two things. The one is that the duties and the rights of citizenship are not dependent upon a share of direct control ; you must pay taxes, and you may claim the protection of the laws, whether you be a voter or not. The other is that although we may feel that law and reality are apt to be at variance, that the powers the law confers on all citizens equally are not as a matter of fact enjoyed equally by all ; this legal equality of all active citizens is a moral advantage that must not be minimized ; it may only be a stage, and not the goal which our forefathers may have thought it to be ; but it represents an essential milestone on the road to full equal citizenship for all. The " rights of man " may be at times ignored, perhaps even flouted ; but their legal recognition is a fundamental condition to any civilized government.

THE INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

By P. W. MARTIN

(This Course has been planned by Mr. P. W. Martin. The various sections have been written by specialists, for the most part members of the Secretariat of the League of Nations or of the International Labour Office.)

I
INTRODUCTORY

WITHIN the last sixty or seventy years an extraordinary change has taken place in the world. Countries which from the beginning of time have always been many weeks' voyage apart have suddenly become near neighbours. Travelling from one country to another is no longer a matter of months but a question of a few hours by aeroplane, or a few days by boat or rail; no longer a matter of great discomfort and considerable danger, but an ordinary everyday affair. In other ways, too, peoples once far distant have been brought into close touch. They can speak to one another over the telephone. They can listen-in to one another's concerts and public speeches. Their morning newspapers are filled with news from abroad. These improved methods of transit and of communication, moreover, have encouraged, and in turn been encouraged by, the huge growth of international trade. Each country has become the customer and the supplier of every other country.

It requires a strong effort of the imagination to realize how fundamental is the change that has thus been brought about. It is as if a scattered rural population woke up one morning to find its villages, hamlets and lonely farms crowded all together into a single great city; with the traffic of miles of quiet country lanes suddenly concentrated in the streets of a populous town. Clearly, if the business of life is to go forward under such conditions without continual quarrels, accidents, and other setbacks, some form of international understanding and regulation—of traffic control, so to speak—is imperative.

At this point, however, a difficulty arises. The nations of the world cannot ignore the fact that, in their own interests, some measure of international co-operation and co-ordination is essential; but they are not prepared to forego any of the sovereign rights they have been accustomed to exercise. Under such circumstances some compromise between State sovereignty and international control must be found, and was found at the close of the World War. The nations will not brook a police force armed with the authority of law, but they recognize the need for a traffic policeman. It is this need and its recognition that has led to what history is likely to regard as one of the outstanding developments of our generation—the setting up of the League of Nations and the International Labour Organization.

THE LEAGUE OF NATIONS AND THE INTERNATIONAL LABOUR ORGANIZATION

The League of Nations, it is true, is not primarily concerned with the international control of economic conditions. Its central aim is to prevent war. In point of fact, of course, the League, in so far as it is able to prevent war, vitally affects economic conditions the world over. In the same way, certain other of the League's activities—as regards health, for instance—have economic consequences of first importance. But in cases such as this its influence on economic conditions is *indirect* and will not be dealt with here.

As part of its main task of preventing war, however, the League of Nations is called upon to undertake a number of duties which do directly affect economic conditions - the summoning of economic conferences, the restoration of depreciated currencies, the oversight of mandated areas, and so on. It is these activities that will be given special attention in the ensuing sections.

The International Labour Organization is much more directly connected with the international control of economic conditions than is the League of Nations proper. As part of the League (although actually an autonomous organization) its ultimate aim is universal peace; but its primary object is social justice by the international regulation of conditions of labour. The way in which it is attempting to achieve this object is one of the most interesting experiments ever made either in the world of labour or in the sphere of international relations.

Besides this, its main activity, the International Labour Organization endeavours to help the "waifs, strays, and orphans" of the world as they have been called—emigrants, refugees, and native workers; and in a number of other directions it extends a helping or restraining hand where the interests of social justice demand.

In any discussion of the question of the international control of economic conditions, therefore, the League of Nations and the International Labour Organization necessarily take first place, not only by reason of what they are doing, but still more by reason of what they are likely to do in the future. On the other hand, extravagant

expectations based on a misconception of their powers are much to be deprecated. For an adequate understanding of their possibilities and limitations two points require to be brought out very clearly.

THE MEANING OF CONTROL

The first of these points is that the term "control," in their connection, is in some respects misleading. The object of the League of Nations and the International Labour Organization, as they are at present constituted, is not to control economic conditions; it is to enable economic conditions to be controlled. Their essential function is to make possible the international co-operation and co-ordination necessary for this purpose. Such authority as they exercise is purely a moral authority based on consent—the authority of the policeman controlling the traffic, not of the policeman enforcing the law.

The second point is this. There have been earlier attempts to bring about some form of international control of economic conditions, but they were all temporary *ad hoc* arrangements. They suffered from two great disadvantages. They could not give international economic problems the long and earnest study that such problems require. And they were never there when an emergency arose. The League of Nations and the International Labour Organization, on the contrary, are *permanent* organizations. They are equipped for the study of the world economic problems with which they have to deal. And they make possible, for the first time in history, the *continuous* co-operation of the nations of the world.

OTHER ORGANIZATIONS IN THE FIELD

Alongside the League of Nations and the International Labour Organization are a number of other international bodies, likewise designed with the object of advancing the general welfare, some of which—such, for instance, as the Universal Postal Union—are of the very greatest practical utility. The economic influence they exercise, however, is of relatively little importance in comparison with that of the League of Nations and the International Labour Organization.

There are also a number of international organizations, exercising, or endeavouring to exercise, some measure of control over economic conditions, which are of a fundamentally different type from those so far considered. The aim of these other organizations for the most part is not co-operation and co-ordination for the common welfare, but some form of economic control, usually for the benefit of the members of the organizations in question. This does not mean to say, of course, that such organizations are necessarily opposed to the common good—they may, in fact, promote it more effectively than organizations designed to that end—but the common good of the world at large is not their immediate object.

Among such organizations there is the mechanism of international control of reparation payments. There are the international trade associations such as the international trade unions and the International Chamber of Commerce. And there are the international cartels and trusts, of whose activities relatively little information is available but whose influence on economic conditions is, or at least may be, very real.

METHOD OF TREATMENT

Such, then, is the field to be covered here. We propose to parcel it out on the following lines. In the first place, some brief account will be given of the history of international economic control. There will follow a survey of the various organizations at present exercising such control. Detailed descriptions will then be given of the work of the International Labour Organization[1] and of the economic activities of the League of Nations. Finally, an attempt will be made to gauge the possibilities and limitations of the international control of economic conditions in the future.

It is this question of what line developments are likely to take that chiefly interests the student of international economic control. More than most questions it stands in need of cool and reasoned judgment. The principal object of the ensuing sections is to set out the main facts on which such a judgment may be based.

[1] The International Labour Organization is given prior consideration as dealing more directly with economic conditions, and above all as dealing with the basic economic factor—human labour.

STATISTICS

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I
THE USE OF STATISTICS IN ECONOMICS

THE purpose of the articles to be included in this section of the ECONOMICS EDUCATOR is to consider how statistics may be used in the study of economics and in the elucidation of some of its perplexities. To this end the attempt will be made to set out, as simply as possible, and without the employment of mathematical symbols except where their use becomes imperative, those statistical methods which have proved of greatest service in the economic field; to illustrate their application to the clarifying of economic phenomena; to suggest to what extent they may contribute to the solution of economic problems; and to indicate what statistical material is already available and what conditions must be observed in the collection of fresh material. In the present article, certain preliminary suggestions will be made as to the connection between statistics and economics.

At a later stage it will be necessary to attempt a strict definition of "statistics" and "statistical methods." For the present purpose it will be sufficient if we speak of statistical investigation and understand by the term quantitative measurement. In that quite general sense such investigation is appropriate to economics. For the centre of economics is price, and price is quantitative, being the amount of one thing which exchanges for a given amount of something else. Here, obviously, is a field in which the statistician will be at home; and the field is wide.

ASPECTS OF ECONOMICS

And, indeed, statistical investigation has proved itself of service in the sphere of economics. The term "economics," in its present use, covers wide fields of related study and inquiry. It has its historical side, in which its concern is to chronicle past events of economic interest, to trace the development of particular economic institutions, and to make comparisons between such institutions at different times and in different places. On another side it is descriptive of contemporary economic conditions; classifying, for a given society, the main divisions of economic life and activity; describing their structure; comparing their relative importance and their contribution to economic well-being. These are important sides of economics; indeed there are those who would argue that they constitute its whole. Others, again, would deny that these are worthy to be admitted within the inner shrine of economics, whose work is the discovery and contemplation of abstract law and uniform principle. But there is no need to set up such oppositions; and, indeed, the conflict between historian and theorist tends to die a natural death. For each requires the other. While history and description provide the concrete facts necessary for the verification of theory and for the establishment of those general principles which explain this side of human life and activity, history, unbased on some general economic conceptions, would be a mere record of meaningless facts, a body without a soul. The historian must select his material, and such selection presupposes economic judgments. He must again trace causal connections and this involves reference to economic principles more or less clearly thought out. History, if it is to have coherence, presupposes theory. Facts and principles are complementary. They are the matter and mind of economics.

STATISTICS AND ECONOMIC HISTORY

Now for historical and descriptive economics statistics may be an invaluable instrument. The growth of population, the rise and decay of particular industries, the ebb and flow of a country's prosperity, the course of prices, the changes in the standard of living of the people: these historical matters, if they are to be accurately treated, involve quantitative measurements and comparisons. Where statistical material is lacking of course there is no help for it, and the historian must do the best he can in other ways. But, unfortunately, such statistical material as does exist has been too often ignored and the economic historian has tended to rely on tradition. An illustration of these facts is to be found in the recent re-writing of the history of the period of the Industrial Revolution. In his important work on the economic history of modern Britain (*The Early Railway Age*) Professor Clapham emphasizes the point. "The fact," he says in his preface, "that, after the price fall of 1820-1, the purchasing power of wages in general—not, of course, of everyone's wages—was definitely greater than it had been just before the revolutionary and Napoleonic wars, fits so ill with the tradition (that everything was getting worse for the working man) that it is very seldom mentioned, the work of statisticians on wages and prices being constantly ignored by social historians."

STATISTICS AND DESCRIPTIVE ECONOMICS

In the description of contemporary economic conditions the necessity of accurate quantitative measurement and comparison is no less apparent. False tradition, it is true, may not yet have developed to mislead the writer, but faulty observation, out of which much false tradition springs, is already at work. Uncorrected by statistical investigation, observation is apt to mistake the particular for the general, to give undue importance to that which is close at hand and ignore the more distant, and to be misled by the bias of the observer. Orders held up through the enforced stoppage of industries due to the coal strike gave the impression, at the end of that period, of a boom in trade. Crowded theatres and busy confectionery shops suggest unbounded prosperity. Statistical investigation affords a test of the adequacy or inadequacy of such observations.

STATISTICS AND ECONOMIC THEORY

Thus, in history and description statistics is valuable positively in the revelation of facts; and negatively as a corrective. But the acid test comes when we set it to the task of revealing causal connections and of discovering uniformities. If economics is to be considered as having anything of the character of a science, it must be able to reveal laws operating in that sphere of human life with which it deals. There are two principal methods by which it seeks to do so. In the deductive method, economics begins with certain elementary principles which it assumes to be true, and it works down from these, introducing more and more qualifying conditions, until it reaches uniformities of considerable complexity. Thus, beginning with the assumption of pure competition, it reaches conclusions as to the determination, under such conditions, of the value of commodities, corrects its original assumption by the gradual introduction of qualifying conditions drawn from real life, and thus builds up a theory of value which it offers as explanatory of the variety of prices in ordinary experience. In a sense the method is abstract, as it begins with assumed generalizations about the nature of man or of society, but it ends in the concrete and ignores no important detail of economic life. The other method is the inductive. Beginning with the complexities of actual experience it seeks by observation, classification and comparison to reach up to general principles which will explain the details of fact with which it began. It is the method of the natural sciences, which begin with such things as falling objects, and reach up to universal principles like the law of gravitation.

Now the statistical method is inductive. It observes, classifies and tabulates facts in their quantitative aspects, and from its observations draws conclusions. But if it is really to contribute to the development of the science, it must yield conclusions which are true beyond the range of the particular facts observed. It must lead to the establishment of laws which are true universally. It is easy to see how a careful use of figures may throw light on a historical circumstance, or answer a question about contemporary conditions, or how, by a comparison of a particular set of cases, it may enable us to establish a connection between one quantitative aspect of these cases and another; between, for instance, housing conditions and the rate of infant mortality. But to satisfy our present test it must go further, and enable us to say that the connection exists, not only in the observed cases, but in all possible cases. That is, it must establish a causal relation, universally true.

ILLUSTRATION

Suppose, then, that we make a large number of observations of the housing conditions of working-class families living in the same neighbourhood, and arrange these cases in classes according to the number of inhabitants per room, and suppose this arrangement reveals the fact that the greater the number of inhabitants per room the higher is the infant mortality rate, we should have good grounds for inferring a causal relation between this housing condition and the rate of infant mortality. This conclusion would be turned into a certainty if in addition we found that in another set of instances, varying among themselves in every particular except that this housing condition was roughly similar in all, the rate of infant mortality was also similar. Further, where this method can be applied it not only shows that there is a connection between the variations in the one quantity and the variations in the other, but it also reveals the law of their variations; in mathematical language, it shows the one quantity to be a *function* of the other, and thus enables us to infer results outside of the range of the particular instances observed.

SUMMARY

To go further and discuss how this can be done would carry us to the extreme limits of the statistical method which are likely to be reached in this series of articles. For the greater part, we shall be concerned with the more concrete and the less highly theoretical applications of statistics; but it was necessary at the outset to indicate the kind of claim that can be made for statistics as an instrument of scientific discovery. That claim, to sum up, is that statistical investigation as applied to economics throws light on historical fact and on the nature of contemporary conditions, corrects faulty observation, and, in its highest use, establishes causal relations between quantitative aspects of phenomena and thus contributes to the building up of scientific law.

STATISTICAL APPENDIX

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IT is proposed to present in this appendix to the successive issues of the ECONOMICS EDUCATOR selected statistics bearing on economic conditions. In the main they will relate to Great Britain, but foreign statistics will be introduced, where they are available and reliable, for comparative purposes.

POPULATION

The first group deals with population. Table I gives the growth of the population of England and Wales, Scotland and Ireland in each successive Census, 1821-1921.

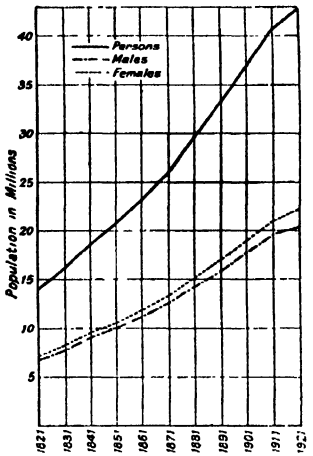

FIG. 1. POPULATION OF GREAT BRITAIN AT EACH CENSUS SINCE 1821

The growth of the population of Great Britain is presented graphically in the following figure (Fig. 1), which also distinguishes between males and females—

In Table II the intercensal rates of increase and decrease in the population of the several parts of the United Kingdom have been worked out; and Fig. 2 puts the figures (for Great Britain) in diagrammatic form.

BIRTH-RATES AND DEATH-RATES

It will be noticed that while the rate of increase shows a general trend downwards, the fall has been remarkable in the decennial period, 1911-21. This may be accounted for by a lower birth-rate, a higher death-rate, or a greater rate of emigration as compared with immigration. Table III shows the birth, marriage and death-rates in England and Wales in five-yearly periods since 1861; and Table IV shows the rates of increase of the population by births, and of decrease by deaths in England and Wales in decennial periods from 1861 to 1921 and also the natural and the actual rates of increase of the population.

DISTRIBUTION BY AGE

Table V shows the distribution of population (of Great Britain) by age in 1921.

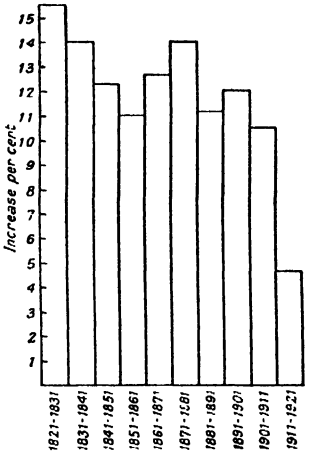

FIG. 2. RATE OF INCREASE OF POPULATION OF GREAT BRITAIN IN EACH INTERCENSAL PERIOD SINCE 1821

A FORECAST FOR GREAT BRITAIN

It is to be seen from the above table that the age-group "Under 12 years" contains a relatively small part of the population, the numbers in this group in the 1921 Census showing a decline of 7.2 per cent as compared with the 1911 Census; a decline due to the decrease in the birth-rate during the war. The deficiency in that group means that the death-rate for the population as a whole in 1921 was abnormally low. Apart from other changes, death-rate may be expected to be higher when that age-group returns to the normal. Keeping that fact in mind, we can follow Professor Bowley in his estimate of the future population of this country. He bases his estimate on the supposition that death-rates will be as in 1910-12, birth-rates as in 1921-23, and that there is no migration. The results are given in Table VI.

TABLE I

GROWTH OF THE POPULATION IN THE LAST HUNDRED YEARS
(Compiled from the Census of Population, England and Wales, 1921)

	1821 000's	1831 000's	1841 000's	1851 000's	1861 000's	1871 000's	1881 000's	1891 000's	1901 000's	1911 000's	1921 000's
England and Wales	12,000	13,897	15,914	17,928	20,066	22,712	25,974	29,003	32,528	36,070	37,887
Scotland	2,092	2,364	2,620	2,889	3,062	3,360	3,736	4,026	4,472	4,761	4,882
Great Britain	14,092	16,261	18,534	20,817	23,128	26,072	29,710	33,028	37,000	40,831	42,769
Ireland	6,802	7,767	8,197	6,574	5,799	5,412	5,175	4,705	4,459	4,390	4,494[1]
United Kingdom	20,894	24,029	26,731	27,391	28,927	31,485	34,885	37,733	41,459	45,222	47,263[1]

[1] No Census of Ireland was taken in 1921; the figures for Ireland are the estimated population for mid-1921.

TABLE II

INTERCENSAL INCREASE (+) OR DECREASE (-) PER CENT (PERSONS)
(Based on Census Reports, 1921)

	1831	1841	1851	1861	1871	1881	1891	1901	1911	1921
England	+ 16·0	+ 14·6	+ 12·8	+ 12·0	+ 13·4	+ 14·5	+ 11·7	+ 12·1	+ 10·5	+ 4·8
Wales	+ 12·2	+ 13·1	+ 10·3	+ 10·5	+ 9·5	+ 11·8	+ 11·7	+ 13·3	+ 17·7	+ 9·0
Scotland	+ 13·0	+ 10·8	+ 10·2	+ 6·0	+ 9·7	+ 11·2	+ 7·8	+ 11·1	+ 6·5	+ 2·5
Great Britain	+ 15·4	+ 14·0	+ 12·3	+ 11·1	+ 12·7	+ 14·0	+ 11·2	+ 12·0	+ 10·4	+ 4·7
Ireland	+ 14·2	+ 5·5	- 19·8	- 11·8	- 6·7	- 4·4	- 9·1	- 5·2	- 1·5	+ 2·4[1]
United Kingdom	+ 15·0	+ 11·2	+ 2·5	+ 5·6	+ 8·8	+ 10·8	+ 8·2	+ 9·9	+ 9·1	+ 4·5[1]

[1] These figures are based on the *estimated* mid-1921 population of Ireland.

TABLE III

ANNUAL BIRTH, MARRIAGE AND DEATH-RATES, ENGLAND AND WALES
(From Reports of Registrar-General, England and Wales)

Period	Births per 1,000 living at all ages	Persons married per 1,000 living at all ages	Deaths per 1,000 living at all ages
1851–55	33·9	17·1	22·7
1856–60	34·4	16·7	21·8
1861–65	35·1	16·8	22·6
1866–70	35·3	16·4	22·4
1871–75	35·5	17·1	22·0
1876–80	35·3	15·3	20·8
1881–85	33·5	15·2	19·4
1886–90	31·4	14·7	18·9
1891–95	30·5	15·1	18·7
1896–00	29·3	16·1	17·7
1901–05	28·2	15·6	16·0
1906–10	26·3	15·3	14·7
1911–15	23·6	16·4	14·3
1916–20	20·1	16·8	14·4
1921–25	19·9	15·7	12·2

NOTE.—Registration of births started 1837, but not compulsory till passing of Births and Deaths Registration 1874. The death-rates in 1915–18 are based on civilian deaths and estimated civilian population.

TABLE IV

ENGLAND AND WALES[1]

Intercensal period	Increase per cent by births	Decrease per cent by deaths	Natural increase (excess of births over deaths) per cent	Actual decennial increases per cent of population
1861–71	37·56	23·98	13·58	13·21
1871–81	37·89	22·80	15·09	14·36
1881–91	34·24	20·27	13·97	11·65
1891–01	31·57	14·18	12·39	12·17
1901–11	28·56	16·13	12·43	10·89
1911–21	23·03	14·65	8·38	4·93

TABLE V

DISTRIBUTION OF THE POPULATION OF GREAT BRITAIN IN VARIOUS AGE GROUPS IN 1911 AND 1921

NUMBERS AND PERCENTAGES

(Compiled from Census Reports, 1911 and 1921)

MALES

Ages	1911		1921		Percentage Increase (+) or Decrease (–) in numbers 1911-1921
	Number 000's	Percentage	Number 000's	Percentage	
Under 12 years	5,120	25·9	4,751	23·3	– 7·2
12 and 13 ,,	793	4·0	847	4·2	+ 6·8
14 ,, 15 ,,	772	3·9	823	4·0	+ 6·5
16 ,, 17 ,,	759	3·9	792	3·8	+ 4·3
18 ,, 19 ,,	747	3·8	765	3·8	+ 2·4
20 to 24 ,,	1,704	8·6	1,651	8·1	– 3·1
25 ,, 34 ,,	3,185	16·1	2,949	14·4	– 7·4
35 ,, 44 ,,	2,627	13·3	2,792	13·7	+ 6·3
45 ,, 54 ,,	1,908	9·7	2,395	11·7	+ 25·5
55 ,, 64 ,,	1,224	6·2	1,555	7·6	+ 27·0
65 ,, 69 ,,	412	2·1	506	2·5	+ 22·9
70 years and over	503	2·5	597	2·9	+ 18·8
Age not stated	—	—	—	—	—
Total	19,754	100·0	20,423	100·0	3·4

FEMALES

Under 12 years	5,100	24·2	4,679	20·9	– 8·2
12 and 13 ,,	793	3·7	840	3·8	+ 5·9
14 ,, 15 ,,	773	3·7	819	3·6	+ 5·8
16 ,, 17 ,,	767	3·6	806	3·6	+ 5·2
18 ,, 19 ,,	762	3·6	800	3·6	+ 5·0
20 to 24 ,,	1,891	9·0	1,929	8·6	+ 2·0
25 ,, 34 ,,	3,514	16·7	3,527	15·8	+ 0·4
35 ,, 44 ,,	2,819	13·4	3,187	14·3	+ 13·0
45 ,, 54 ,,	2,067	9·8	2,560	11·5	+ 23·9
55 ,, 64 ,,	1,370	6·5	1,719	7·7	+ 25·5
65 ,, 69 ,,	499	2·4	603	2·7	+ 20·8
70 and over	722	3·4	877	3·9	+ 21·4
Age not stated	—	—	—	—	—
Total	21,077	100·0	22,346	100·0	6·0

[1] Carr-Saunders, *Population*, page 41.

TABLE V—(*contd.*)

MALES AND FEMALES

Under 12 years .	10,220	25·0	9,430	22·1	− 7·7
12 and 13 ,, .	1,585	3·9	1,686	3·9	6·4
14 ,, 15 ,, .	1,546	3·8	1,641	3·8	6·2
16 ,, 17 ,, .	1,526	3·8	1,599	3·7	4·7
18 ,, 19 ,, .	1,510	3·7	1,566	3·7	3·7
20 to 24 ,, .	3,595	8·8	3,580	8·4	− 0·4
25 ,, 34 ,, .	6,698	16·4	6,475	15·1	− 3·3
35 ,, 44 ,, .	5,446	13·3	5,979	14·0	9·8
45 ,, 54 ,, .	3,975	9·7	4,955	11·6	24·6
55 ,, 64 ,, .	2,594	6·4	3,275	7·7	26·2
65 ,, 69 ,, .	911	2·2	1,109	2·6	21·7
70 and over .	1,225	3·0	1,474	3·4	20·3
Age not stated .	—	—	—	—	—
Total . .	40,831	100·0	42,769	100·0	4·7

TABLE VI[1]

THE POPULATION OF GREAT BRITAIN

Thousands

MALES

Ages	1921	1931	1941	1951	1971	1991	2011
0–15	6,011	5,666	5,788	5,788	5,788	5,788	5,788
15–45	9,358	10,241	10,690	10,726	10,564	10,564	10,564
45–65	3,949	4,463	4,538	4,954	5,381	5,389	5,389
65–	1,103	1,386	1,737	1,862	2,110	2,191	2,223
Total .	20,421	21,756	22,753	22,330	23,843	23,932	23,964
15–65	13,307	14,704	15,228	15,680	15,945	15,953	15,953

FEMALES

0–15	5,929	5,585	5,713	5,713	5,713	5,713	5,713
15–45	10,657	11,125	10,974	10,683	10,515	10,515	10,515
45–65	4,279	5,125	5,595	5,949	5,797	5,676	5,676
65–	1,480	1,790	2,247	2,602	2,991	2,860	2,836
Total .	22,345	23,625	24,529	24,947	25,016	24,764	24,740
15–65	14,936	16,250	16,569	16,632	16,312	16,191	16,191
20–45	8,643	9,182	9,138	8,847	8,679	8,679	8,679

TOTAL MALES AND FEMALES

	42,766	45,381	47,282	48,277	48,859	48,696	48,704

PERCENTAGES

0–15 M. & F.	28	25	24½	24	23½	23½	23½
15–65 M.	31	32	32	32½	32½	32¾	32¾
15–65 F.	35	36	35	34½	33½	33¼	33¼
65– M. & F.	6	7	8½	9	10½	10½	10½

[1] Bowley, *Economic Journal*, vol. 34, page 189.

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page 2*)

II

SIMPLE COMMUNITIES

"Place, Work, Folk—there is much more in this formula, say rather this chord of life, than is yet commonly recognized in most of our economic and social teaching."—PROFESSOR PATRICK GEDDES.

SINCE all human societies must rest on an economic basis, geographical factors necessarily play an important part. The environment always prescribes the conditions under which men can get their living; and in conforming to, or to some degree transforming, their environment, men have to co-operate with one another in ways which determine the form the community will take. Differences in environment, in fact, explain the diversity of human types better than any other hypothesis. In simple societies the interplay of "Place, Work, Folk" is obvious enough. Given an environment so restricted that there is practically no choice as to means of livelihood, we get a society which must adjust itself to "Nature." The most elementary forms of human society are found where life is supported without settlement on, or cultivation of, the soil. To live man has to wander, and, consequently, he makes no permanent impression on his surroundings.

GRASSLAND PEOPLES

Consider that great reservoir of the human race, the vast grasslands of Central Asia. The climate is characterized by a period of snow followed by a short damp season suitable for the natural growth of grass. Other vegetation has no opportunity for developing. Whatever economy is established must rest on the basis of grass. The conditions are so strict that man must accept them; he is powerless to modify them. So he depends on the grass-eating animals for his food, clothing, and shelter. He solved the problem by forming an alliance with the horse. This enabled him to round up and domesticate the cow. A simple community came into being, and its manner of life was strictly controlled. It had to move with the cattle as the grass was eaten. There was no appropriation of land, for when it was grazed it had no value. There was no accumulation of belongings beyond bare necessaries and ornaments for the person, because they would be burdensome to people who were constantly moving. There were no specialized trades, because each adult male must be able to turn his hand to any task. The group was an extended family, recognizing the bond of kinship and paying allegiance to the head or patriarch. It must be large enough to tend to its cattle, and yet not so large that the area of its temporary settlements was overstocked. When it reached a certain size it tended to split up. "And Lot also, which went with Abram, had flocks, and herds, and tents. And the land was not able to bear them, that they might dwell together; for their substance was great, so that they could not dwell together. And there was a strife between the herdmen of Abram's cattle and the herdmen of Lot's cattle. . . . And Abram said unto Lot, Let there be no strife, I pray thee, between me and thee. . . . Is not the whole land before thee? Separate thyself, I pray thee, from me. If thou wilt take the left hand, then I will go to the right; or, if thou depart to the right hand, then I will go to the left." On the steppe the nomad adopted the pastoral life because he had the horse to help him. It was otherwise on the American prairie, where the horse was unknown until he was introduced by Europeans; so the Indians were hunters of buffaloes. Instead of the large patriarchal group there was the hunting clan, in which the energetic young men had the advantage over their elders. The clan was unstable and did not provide a basis for a permanent social organization.

EXTREMES OF COLD AND HEAT

The people of the grasslands—whether they are in the pastoral or hunting stage—must be counted fortunate as compared with those who have to contend against the extremes of cold and heat. That human life should successfully withstand the rigours of the northern winter is remarkable, for here circumstances impose the severest of conditions. The climate limits the food supply, both vegetable and animal. The reindeer may be domesticated, but to supply its frugal diet it is necessary to keep moving. The parts played by horse and cow on the steppe have to be taken by the reindeer, which is not particularly efficient in either rôle. While the horse can endure a considerable range of temperature and has again and again brought the nomads into contact with settled communities, the reindeer cannot penetrate the forest belt. So the people are virtually confined to the north. While they are nomads, they cannot be purely pastoral nomads. To secure sufficient food it is necessary to resort to hunting and fishing. These activities tend to break up human society into small groups, each endeavouring to supply its own needs. All their energies are directed to solving the problem of bare subsistence. Still, their fate may be considered happy compared with that of the peoples of the tropical forest. In the basins of the Amazon and Orinoco there is a vast extent of forest broken only by rivers. The area is subject to torrential rains at definite periods of the year. Excessive rainfall promotes

the luxuriance of forest growth, but it is fatal to grass. In the primeval forest the animal life is mostly hostile to man. If he is to live, he must be a hunter on a small scale, lurking in the thicket and pouncing upon such animals or birds as he can eat. Foresight is not demanded; for food for each day must be obtained on the day. In that temperature he cannot make accumulations. The search for food is therefore a constant preoccupation. They often suffer hunger and sometimes practise cannibalism. All movements are difficult and dangerous, but permanent settlement is out of the question. They have no means of transport except primitive canoes and picking their way in single file through the undergrowth. In these circumstances human society is almost completely disintegrated.

SETTLED COMMUNITIES

All the human types so far mentioned have at the best been waging a rather unequal fight. The people of the steppe have been the most fortunate, for, through their reliance on the horse, they have been able to establish a permanent community on a patriarchal basis. But even they are subject to the imperious commands of Nature. They are doomed to wander, as are all people who live on the spontaneous products of the soil and the yield of the chase. Given the environment, progress is impossible, for these peoples must always remain what they have become, since they were caught in the web of circumstance. The essential distinction between these simple societies and the more complicated societies which have developed under more favourable conditions is that the one is nomad and the other settled. To settle it is necessary to be able to cultivate the soil. Man becomes less dependent on Nature but more dependent on his fellows. For settled communities tend to become ordered communities in which division of labour emerges. External conditions no longer completely dominate the life of man. He learns to modify them by his exertions and to provide for the future through his foresight. The social organization which arises is much more a matter of human will and design, for it rests on the relations between men who perform different functions in an increasingly complex society. Variety of employment offers opportunity for various aptitudes; there is no longer a level uniformity, but grades, classes, and trades. It is some eight or ten thousand years since one branch of the human race discovered the possibility and advantage of settlement. Geography determined the scenes of man's earliest successes. Egypt is the creation of the Nile. Without it the tract would be desert. But the great river, flooding with such remarkable regularity because of the thawing of the snows on the distant mountains of Abyssinia, deposited rich alluvial soil in which cereals can be grown in great quantities. The corn of Egypt could maintain a large population, provided advantage was taken of the annual inundation. So men settled, arranged their fields and an irrigation system. A great civilization was developed. They learnt to work in stone, and erected massive buildings. Their skill in pottery and metal-working is still admired. A settled government, with control of the whole area, was established, and the ruling classes enjoyed a life of great luxury. No doubt public order and increasing wealth were associated with a condition of slavery for the mass of the people, so difficult is it for society to exploit the advantages of a favoured region without placing an undue burden on the actual cultivators of the soil and other manual workers. Broadly, similar circumstances provided the basis for the successive empires which sprang up in the valley of the Tigris-Euphrates. Here, again, the rivers brought down alluvial soil, which, when properly treated, was remarkably fertile. Settlement led to the development of the crafts and the promotion of commerce, for Mesopotamia was better placed than Egypt for external trade. The "way of the desert" was a means of communication long before the sea became one. By desert routes, therefore, the valleys of the Nile and of the Tigris-Euphrates were brought into contact. These routes in due course developed sea extensions which played a great part in the growth of Mediterranean civilization. It is worth remembering that the commercial greatness of Venice to the end of the Middle Ages was based on trade which came by these ancient routes from the east.

THE CLASH OF TYPES

From these illustrations we can gather some conception of the part played by environment in the growth of human societies. "Place, Work, Folk" is a formula which should always be kept in mind as a means of interpreting the significance of any group. *Place* gives the environment, *Work* indicates what men have made of the environment, and *Folk* reveals how the environment has fashioned its inhabitants. Consider the contrast in outlook between pastoral nomads and settled agriculturists. What terror have the former inspired in the hearts of the latter when they have made sudden incursions into their territory under the leaders who have welded the groups into a temporary unity! Attila and his Huns shook the foundations of the Roman Empire in the fifth century, and for a moment in the thirteenth century mediaeval Europe seemed to be faced with as great a peril. Nomad conquerors have proved themselves incapable of assimilating the culture of the settled peoples. Where they have established themselves it has been as a ruling caste exercising despotic control. Joseph was enunciating a wider principle than he realized when he told his brethren that "every shepherd is an abomination unto the Egyptians."

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page 4*)

II

A SEA-FISHERY

GEOGRAPHY, of course, is a study of the surface of the earth, in all its vast variety, repeating on a huge scale the infinite variety that one may see in any little English county. But nothing is really geographical which does not interest you, not merely in mountain and plain, river and sea, wind and rain, but also—and mainly—in the way in which these features affect Man or are affected by him. The mountain is the home of the highlander, the river is the haunt of the fisherman, the plain is the field of the farmer; but man tunnels the mountain, dams the river, and tills the plain to satisfy the needs of his life.

Our own land gives us quite enough variety of experience to suggest some idea of the main relations between man and the earth on which he lives, and it is always best to work from the known to the unknown. We may, therefore, take one preliminary study of the land we know to introduce ourselves to big Mother Earth, and to get some idea of what we mean by the "geographic control" and the "human response." By "geographic control" we mean the tendency of certain geographical conditions to favour certain human results, e.g. sunburn.

CONTROLS—CLIMATIC AND PHYSICAL

Even in our own islands, in dry, hot weather, people get sunburnt, especially on or near the sea, where there may be very strong reflection of the sunlight off the water; indeed, one reason for the popularity of such places as Cromer and Llandudno is that, as the sea there is practically to the *north* of the land, there is a minimum of dazzling light off it. Persons with fair complexion often get badly freckled, i.e. burnt, and people who live in lands that are very dry and have very bright sunlight, become in the course of ages black people. Unless you wear a veil, or stain your skin, or keep out of the sun, you cannot help being thus burnt.

Now, let us look at a rather different relation. All over the world highlanders have, historically, been involved in a great amount of fighting, generally in steep and difficult places. How much breath can you spare for fighting if you are also climbing? And yet it encourages you to fight if you can shout defiance to your foes or slogans to your friends; and it would be still more helpful if you could have a voice more terrible than any human voice. And so, in a great many mountainous parts of the world, highlanders have invented an instrument with a *reserve* of air, in a bag which can be squeezed by the pressure of an elbow, and capable of making an inhuman noise. This example is not meant in the least to be frivolous, but to illustrate—from the typical Scottish bagpipe—a really important point. Man cannot help being sunburnt, but he was not *forced* to invent a bagpipe—only encouraged to do so by the conditions under which he lived. A geographical control may occasionally cause, but usually only encourages, the human response; the sunburn illustrates what may be called specially a climatic control, while the bagpipe shows the influence of the physical. But both show a relation between the place and the people who live there.

In all these relations it is very useful to try to get back to the prime and vital controls, ignoring the minor; and, if we ask what has been the prime and vital control in our own land, the answer must be its insularity. Because it was an island, it could be reached only by sailors, by people who did their business in great waters. They must have lived on land, but moved by sea, and very likely got most of their food from the sea. Let us think of them as sea-fishermen. Then, if we analyse correctly the conditions under which they lived and worked, we ought to get some light on why they were the kind of people that they actually proved to be.

THE MARINE INFLUENCE

There are obviously three things to notice—the land on which they lived, the sea in which they fished, and the people themselves; and the distinguishing factor is apparently that, unlike the mass of the world's population, they depended for food on the sea rather than on the land. What, then, favours the existence of a natural fishing-ground in any sea? The answer is that the three main "controls" are the depth of the water, its temperature, its movements.

All the great sea-fisheries are in shallow water. Why? Because, if the water is much more than 100 fathoms (600 ft.), the sunlight cannot reach the sea-floor; and in that case there can be little or no plant life such as is of vital importance to fish life. These shallow seas should also be in temperate latitudes—for two reasons: these latitudes produce the best kinds of food fish, e.g. cod and herring, haddock and mackerel, etc., and favour social kinds of fish; a herring is much better food than a shark, and herrings move in millions, not in ones and twos.

This is a very important point. Hot latitudes are nearly always scenes of senseless competition instead of sensible co-operation, and so give solitary rather than social types of plant and animal. If in a jungle you find one wild rubber tree, you are not sure, you are not even likely, to find another

close by ; but if in the temperate zone you find one wild fir tree, you are very likely, you are almost sure, to find a thousand more in the same neighbourhood.

The movements of the water, whether tides or currents, are equally important, especially in the case of currents of different temperature. A cold current will bring the best fish, but a warm one will bring the best food for them - the plankton. A very cold current may, of course, bring icebergs, as on the Newfoundland Banks, and so cause great danger both from the bergs themselves and from the accompanying fog. But they carry with them quantities of " rock " from the land on which they were originally built up, and from which they broke away ; and when they come into a warm current, they melt and then drop on the sea-floor the whole load of debris, thus making the sea shallower. So there are both warm and cold currents meeting over most of the great fishing-grounds, e.g. off Newfoundland, off Japan, and off the Cape of Good Hope, and as all these grounds are crossed by busy ocean-routes, there is constant danger both to the fishing-boats and to the liners. Thus, the *Titanic* was on a " short," i.e. a northern, route at a time when the ice is not " fast " ; and at such times liners ought always to keep on the southern route, even though it is longer.

NORTH SEA FISHERY

There is no question of different temperature in the tides, nor is there danger of fog ; their importance is mechanical. In the North Sea there are two tides moving in opposite directions, one southward and the other northward. Owing to the earth's rotation both are swung to the right of their course, i.e. the southward tide against the British coast and the northward against the Scandinavian. The result is a sort of circular movement—southward, then eastward, then northward, round the sea ; and this tends to sweep sand and silt up to form the Dogger and other banks, and to carry the eggs of the fish along with it. The eggs of all important fish, except herring, float ; the fish spawn in early summer, when most food is being brought into the sea ; and at the same time the melting of ice in Norway and the Alps sends a great deal of cold *fresh* water into the eastern and south-eastern parts of the sea. This tends to drive the fish westward into the salter water, and so most fish are found, and most eggs are spawned, on the British side of the sea.

The circular current carries these eggs across the sea, and they hatch on the way, and arrive off the European coast as immense swarms of tiny fish. Vast stores of food for them come down the Rhine and Scheldt and Maas, but even so, scarcely enough for the millions of feeders ; and the largest and strongest seem to move westward, i.e. to the British coast. These driftings of the best fish towards our coast had, no doubt, much to do with the start and the progress of our fishing in early days.

Many people, especially historians, resent any attempt to attribute any " causal " influence to geographical " accidents " ; but any scientific thinker, while careful to avoid the pregnant word *cause*, is fully conscious of the extent to which geographical conditions are favourable or unfavourable to courses of human action or development. And, without any thought of cause or accident or anything except a perfectly natural sequence, we may consider what conditions of life are implied —for man and woman—in the normal events of a sea-fishery.

THE EMERGENCE OF DEMOCRACY

The men are away fishing for some hours, or some days, or some weeks, or even for months. While they are absent, the women must be responsible for everything on shore. When the men at length come home, tired out with hard work and long night watches, they are not competent at once to take up the reins of government, for they do not know what has been happening, nor are the women prepared at once to lay down the reins. There must be a spell of overlapping, of co-operation, of *sharing* all the responsibility. And so in all typical fishing people we find a marked toleration of the weak, a marked sex-equality, and other influences tending to a rise in civilization as measured by the position of women. Here is surely a direct human " response " to the obvious geographical " control " ! There is no crass Salic Law amongst such people, and their history—from Japan to Britain—shows us a sequence of great queens, from the Empress Jingo and Queen Tanta to Boadicea and Elizabeth.

The boat, too, as a rule, was jointly owned, but the four or five owners chose one of themselves—often in turn—to be skipper at sea, and obeyed him instantly in emergencies, without thinking that obedience was beneath their dignity or meant slavery or inferiority,—as so many stupid and conceited persons think to-day.

It was out of this disciplined equality—with its tolerance, its self-respect, its common sense—that real democracy emerged, giving every boy and girl the chance of realizing the best that they were capable of realizing *so long as* they did not believe that they could demand " rights " from their community without accepting " duties " to it.

Where is there any such real democracy to-day ?

PRODUCTION

(*Continued from page 6*)

II

(5) WEALTH IN RELATION TO WANTS (*continued*)

THE relation between wants and wealth is now, perhaps, becoming clearer. Men and women experience certain needs. Some of these are primitive—hunger, thirst, protection against the elements. Some are less primitive, but are still almost universal—a desire for comfort, for certain luxuries, for personal adornment, for the gratification of the appetites. Others are more sophisticated still, or rarer because less readily attainable. How should we spend a windfall of ten thousand pounds? Some of us would invest it, desiring above everything else a future that is more secure; others would buy land or houses, horses, jewellery, pictures. Some, desiring above other things to see suffering diminished, would endow beds in a hospital; others, again, casting their bread upon the waters, would gamble wildly at Monte Carlo, or contribute, not less hopefully, to the party funds. Here are a few representative wants which the possession of money can gratify. But not all the things mentioned as purchasable with it are to be regarded as wealth. Houses, horses, pictures, etc.—yes; these things can be sold again or given away; they are exchangeable goods; they are a part of the world's wealth. Travel—no; I cannot transfer to anyone else, however he may covet them, the experiences of the year I spent in China. Nor can I transfer the emotional satisfaction that is the return to my philanthropy, nor the thrill which I experienced at Monte when the croupier took my last half-crown, nor the baronetcy for "public and political services" that is the reward of my party zeal. These things, then, though they can be brought within the ambit of our definition of a "good," are not to be regarded as wealth.

The great majority of the wants we are considering, however, are strictly demands for wealth; the production of wealth is directed to their satisfaction. So considerable are they, moreover, taking them as a whole, that the business of satisfying them occupies most of our waking hours. Our wants, as has been pointed out, increase continually in their range and scope. The volume of work that, collectively, we perform shows continually a comparable increase. Indeed, it seems at times a trifle puzzling that, with the progressive advance in productive technique made by industrial communities (an advance of which, hereafter, we shall have much more to say), so little progress seems to be made in the shortening of hours of labour. The answer, as we shall see, lies partly in the continued growth of population, partly in the continued development of new wants—in a rising standard of comfort and of luxury expenditure. Leisure, which surely any sane student of the philosophy of life would place pretty high in the scale of human requirements, is still comparatively difficult of attainment. Why is this? Our analysis of the technique of production will throw some light upon the question, but perhaps it will not come amiss to suggest also to the reader that he should try to find the answer for himself.

(6) THE MEANING OF PRODUCTION

The work of a community, we have seen, is related to the satisfaction of its wants; it sets itself to produce the goods and services that, collectively, it requires. But a moment's thought in regard to this notion of production is desirable. Exchangeable goods are either transferable rights, such as the goodwill of a business or the copyright of a book—with these we need not here concern ourselves further—or, as in the vast majority of instances, they are tangible, material things. And in the latter case the production of them means that material of some sort must be worked upon. A coat must be cut according to the cloth, and if there is no cloth there can be no coat. If there is no wool, there can be no cloth; if no sheep, there can be no wool. At every stage, in short, the part which men and women play in production is either to work upon material, or to move material about. It is only conjurers and, in these days, spiritualists, who are exceptions to this rule, who can "produce" a rabbit from a hat or a tambourine from limbo. And in the case of a conjurer at least we know there is a catch in it somewhere, that a rabbit has not, in fact, been brought into existence where there was no rabbit before.

What, then, precisely is "production"?

The answer is simple. It is the production, not of material things, but of material things *made more acceptable than they were*. Wealth consists of goods. A good is commonly defined as something which possesses "utility," and utility as the "capacity to satisfy a desire or serve a purpose." Utility, in this sense, is a something that man *can* create, though he cannot create the material things to which utility is added. A coat is more useful to me than the cloth of which it is made, the cloth more useful than the wool, the wool than the sheepskin. At each stage in the "production" of the coat utility has been added by those engaged in the production. The production of wealth is, then, an elliptic term for the production of utilities.

The participants in production are one and all engaged in adding utilities to matter.

(7) "PRODUCTIVE" AND "UNPRODUCTIVE" LABOUR

There is, however, in regard to this business of production a widely-spread misconception. It is well to clear it up here. An artificial distinction is often drawn between "productive" and "unproductive" labour which is logically indefensible, but which exercises, nevertheless, a powerful influence on some men's minds. According to this distinction, the work of, say, the coal-miner, the shipwright, or the printer, is "productive," while that of, say, the stockbroker, the politician, or the bank clerk, is not. The idea seems to be that in the former case some new form of wealth is brought into existence—a ton of coal, a battleship, a newspaper—while in the latter cases, where the work is "unproductive," no new tangible wealth emerges.

There is obviously a fallacy here. The miner does not "produce" coal; he hews it from the seam where it is embedded; he adds utility to it. The coal which has been hewn and deposited in a trolley has clearly more utility than it had before. But, equally, it has more utility at the pithead than it had at the bottom of the mine; more utility still (from my point of view) at the dump of a local coal-merchant; and a maximum of utility when it reaches my own coal-scuttle. At each stage some further increment of utility has been added or "produced"; in this sense only has wealth been brought into being; and all those who took part in bringing it into being are equally entitled to their appropriate remuneration out of what I pay for the coal.

It is not necessary to review in detail the other instances given; the same analysis is applicable. The production of wealth in any of its forms, from ships to sealing-wax, is an infinitely complex process in which innumerable individuals participate. The mechanism of industry, of trade, and of transport; of finance, of administration, and of government, are all of them involved. The stockbroker, the bank clerk, and even the politician, may all of them play some part in it—each of them, for example, may have had something constructive to do with the removal of my coal from the bottom of the pit to the scuttle where it now reposes. All effort which adds utility to matter, whether by altering its form, or altering its position, or facilitating those organized activities through which such alterations are effected—all such effort is, in the one intelligible sense of the word, productive. It may quite properly be argued that certain kinds of activity are socially more necessary than others; that is obviously true, but here, clearly, no hard and fast line can be drawn. The questions involved are questions, not of definition and statement, but of opinion and of policy.

(8) THE INDIVIDUAL VERSUS SOCIETY

This brings us into touch with a question of considerable importance which we shall do well to consider here. The distinction which it is sought to draw between "productive" and "unproductive" labour, but which, as we have seen, is not well-founded, arises in part from a hazy realization that, while most forms of labour result in an addition to social wealth, certain forms of it do not. This fact has implications, political and philosophical, which we cannot properly ignore.

There can, undoubtedly, be a conflict between a complex of economic activities, considered with reference to an individual, and these same activities looked at from the standpoint of society as a whole. There is nothing surprising in this, and it need cause us no difficulty—provided always that there is no uncertainty as to the standpoint taken up. Where such uncertainty exists, confusion is unavoidable. A little reflection will make the possibilities of conflict apparent. Wealth, to me, means the "goods" that I, as an individual, desire; to obtain them, or to obtain the means of acquiring them, I exert myself in whatever ways seem to me to be most profitable. Now it is clear that both my desires, and the methods that I adopt to gratify them, may, from the point of view of the community at large, be extravagant, noxious, or destructive. Suppose, for example, that I am a welshing bookmaker with an insatiable thirst for alcohol. "Wealth" to me is represented by whisky; "work" by my efforts to persuade "mugs" to part with their money in return for my worthless promises, and by the energetic use of my legs if the favourite gets home. Here is an extreme example. The point of it is that if I were a representative citizen, either in my desires, which determine the character of my demand for goods, or in my notion of what constitutes productive effort, then the society that I belong to would be doomed.

In other words, society can and does draw distinctions between "productive" and "unproductive" activities, between what is wealth and what is not, which assume certain standards of morality, and which are not quite as clearly-cut or as logical as the distinctions, arising out of our definitions, that are applicable when we are dealing with individuals. "Social economics" is a more sophisticated game, played according to its own rules—rules, however, which it is not, in the first instance, the business of the economic theorist to formulate. He is not responsible, as we have already noted, for laying down standards of public morals or of social and political expediency. His angle of vision, when he assumes the "social," as opposed to the "individual," standpoint, will therefore be determined by the social philosophy that he chooses to accept—which may, of course, be his own or anybody else's.

BUSINESS MANAGEMENT

(*Continued from page 8*)

II

ONE of the objects of this series of articles is to show the general reader how the problems of a business man arise, and to indicate the considerations which govern his method of dealing with those problems. It is, therefore, desirable that both writer and reader should place themselves in the position of such a business man or firm, and proceed from the earliest and most elementary questions to those which arise as time goes on.

The enlightened business man would agree that he should be efficient in whatever he did. Efficiency is not merely a condition which is forced upon him by the pressure of competition, but also a duty which he, like everyone else, owes to society. Efficiency is, of course, relative, and the standard constantly changes. A well-known Welsh proverb is popularly repeated in two forms, which, closely translated, are as follows: " Nothing is good while better is possible," and " Nothing is so good that better is not possible." These statements may be accepted as assumptions upon which a progressive business man would work.

CHOICE OF BUSINESS

If we assume that the reader is about to embark upon a business career, he will first of all require to know the powers which he enjoys in law and the restrictions which may be placed upon his liberty of action. He will find that society is so organized that in the absence of specific restrictions which are ascertainable by a lawyer he may assume liberty of action. He may not, for example, build a railway system without a special Act of Parliament; in that sphere the existing law is definitely restrictive. But there is nothing in the law of the land to prevent him from starting as a grocer or steel manufacturer, and for that reason he is at liberty to do so if he desires. If he decides to build a large shop or to erect a steel works he will, however, find himself compelled to obey the building by-laws of the local authority. If he decides to become a farmer and to devote some of his land to the cultivation of sugar beet, he will be entitled for the time being to a subsidy provided by the State.

The next point which the reader will have to decide is the industry which he intends to enter. This question appears at first sight so simple as to call for no comment, but the more closely it is examined the more difficult does it become. In the first place, if he has not already been trained in and for any particular industry, he will naturally investigate the relative prospects of the different industries within the range of choice. Some industries are old and highly standardized, and their growth may be expected to keep pace with the growth of population. Others are obviously decaying, on account either of a change in public taste, or of the growth of some competing commodity, or of some competing industry in some other country. Yet other industries are new and highly speculative; they appear to offer vast opportunities to the right kind of people, but contain many pitfalls for the unsuspecting or inefficient.

In the second place, the reader would naturally seek as much information as possible about the organization of all those industries by which he is attracted. It may be that every one is highly competitive, and that he has nothing to fear beyond the competing strength of his rivals; but it is possible that one or more may be under the control of a syndicate or some other form of monopolistic organization, and that if he enters it he will immediately be met by an attempt on the part of the syndicate to squeeze him out.

NATURE OF THE UNDERTAKING

In the third place, when he has decided upon the industry, the reader will still be faced with the problem of determining the precise limits of his proposed activity. If he enters the steel industry, for example, he will need to decide whether he will purchase the necessary iron ore and scrap and sell the ingot or erect a plant in which he will also produce the iron from the ore and convert the steel into billets or bars, or even finished products, such as plates or castings. In the woollen industry, again, he will need to decide whether he will combine the spinning, weaving, and finishing processes or restrict his activity to one or two of such processes.

If we assume that he is in search of the highest degree of efficiency the precise organization which he will set up will be determined by a number of considerations to which reference will be made in due course. But it may be observed at this stage that if the reader decides to form a company the question of definition is one of the first importance, for the activities of the firm will be restricted by the memorandum and articles of association, in which the nature of the undertaking will be described.

The next point which the reader will be called upon to decide is the size of the undertaking. For reasons which will be submitted in due course the cost of production is largely determined by the scale of operations. Assuming once more that the reader is in search of efficiency it seems to follow that he will adopt that scale which will provide the commodity or service at the lowest cost. But industry is dynamic. As time goes on

and success attends his efforts the reader will naturally expect to extend his business and enlarge the scale of his undertaking; he must, therefore, allow for development. In some industries and trades it may be desirable to start on a very small scale, to rely upon attention to detail for success, and to develop the business slowly to meet the growing needs of an extending circle of customers. In other cases, such as steel manufacture, it is necessary to start on a sufficiently large scale to enable the reader to avail himself of all the economies which are available. In either case the problem of allowing scope for development is bound to present serious difficulty.

Having decided upon the nature of the business the reader will then have to determine whether it would be better for him to purchase an existing business or construct an entirely new business. If he decides upon the former course of action it will be necessary for him to consult lawyers, valuers and accountants, in order to see that he does not incur unexpected obligations or pay more than the business is worth having regard to all the existing circumstances and prospects. In particular he will require the advice of an accountant on the value to be placed on that elusive asset known as "goodwill." Let us assume, however, that the reader decides to start an entirely new business and to carve out a career for himself.

LOCATION OF THE BUSINESS

When the exact character and approximate size of the undertaking have been determined, the next point to be settled is the location of the business. In the first place, it is necessary to decide the region within which the business will be established. Why should Yorkshire be preferred to Gloucestershire for the manufacture of woollens or worsteds, the north-east coast to Sussex for the manufacture of steel, or the Clyde to the Severn for the building of ships?

In the second place, it is necessary to determine the locality within the region which is likely to prove the most suitable for the new business. Why should one part of the West Riding concentrate upon the worsted trade and another part upon the heavy woollen trade? Why should one shipbuilding yard be within a mile of the centre of Glasgow and another shipbuilding yard at Dumbarton near the mouth of the estuary?

In the third place, having decided upon the locality, it is necessary to decide the exact site of the establishment. Should it be in the heart of the city or on the outskirts? Is it an advantage to be on the bank of a canal or river? Is it necessary to build on land which lies low? All these questions will be examined in due course, and it will be shown that the factors by which the answers are determined differ in all three cases.

CAPITAL

The next point which the reader will be called upon to decide is whether he will himself supply the capital, accept all the risks and control the enterprise, or, alternatively, form a joint stock company. The decision in this case will be largely determined by the scale of the enterprise, though there are other relevant factors which will call for consideration. It is obvious that if he decides to become a grocer he will start entirely on his own account; if he has not the necessary capital, he will borrow the required amount from relatives or friends. If he decides to become an engineer he may enter into partnership with another, and they may jointly provide the capital, either from their own funds or from funds borrowed as before. If, however, he decides to become a steel manufacturer on a large scale he will almost inevitably be compelled to form a joint stock company. In that case he will find it necessary to take steps to have the company promoted and floated.

The next point to decide is the amount of capital likely to be required, having regard not only to the immediate scale of operations but also to probable developments in the future. If the new business is to be under the control of a joint stock company, allowance should be made not only for the cost of building the organization (or, if the business is purchased, the share of the vendor) but also for the expenses of promotion and flotation, for dividend during the period which intervenes between the construction of the business and the first declaration of profits, and for such items as stock normally carried by the firm and credit given to customers. There are three sources of capital upon which a business may draw. The first consists of the owners, the second consists of the business itself, that is, past profits held in reserve, and the third, in the case of companies, of the outside public, including such investing bodies as trustees, insurance societies, trade unions, and investment trusts.

We have so far been concerned with the points which have to be decided by any individual or firm which is about to embark upon a new enterprise. They must all be settled before any steps are taken to construct the plant and build the organization or, alternatively, to purchase some existing business. In other words, we have been entirely concerned with the initiation of a business. Initiation has to be distinguished from the actual construction of the organization and the subsequent stages, namely, the building up of the administrative machinery, the engagement of the people who are to be employed, and the fixing of various arrangements with outside agencies and bodies, such as banks, which supply credit, and municipal authorities, which have to sanction sites and levy rates. This constitutes the second stage in the building of a business, and will be considered in due course.

FINDING CAPITAL

(*Continued from page* 10)

II

FINDING CAPITAL FOR THE NEW BUSINESS (*continued*)

FROM FRIENDS

It is not very often that a man can finance himself wholly from his own resources, and the people to whom he naturally turns are his friends and their acquaintances. It is a sad reflection on human nature, but as a general rule it is wise to leave relations severely alone in this connection. The number of businesses that find themselves in trouble through the squabbles of relatives who have financed them is amazing. Your friends know you, and in finding capital the confidence and trust that people can place in you is at least as important as your actual proposition. Again and again one finds the most promising schemes turned down solely because, in the opinion of those approached to finance them, the men handling the schemes do not inspire confidence. There is a well-known and successful banker who has provided finance for many an enterprise whose possibilities would have seemed a little nebulous to most of his brethren; but he has seldom made a mistake. "I am not much concerned," he says, "with balance sheets and estimates and statements, no matter how carefully drawn. I want to see the man responsible for carrying the business through. He is the factor that counts." All the more important is the question of personality in persuading people to invest money in a new business. Herein lies the reason for a man approaching friends; they know him intimately, and are best able to assess his capabilities.

Minimum Capital Required. In these days £1,000–£1,500 is, except in special circumstances, the minimum capital that a new business requires to have any hope of success. The writer has assisted in the formation of successful businesses with a capital of less than £1,000, but in each case the proprietors have held some advantage that was the equivalent of capital. Usually, they had been in the employment of a manufacturer or wholesale dealer, and, as a result of the trust they had earned, they were allowed long-term credits. Although their capital was nominally less than £1,000, it was really far in excess of that figure, for the wholesale dealers or manufacturers, by extending long credit, in fact supplied them with their working capital.

In another instance a shop was opened in an expensive street, and the landlord agreed to forego the rent for a certain period in consideration of a share in the profits over a number of years; arrangements were made for the supply of certain classes of goods on sale or return terms; and favourable credits were obtained for other classes. In three ways, therefore, the proprietor obtained capital, not in money, but in money's worth.

Keeping in view that £1,000–£1,500 is, as a rule, the minimum capital required, the man who has the best chance of obtaining assistance from his friends is the steady-going fellow who has had some years' experience in the same or a similar type of business to that which he proposes to start, and who has saved £500 or so, which he proposes to make the nucleus of the capital required. His friends will not take so much convincing if they know that he is staking his own savings; it is the best proof of his confidence in his plans.

Form of the Scheme. The birth of an enterprise is an exciting affair. The initial ideas are developed, at first with many misgivings, but later with the enthusiasm that is inseparable from the creative instinct. The ideas take form, and the creator regards his work and is satisfied. Now comes the testing time, when the proposition must be set down in cold typescript or print, in such manner as will render the written word the basis on which other people will decide whether or not the new business is sufficiently attractive for them to invest money in it.

How Much Capital is Required. The first question to be decided is the amount of capital required to establish and run the business, and this question can be answered only by a very careful examination of the following factors—

1. The expected amount of sales, rising month by month, from the beginning until the business is in full running order.

The average credit to be allowed on sales, and the proportion of cash sales, if any, anticipated.

2. The amount of purchases required in view of the anticipated sales, also arranged on a monthly scale, with an estimate of the stock to be carried. The average credit expected on purchases.

3. The initial expenditure on furniture, fittings, and equipment; on the purchase, adaptation, erection or lease of buildings, etc.

4. Expenses of every kind that will be incurred—

(*a*) Until sales are in full progress and income is flowing regularly into the business;

(*b*) Thereafter to maintain and expand the volume of sales.

5. The amount of capital to be held in reserve.

These factors should be worked out according to the needs of each individual case in the form of a time-table from the commencement of the business until it is paying its way; and then to the end of the first year. An estimate should also be framed of the anticipated income and expenditure in a normal year, and it should be

remembered to make a liberal allowance for contingencies, delays in collecting debts, and bad debts.

If the business is a manufacturing one, the calculation of the initial expenditure will be more complicated, and the relation of output to sales, regulated as it must be by two considerations, that of allowing for an adequate price margin and for seasonal fluctuations in demand, will require close study; yet the principle remains the same.

The results obtained by a consideration of the factors outlined above will show in the first place the preliminary and initial expenditure required to put the business on a revenue-producing basis, and in the second place the amount of working capital necessary. It is essential in all businesses, large or small, that these estimates be most carefully made. Over-capitalization is bad, under-capitalization is worse. Nothing stunts the growth of a business like want of working capital in its early stages.

Particulars of the Scheme. When the man starting in business has determined the amount of capital required, he should draw up a full statement of his scheme. He will set out the objects of the business, and how he proposes to carry them out; its suggested extent and scope; his business experience and connections; any special capabilities he may have for this kind of enterprise; the location of his works or warehouse or shop or offices, and any advantages it may have through proximity to sources of supply or to potential markets; any contracts he may have obtained or be likely to obtain for the sale of his goods; any arrangement he may have made, or be able to make, for long credits for purchases; every pertinent factor he can think of that will tend to assure the success of the business.

He will next put down in statement form the amount of capital he requires, and how he proposes to utilize it. Thus, in the case of a small factory, the statement might be as follows—

Amount of capital required		£
To be utilized thus:		
(1) Erection, adaptation, or purchase of buildings	£	
(2) Plant and equipment		
(3) Tools		
(4) Stores		
Leaving as working capital		

There would follow an indication of the time when the factory would commence production, the extent of the output and of anticipated sales, and, finally, a statement of estimated profits for the first year and for a normal year, perhaps in this form—

Estimated Income		
Sales		£
Other income (interest, discounts, etc.)		
Less Estimated Expenditure		£
(1) *Cost of Production*		
Cost of materials used	£	
Carriage thereon		
Wages		£
(2) *Factory Oncost*		
Royalties	£	
Rent, taxes, insurance		
Repairs to machinery		
Depreciation of ditto		
Wages of superintendence		
(3) *Finished Goods Purchased*		
(4) *Selling Expenses*		
Carriage outwards	£	
Travellers' salaries		
Advertising		
Bad debts		
(5) *Management Expenses*		£
Office rent, rates, and taxes	£	
Printing and stationery		
Lighting and heating		
Salaries		
Audit fee		
Discount		
Petty outgoings	£	£
Estimated net profit showing a return of per cent on the capital		

In a wholesale or retail business the statement would be much simpler, but the greatest pains should in all cases be taken with the estimates of expenses. Some of them can be accurately determined before a business is started, others are dependent on the size of the sales. It is often a good plan to assume, always on a conservative basis, sales of different amounts, say the minimum and something approaching the maximum expected, and work out the estimates on these bases.

Importance of a Friendly Intermediary in Finding Capital. It is very rarely that the man starting a business is the best man to find the capital for it. He is too acutely interested in getting the capital, and his estimates are therefore liable to undue bias.

He would be well advised to put all his data before an impartial friend, especially if that friend is a business man, or an accountant, or a solicitor with a commercial practice. The friend may make sad havoc of the statement; he may reduce the income estimates and add to the items of expenditure, particularly in order to make allowance for unforeseen contingencies, and perhaps for the comparative inefficiency of the new business during its first year or two as compared with old established competitors.

MARKETING

(*Continued from page 12*)

II

THE GRADING OF GOODS

As markets were organized it became necessary to classify goods in grades, and business was facilitated by the presence of a sample or standard which could be recognized by dealers. But grading and classification were generally by no means rapid processes. Many years were occupied in attaining the perfection of system which is now found in certain leading commodities. It contributes materially to efficiency in the exchange of goods. Merchants very often desired to take advantage of favourable prices before their goods were ready; that is, they offered for the forward delivery of goods on the basis of a sample which had been supplied, but later they began to do business in terms of a standard which was generally or fairly generally recognized. This custom took account of the fact that the goods supplied might not be all of the specified standard, a condition which was met by making allowance in payment for variations in the quality.

THE WARRANT SYSTEM

The conditions and the arrangements necessarily vary with the commodities. In the grain trade, for example, much attention has been devoted to the warrant system, dating from 1733 in the business of the East India Company. The functions of warrants include the transfer of ownership without the actual transfer of the goods; they are a security on which advances from bankers may be obtained; endorsed, they pass from hand to hand, and can be presented at any time for the goods they represent; and, generally speaking, transactions in warrants are the same as transactions in the goods themselves. In other commodities the system of general warrants was of later date; in iron it began about the middle of the nineteenth century. Grading in this case was also carefully developed; it made a substantial contribution to the organization of such important iron markets as Glasgow and Middlesbrough. A general warrant is one which applies to no particular lot of goods; it is a transferable order for an equal amount of cotton, iron, or whatever the commodity may be, of the same grade. Legislation, especially in the Sale of Goods Act, 1893, has removed doubt affecting the transferability of warrants. The system of warrants and grading made steady progress, and under the changed conditions it became increasingly difficult to sell by sample.

Grading was probably fully adopted as a system about the middle of last century. In America warehouses and grain elevators were provided at points of export; the railways made considerable extensions to the west, and offered similar facilities; and as wheat was presented for storage it was inspected and classified in established grades. For the purposes of marketing the receipts issued by warehouses and elevators were equivalent to a given amount of the specified grade. They were thus warrants entitling the holder to possession on presentation. By 1860 most of the wheat in the Chicago market was graded and handled by means of general warrant. The system reached New York in 1874. Cotton is not capable of the same exact process of classification, and most of the authorities agree that the practice of issuing general receipts has never become established in the American cotton trade. It is not stored in large quantities in terminal warehouses. In the development of grading there were many untrustworthy elements until the produce exchanges, for their own protection, adopted rules to control it. The size and prosperity of a market in any commodity clearly depends to a material extent on the efficiency of the system of inspection and grading. Some of the English exchanges exercise control, but in many of the States in America the inspection of staple commodities such as grain is definitely a State function. Illinois, for example, has a public commission providing for the supervision of the grading of wheat. State regulation for the purposes of grading is also found in the markets in Chicago and other centres.

CLASSIFICATION AND STANDARDIZATION OF GRADES

But in grading generally there is considerable lack of uniformity. In the different States in America the practice varies widely, and this variation, under which each market tends to have its own standard, is, undoubtedly, a considerable hindrance to trade. Frequent attempts have been made to establish uniform grades in wheat and other commodities, but so far success has been limited. The later development of the Canadian wheat fields provided probably more opportunity for centralization in the hands of the Dominion Government; in storage, inspection, and the grading of cereals it moved more quickly than the Federal Government of the United States; and under the Grain Act of 1912, administered by the Board of Grain Commissioners for Canada, all wheat grown in Canada and dispatched in railway car load lots or cargoes from elevators must be inspected and graded by Government officials. The principle is pronounced in home and foreign markets, where dealings in wheat proceed on the basis of inspection, certificate and

grade. In this way identity of grade is preserved through every stage of movement; but the identity of separate lots disappears. Similar arrangements apply to oats, barley, and flax.

A study of the conditions affecting cotton brings much practical illustration of this important element in the marketing of goods. Under the rules of the Liverpool Cotton Association, Limited, for example, there is elaborate provision for the classification and standardization of the various growths of cotton placed upon the market. Within this arrangement is included agreement upon standard grades which cannot readily be altered, but to these grades additions are made from time to time under conditions which are fully regulated. Appeal committees deal with American, East Indian and Egyptian growths respectively. Certain of the samples, known as reserve standards, are kept for the exclusive use of the appeal committee concerned. Other, or working, standards are open to the inspection of members on condition that they are not touched, and the system also makes provision for frequent comparison of the two sets. But cotton contains many illustrations of the substantial difficulties which still attend grading. In this commodity, as in others, it is clear that growers might be exposed to considerable unfairness by incorrect classification, a point which was well established in the investigations conducted by the United States Department of Agriculture in 1912. On that occasion samples which were collected from numerous bales showed a wide variation in grade, although there was remarkable similarity in price, and it was an odd fact that the lowest price in the group per lb. was paid for the particular bale of the group which was of the highest grade.

BRANDING AND PACKAGING

Reference has already been made to the essential importance of grading in the organization of markets. But it is important also where there is no highly organized market for commodities. This is borne out by an analysis of the growth of systems of grading in the lumber industry, where the mill owners were perhaps the first section to appreciate the need for the protection which careful grading could afford. On broad public principle there is undoubted economy in purchasing by grade and reputation as compared with purchasing on inspection or by sample; and this economy is plain not only in organized produce markets but in the wide range of familiar retail trade. In the latter there is now a pronounced tendency to put articles into standardized packages. The system makes the shopkeeper little more than a mere agent of transfer, while buyers are spared the trouble of trying to judge the commodities they wish to consume.

QUALITY STANDARDS AND THE STATE

Many authorities contend that if the State fixes standards of weights and measures and takes steps to give a form of guarantee of quality in the case of money and other services, it should definitely undertake the guarantee of the quality of commodities themselves. There are instances in which quality can be just as readily determined as quantity, but to the majority of cases that argument would not apply. Nevertheless, the Governments of Canada and of the United States, among others, have assumed the function of fixing standards of quality. In Great Britain and other lands effort is still largely confined to the protection of consumers against adulteration and the grosser forms of fraud, but it is frankly recognized that much of that legislation is hardly capable of vigorous and emphatic application. In grading many of the problems which beset Government effort arise in the case of commodities whose important markets lie outside of the jurisdiction of the official grading authority. Observe in this connection the contrast between Liverpool standard grades of American cotton and those which are in use on the American exchanges. Under the present practice, following the arrival of American cargoes at Liverpool, considerable time is wasted on arbitration and sampling. It is usually urged that this time would be saved if uniformity were attained in the standards of the two countries, and part of the argument for international uniformity of grade is that in the case of all commodities it would ensure a higher standard of business morality. Importers and exporters would know precisely what was expected of them, and they would be less likely than they are at present to supply inferior grades.

But under any system grading would be, generally speaking, a highly technical operation. In the case of cotton there are elaborate lists of full grades and half grades, apart from the several sub-classes into which cotton itself is divided. For grading, Canadian wheat is divided into five general classes. The nature of each class is indicated by such descriptions as "no grade," "condemned," "rejected," "commercial grade," and "statutory grade." In some parts of the United States of America the grading of wheat involves six classes, practically all of which are further subdivided. In the actual task of wheat grading much depends on three elements, the quality of the grain, its condition, and the presence of admixtures. British importers, by long experience, are familiar with the recognized standard grades of such countries as Canada and the United States; they know that the grading is systematic, and that it is undertaken by impartial experts; and, for these reasons, they are able to purchase largely by grade alone in these countries.

VALUE AND DISTRIBUTION

(*Continued from page 14*)

II

THE PROBLEM STATED
(*continued*)

(*e*) NEXT we notice that nearly three million producers (a third of whom are women) are engaged in the actual mechanism of exchange. This group includes the great majority of those who earn large incomes—whose remuneration, as we shall see later, takes the form of profits rather than of salary or wages. A number of such profit-earners are included in our industrial groups, and indeed it is from industry and not from trade that some of the largest individual incomes are derived. But the ramifications of a modern community are such that it is not always possible to separate the two. Mr. Morris, for example, plays as producer a dual rôle ; he both makes motor-cars and sells them. There may then be some overlapping in our classification. But this applies to comparatively few persons ; as regards the great majority of workers —the weekly wage-earners— the line that separates industry from trade can be fairly clearly drawn. Our present group includes the vast army of clerks, perhaps half a million strong, in banks, insurance offices, and commercial houses, and the two millions of workers who sell goods over the counter or who deliver bread, milk, and other necessaries at the doors of those who consume them.

(*f*) We have still about five million workers to account for, and we will do so summarily. A million and a half are paid by the community, out of the taxes and rates which it levies upon its members, to protect it and to administer its affairs. This total includes the Navy, Army, and Air Force, the police, the Civil Service, and the employees of local authorities. A high proportion of the total—nearly a third—are women.

(*g*) Next there are the professions, which account collectively for nearly half a million. Of these, the teaching profession, with its quarter of a million members, is numerically the most important. It is here that women have, so far, made their greatest productive contribution ; they account for more than half of the total number of teachers. Medicine, the law, the churches, the stock exchange and so forth, are also included in our total. Here is the most fertile of the fields in which " intangible " goods come into being.

(*h*) Finally, there is a small, but increasing, number of persons who earn their living by entertaining others —the stage, the films, professionalized sports, are the fields in which we may look for them ; and there is a considerable number, about two and a half millions, who are paid directly for their personal services. Three-quarters of these are women in domestic employment. These groups, in spite of some belief to the contrary, are properly to be regarded as producers. The men and women whom I pay to entertain me, or to make life easier for me, whether by answering my correspondence, or by sweeping my carpets, or even by exercising my wife's Peke, are just as much producing exchangeable utilities— since I am prepared to pay for them—as is the tailor who makes my coat or the butcher who sells me a joint. The fact that some of the utilities for which I am prepared to pay are less necessary socially than others is a relevant, but a different, question, and we will not deal with it here. (A consciousness that it is also an important question is evident in much of the economic thought and criticism of the present day, and we shall find that it will obtrude itself quite sufficiently upon our notice in the course of subsequent discussions.)

The above completes our first " snapshot " of our community as the economist analyst sees it. It gives us a rough but a fairly complete idea of what it is we mean when we talk of the community as " producing " the wealth needed to satisfy its wants.

THE MOTIVE OF SELF-INTEREST

8. If individual producers themselves consumed the wealth that they produced, or if the community were so small as to admit of a conscious " sharing-up " of the wealth produced among those who have claims upon it, there would be few problems for us to solve. But we are not dealing now with Robinson Crusoe, or the Admirable Crichton, or any of those parties of shipwrecked mariners, beloved of earlier writers, from whose endurance and resource such stimulating lessons can be drawn. We are dealing with a community in which a conscious " sharing-up " of the product is out of the question ; partly because the mere business of organizing such a share-up would present great administrative difficulties, partly (and this is the more important reason) because production is itself organized on the basis of certain assumptions which are quite inconsistent with the sharing-up idea. It is organized on the assumption that individuals may, within such limits as the law prescribes, pursue their own self-interest. The driving-force behind each man's share in production is that of his " self-regarding " motives, and, subject to the restrictions of the law, which forbids the commission of crimes against the person or against property, while giving free play to the acquisitive instinct, it is accepted that

> They shall take who have the power
> And they shall keep who can.

WEALTH AND WELFARE

9. The totality of wealth which is produced within the community will, then, be greater or less as men choose well or ill, not from their own point of view, but from the community's, among the productive opportunities open to them; and "welfare," as distinct from wealth, will be greater or less as men, in pursuance of their self-regarding motives, are led into productive activities which do in fact result in an addition to the stock of desirable things. Thus, in a community in which every one is engaged in creative work there is bound to be a larger volume of wealth available for distribution than in a similar community in which the "work" that a number of "producers," actuated by motives of self-interest, find it profitable to do, is merely the organization of gambling. In the latter case the gamblers themselves may be wealthier than they otherwise would be; but their activities from the point of view of the community, constitute an almost total loss—a loss, that is, against which there is nothing to set off save the "happiness" which their victims may derive from the opportunity to participate in the gamble.

10. The upshot of this is that we cannot say offhand what relation there is between the effort which the community puts forward in its productive capacity and the "wealth" which is finally available for distribution. Nor, indeed, is it with what is *finally* distributed, i.e. the goods and services produced, that we are first of all concerned. The community carries on the activities that we are seeking to explain in terms of a monetary economy; without a monetary economy, in fact, it would be impossible to organize production beyond the point attained by primitive societies. When therefore we speak of "distribution" we have in mind primarily the distribution, among those concerned in production, of the money payments which the goods and services receive, and for which the goods and services themselves are subsequently exchanged. Our second "snapshot" is designed to give some indication of what this process involves.

11. OUR SECOND "SNAPSHOT." HOW THE SOCIAL DIVIDEND IS SHARED AMONG THOSE PRODUCING IT

(N.B.—The figures which follow in this and the following "snapshots" are not to be taken as exact. But they are sufficiently near to the fact to enable us to present a fair picture; its outlines are believed to be substantially accurate, though its details may be blurred.)

The money income of the community, at the present time, is about £4,150,000,000 annually. We select a year as the most convenient unit. But it must be remembered that what we are dealing with is a continuous flow of transactions, and that the period chosen has only an accounting significance. This annual income should, for the purpose of the analysis which follows, be reduced by about £350,000,000, the interest on the national debt—since the payment of this merely involves what are little more than paper transactions between individuals and the State. This leaves us with £3,800,000,000, the value, at the present price-level, of the various money payments which, in the course of a year, the producers of goods and services receive. This is the total of the sums paid out to workers for the work which they have done, to the owners of capital for the loan of it, to owners of capital goods for their use, and to traders as their profit on the goods that they have sold. It is clear that related transactions, e.g. the manufacture and subsequent sale of the same motor-car, may appear in different places in the aggregate of payments we are now considering. That does not matter. We are dealing, as we have already pointed out, with a complex flow of transactions. As long as each payment included in our total represents a utility produced or a service rendered our analysis will serve our purpose.

12. On this assumption our £3,800,000,000 is, we shall find, "distributed" as follows—

(*a*) To the owners of land and buildings, and to those who occupy land (tenant farmers, etc.), about £250,000,000.

This includes not only what is paid for accommodation, but also what is paid by farmers and other cultivators for the land, etc., which they rent. Where the occupiers of houses or land are themselves the owners, the annual value of their property is included also, though monetary payments in these cases have not, in fact, taken place (i.e. this round figure is based upon the receipts from Income Tax, Schedules A and B).

THE "PROFITS OF INDUSTRY"

(*b*) To those responsible for the conduct of industry and trade, other than small shopkeepers, and to members of the better-paid professions (it is, unfortunately, not possible to separate the two) —about £1,150,000,000.

This enormous total, which amounts to some 30 per cent of the aggregate "social income," mainly represents not only the earnings (of management, etc.) which those responsible for the conduct of industry and trade receive, but also the income which accrues to them by virtue of the ownership of capital. It includes therefore the whole of the "profits of industry" in the wide sense of that term. (It is based upon Income Tax returns, Schedule D.) The bulk of this sum goes to a comparatively limited number of individuals—not more, probably, than half a million. Ownership of capital, however, is widely distributed, and is all the time tending to be more widely distributed still. It is, therefore, not possible to state with precision how many who, for the purposes of this classification, figure in other categories, have also some claim upon this.

CURRENCY AND BANKING

(*Continued from page* 16)

II

THE VALUE OF MONEY

THE first article in this series was concerned with the main functions of money taken in its wide sense, and it was found that one of these functions was to provide a standard of value so that the exchange-values of goods and services could be expressed in some simple but convenient form. It was also found that a sound monetary economy implied that the standard of value should be a stable standard, and not a fluctuating one. The fuller implications of this point involve a discussion of the phrase " the value of money."

Economic or exchange-value is not an intrinsic property of commodities. It expresses simply a quantitative relationship and signifies as between two articles the quantity of the second which is exchanged for a given quantity of the first. When one of the articles is money, the relationship which is expressed is one of price. Let us suppose that we are dealing with two commodities, coal and wood, and we find that one ton of coal exchanges for four loads of wood. We can then say that the value of a ton of coal in terms of wood is four loads. But if coal becomes relatively scarcer, or wood becomes relatively more plentiful, the value of coal in terms of wood will rise; i.e. a greater number of loads than before will have to be exchanged for the same quantity of coal. We can express the same thing if we say that the value of wood in terms of coal has fallen. More generally, if the value of one article in terms of a second rises, the value of the second in terms of the first falls. Let us now substitute money units for loads of wood. If, then, the value of coal, in terms of money, rises, i.e. its price rises, the value of a unit of money in terms of coal has fallen.

PRICE LEVELS

The important point to be recognized is that the value of money cannot be expressed in terms of itself. It might happen however that while the prices of coal and wood had risen, the prices of cotton and wheat had fallen. Thus, while the value of money had fallen in terms of coal and wood, it had risen in terms of cotton and wheat. But under other conditions it might happen that the prices of all commodities had risen together or fallen together. In such a case we would be entitled to speak of a general fall or rise in the value of money; and that is what is meant when people speak generally of money as " not going so far " or as " going farther " at one date as compared with another. It is an instance of the proverb: " Money is that money does." In economic language, the value of the pound (or the dollar, or the franc, or the mark) rises when it will buy a greater quantity of goods and services than before, and falls when it will only buy a smaller quantity of these things than before. And since it will buy more or less of these goods and services if their prices are low or high, any reference to the value of money in general is at the same time a reference to the " general level of prices." But there is this difference, that the one is the inverse of the other. The value of money is high when the general level of prices is low, and low when the general level of prices is high.

INDEX NUMBERS

High and low are, of course, relative terms, and for measurement purposes we must select a standard. There is probably less difficulty now than formerly in understanding the means used for measuring general price changes. The use of " index numbers " has now become less academic, and, while there are many practical difficulties in obtaining a satisfactory index number, the general principles may be indicated. Let us take four articles whose price can be easily ascertained at different dates. We may then ascertain their prices at a certain date, which we call the " base " year or month, and we express each of the four prices by the number 100. At other dates we take the prices then ruling and express these by other numbers, which show the proportionate change in price as compared with the corresponding price at the base year or month. The following example based upon fictitious figures may illustrate the procedure—

	1914		1920	
	Price	Index	Price	Index
Coal (ton)	20s.	100	30s.	150
Wheat (bushel)	5s.	100	8s.	160
Wood (load)	10s.	100	13s.	130
Oil (gallon)	3s.	100	6s.	200
Average		100		180

Thus, in respect of this group of four articles, there has been a general rise in price of 80 per cent over the period given.

In constructing a series of index numbers to show movements of this kind, a number of practical points must be observed. We must compare

the prices of the same articles. There are different grades of coal, for example, and it would not be valid to compare " Best Derby Brights " in 1914 with " steam coal " in 1926. Then a satisfactory index requires that account be taken of a large number of commodity prices, otherwise the index will tend to give undue weight to influences which may have affected the prices of particular commodities rather than influences which have affected the prices of all commodities. Thus, the index number of wholesale prices, published monthly by the *Statist*, is a continuation of an earlier index, first devised by Mr. A. Sauerbeck, and includes 45 commodities. The original base for this index is the average for the period 1867-77, but the figures are frequently cited reconverted to the base 1913.[1] The wholesale price index of the *Economist* is of a similar nature and includes 44 commodities, and other indices are published by the Board of Trade and *The Times*. These indices all refer to wholesale prices. But mention must also be made of the cost of living index number which is published monthly by the Ministry of Labour. This index is designed to measure changes in the cost of maintaining a certain standard of life and is based upon an examination of the average expenditure in 1944 urban working-class family budgets collected by the Board of Trade in 1904. The items included in the construction of this index fall under five heads: (1) Foodstuffs—beef, mutton, bacon, fish, flour, bread, potatoes, tea, milk, butter, margarine, cheese and eggs. Information is obtained of the prices of these articles from as many as 630 towns and villages over the country; (2) Rent—information obtained under this head relates to unfurnished dwelling-houses of the type usually occupied by working-class families, account being taken of increased rates; (3), (4) and (5) the remaining groups relate respectively to clothing, fuel and light, and miscellaneous items.

COST OF LIVING INDEX

The general index of cost of living is not, however, a simple average of the indices for each item or group of items. Account has to be taken of the importance of each item and each group of items in the general family budget. Accordingly, the method of arriving at a " weighted average " is adopted. In respect of the five groups the following weights are employed: Food, 7½; rent and rates, 2; clothing, 1½; fuel and light, 1; miscellaneous items, ½; total, 12½. The general index is, therefore, based upon the assumption that 60 per cent of the family expenditure is made in respect of foodstuffs.

Many of the criticisms which are levied against this particular index are based upon misconceptions. Necessarily, any index must attempt to measure price changes in respect of a standard collection of commodities. But any particular family may not consume the different articles in exactly the assumed proportions, while there are also likely to be seasonal changes in expenditure of which the index takes no account. Thus, more eggs and milk may be consumed in summer, when the prices of these articles are relatively low, than in winter, when their prices are seasonally higher. But within practical limits the index appears to provide a valuable clue to retail price changes as compared with wholesale price movements affecting foodstuffs, raw materials of industry, etc.

It will be found later that important problems arise from one-sided price movements. For example, it may happen that for special reasons the rise in prices in respect of one important group of commodities is greater or less than the rise in prices in respect of some other important group. There has been much discussion, for example, in the post-war period of the effects of the relatively high level of " sheltered " prices in comparison with the level of " unsheltered " prices. The second group refers in the main to commodities which enter into international trade, and which are, therefore, subject to world competition. Sheltered prices, on the other hand, refer to goods and services which are not subject to the same direct competition from foreign sources, and it may be that for special reasons these prices remain relatively high. We are not concerned at this stage with the effects of such disparities or with their causes. If we notice the fact itself it will serve to indicate that price index numbers may vary considerably even when related to the same base year or month. That point may be illustrated by the following table, which cites different index numbers for certain of the more important countries during 1926—

	June	December
United Kingdom		
Board of Trade (wholesale) .	147	146
Statist " .	147	146
Economist " .	150	148
Cost of living . . .	170	175
United States		
Bureau of Labour (wholesale)	152	147
Cost of Living . . .	175	176
France		
Official (wholesale) . .	738	627
Cost of living (Paris) . .	485	545
Germany		
Official (wholesale) . .	125	131
Cost of living . . .	141	144

For the present it is sufficient to understand the meaning of the " value of money " and the means of measuring its changes.

[1] The Sauerbeck index extends back to 1846.

INTERNATIONAL TRADE

(*Continued from page* 18)

II

THE BALANCE OF INDEBTEDNESS

BEFORE proceeding to a descriptive account of the development of international trade, it is important to understand how the trade of a country is to be interpreted. References are commonly made to what is called " the balance of trade," and it is said that the trade balance of a country is favourable if that country's exports exceed its imports in value, and unfavourable if the value of its imports exceeds that of its exports. But the interpretation of such a statement is full of difficulties and possible fallacies.

MERCANTILISM

For a considerable period from the sixteenth century there flourished a body of ideas known as mercantilism. That " doctrine," if the term can be applied, covered many conceptions and took different forms during the period in which it was maintained. One of these was that a country should endeavour to secure an excess of exports over imports and so secure to itself an influx of the precious metals, and the magnitude of this flow was sometimes taken to measure the gain accruing to the country from its trade abroad. At an earlier phase of mercantilism it was held that the trade with each country should yield an excess of exports over imports, but later writers came to accept " an adverse balance " with particular countries provided the trade of the country as a whole showed " a favourable balance." Thus Josiah Tucker, writing about 1750, sums up his argument with the statement that " the science of gainful commerce consists, *ultimately*, in procuring a balance of gold or silver to ourselves from other nations."

We are not concerned here with the practical consequences of applied mercantilism, but it is quite invalid to interpret the trade returns of a country on this narrow basis. It is easy to prove that it is fallacious to argue that an excess of exports is necessarily " favourable " to a country and an excess of imports " unfavourable." The published trade returns relating to any country include only the goods exported from and the goods imported to that country. These items are generally described as " visible." But there are other important items of an " invisible " nature, and these constitute services for which payment has either to be made or received. These " invisible " items vary in magnitude and importance in the different countries. It may be, for example, that a country has a large mercantile marine which renders services to the nationals of other countries, and for these services payment will be due. But against the gross receipts so earned some part will probably be expended on account of stores, etc., purchased abroad. On balance, however, there may be an important income accruing to the country. These shipping services virtually constitute an export, but they are not reckoned in the visible trade returns, and are, therefore, classified as " invisible."

Again, there are certain countries which are famous among tourists, and many persons within these countries are engaged in catering for these visitors. These catering services are virtually exports to the countries from which the tourists have come, but, like the shipping services, they are " invisible." From the point of view of the countries from which the tourists travel, this particular traffic constitutes an invisible import since payment has to be made for the services received by these tourists abroad.

A third important item in the invisible group represents banking and insurance services rendered by financial houses to persons and businesses in other countries. These likewise constitute invisible exports from the standpoint of the country from which they are rendered and invisible imports to the country which receives them. Again, it often happens that large sums are remitted by emigrants abroad to their country of origin, and for these payments allowance must be made in the complete statement of a country's commercial position.

THE EXPORT OF CAPITAL

We now come to the important case of " capital exports," which frequently causes confusion. Let us suppose that a new country requires foreign assistance for its internal development. It may raise a loan abroad and use the proceeds of that loan to import railways, rolling stock, materials for bridge construction, etc. These will constitute imports to that country when they are received, but no immediate payment is made to the country in which the loan was raised. From the standpoint of the lending country visible exports will be increased. But in respect of that foreign loan, no immediate payment is made by the borrowing country; otherwise it would be a purchase and not a loan. The granting of the loan rather involves at the outset a payment *from* the lending country *to* the borrowing country. Hence, foreign loans have been called " invisible imports " from the standpoint of the lending country. We might conveniently follow the practice of Mr. Hartley Withers, who describes a foreign loan as " an import of securities."

But when the loan comes to be repaid the reverse is the case. There the payment which has

to be made is a payment *by* the initial borrower *to* the initial lender. And the repayment may be classified as an invisible export from the standpoint of the lender—a repatriation of securities—and an invisible import from the standpoint of the initial borrower—an import of securities. The case of interest payments is similar. The borrowing country pays interest on its loan and that constitutes an invisible import to that country since payment has to be made by that country, while it constitutes an invisible export from the standpoint of the country which receives the interest payments. In Mr. Withers's phraseology, interest payments in respect of foreign loans may be described as "an export of coupons" by the receiving country and an "import of coupons" by the country which makes the interest payments. The general test for deciding whether or not an invisible item is an "import" or an "export" is whether the item is one for which payment has

In £ millions

	1913	1924	1925	1926
(1) Excess of imports of merchandise and bullion over exports	158	324	384	477
(2) Excess of Government payments made overseas	—	25	11	—
(3) *Total*	158	349	395	477
(4) Net national shipping income	94	140	124	120
(5) Income from overseas investments	210	220	250	270
(6) Commissions, etc.	25	60	60	60
(7) Miscellaneous	10	15	15	15
(8) *Total*	339	435	449	465
(9) Excess of (8) over (3)	+ 181	+ 86	+ 54	− 12

to be made or received. If payment has to be made, the item is an import; if payment has to be received, the item is an export. And an invisible import to one country is an invisible export from another country and vice versa.

THE BALANCE OF INDEBTEDNESS

A complete balance sheet in respect of a country's foreign trade cannot, therefore, confine itself to the so-called "balance of trade." What is required is rather a statement of the "balance of indebtedness" which will take account of all the payments due to and from the country in question. The accompanying table gives the Board of Trade's estimates for 1913, 1924, 1925, and 1926.

Thus, as regards this country, the visible trade balance is "unfavourable" in that it shows a large excess of imports over exports. But normally the invisible income from shipping services, interest on overseas investments, etc., yields a total which exceeds the amount of the adverse visible balance. The final excess, which is shown as item (9), is generally taken to represent the balance which is available for fresh investment overseas. This, however, does not necessarily coincide with the total of new foreign loans raised in London during the particular year. While a foreign loan may be floated in London in one calendar year, it may not be employed in the same year. Moreover there is reason for the view that the official estimates of invisible income rather err on the side of understating the position. The purchase and sale of securities from and to abroad represent items of which no account can be taken, though this may either add or detract from the official estimates. But the general point is clear, viz., that an adverse visible trade balance is not inconsistent with a favourable balance of indebtedness. Both have been characteristic of the United Kingdom for a long period of years. In other words, this country has been an important lender of capital abroad, particularly for the development of the new countries of the world.

MECHANISM OF FOREIGN LOANS

It may be useful to illustrate in more detail the mechanism of foreign lending in relation to the trade position of a country. We may suppose that a new country raises a loan of £10,000,000 in London for its internal development, and, in order to simplify the example, we may suppose that there are no other items of invisible trade, and that the entire proceeds of the loan are spent in the lending country. What then happens is that the borrowers place orders in the United Kingdom for goods and pay for these out of the funds placed at their disposal in the lending country. The employment of the loan will then involve the export of goods from the one country to the other, but payment for these goods is deferred so far as the borrowing country is concerned. Consequently, the visible exports of the lending country will tend to exceed its visible imports while the opposite will hold good of the borrowing country. In later years, the borrowing country will require to pay interest on that loan and at a still later date to repay the principal. That is, it will have to export goods to the original lender without receiving equivalent visible imports, and this will tend to increase the visible exports of the original borrower and the visible imports of the original lender, and—still on the assumption that there are no other invisible items—the trade balance of the former will tend to show an excess of exports and that of the latter an excess of imports.

THE TRADE CYCLE

(*Continued from page 20*)

II

THE ECONOMIC CONSEQUENCES OF THE TRADE CYCLE

THE economic consequences of the trade cycle are varied and far-reaching, particularly those incidental to the decline in trade. They include a falling off in production, increased unemployment, bankruptcies and business losses, decreased wage-rates, longer hours, less favourable conditions of work, and general industrial unrest. For the most part it is impossible to gauge with any exactitude how important any or all of these consequences are, and, in any case, the importance varies from country to country and from cycle to cycle. Nevertheless, some interesting information is available on certain of these points, which, although lacking high statistical precision, is sufficient to give a fairly adequate idea of what the recurrent failure of trade means to the economic world.

PRODUCTION

In its report, " Business Cycles and Unemployment," the National Bureau of Economic Research attempted to compute for the United States " the difference between the production of goods or income in years of depression and production in years of moderate and of intense activity." It found that " the worst years run something like 15 to 20 per cent behind the best, and something like 8 to 12 per cent behind the moderately good years."[1]

From this estimate it might be hazarded that on the average, year in, year out, production is some 10 per cent below the level actually attained during those years when trade is good. In point of fact, for various reasons outside the scope of statistics, most students of the trade cycle would put the diminution of production caused by the recurrent falling off in trade as still greater than this, but the highly conservative estimate of 10 per cent is sufficiently serious.

While the effect of the trade cycle is to decrease total production by some figure probably in excess of 10 per cent, production per man-hour tends to rise during depression. The reasons for this are fairly evident. When business falls off the less efficient workers are discharged, men work harder for fear of losing their jobs, the less efficient firms go bankrupt, while those remaining strain every effort to improve their efficiency. The result is higher unit output.

From this latter point of view, therefore, the effect of the trade cycle on production is not wholly bad. On the other hand, it has been shown by statisticians in the United States[1] that, during the 1920-21 depression in any case, although production per man-hour may have increased, production per man employed decreased. This, no doubt, is due in the main to the fact that during prosperity a considerable amount of overtime is worked, while, during depression, a man, although shown as employed, may, nevertheless, be working on short time only.

The net effect of the trade cycle on production would seem to be, therefore, that total output, year in, year out, is some 10 per cent less than it might be, and that during the depression period, although output per man-hour tends to rise, output per man employed tends to fall off.

UNEMPLOYMENT

When markets for goods become scarce, the men and women making these goods lose their employment. Even during " good times " there is usually some 2 or 3 per cent of the working population unemployed. During depression this proportion rises to 7, 8, 10, or even 15 per cent.

Thus, in Britain, where figures showing the percentage of unemployment among members of trade unions are available since 1881[2], a glance down the columns shows a low point of 2·3 per cent unemployed in 1882, a high point of 10·2 per cent unemployed in 1886, another low point of 2·1 per cent in 1889 and 1890, a high point of 7·5 per cent in 1893, 2 per cent in 1899, 6 per cent in 1904, 3·6 per cent in 1906, 7·8 per cent in 1908, 0·4 per cent in 1916 at the height of the wartime boom, and 15·2 per cent in 1922 at the bottom of the post-war depression.

In these figures we have a vivid picture of how unemployment rises and falls with the trade cycle. During prosperity only about one man in fifty is out of work. During depression one man in every ten or fifteen is unemployed. In 1916 not one worker in 200 was without employment. In some of the months in 1921 and 1922 one man in every five or six was idle. These statistics, moreover, are for the general body of trade unionists taken as a whole. If certain trades only are considered, the contrast is still greater. In the engineering, ironfounding, boilermaking, shipbuilding, and metal trades not more than one in a thousand was out of work in 1918, while in certain months of 1922 almost one man in every three was unemployed.

Along with unemployment there is a great

[1] *Business Cycles and Unemployment*, 1923, p. 39.

[1] *Business Cycles and Unemployment*, Chapter IV, by W. A. Berridge.

[2] *Eighteenth Abstract of Labour Statistics of the United Kingdom*, Ministry of Labour, 1926, 4s. This is a valuable and up-to-date source book of statistics bearing on the trade cycle in Britain.

increase in the extent to which short time is worked during the depression phase of the trade cycle. Statistics showing the extent of short time in Great Britain are not available, but in the United States it has been estimated[1] that during the depression of 1920-21 the workers actually in employment worked on the average 4 per cent less time during depression than they did during prosperity.

BANKRUPTCIES AND BUSINESS LOSSES

When, during depression, markets fall off and prices drop, business firms holding goods necessarily incur heavy losses. As some indication of the extent of these losses, statistics of the number of business failures during a trade slump are significant.

In the United States over the whole period 1890-1909 the average number of business failures every year amounted to rather over 12,000; but in 1893, 1896, and 1908 trade depression drove the numbers up some 25 per cent to over 15,000.[2]

The wartime boom and the post-war slump afford still more startling comparisons. During the depression of 1922 the number of business failures in the United States was nearly four times as great as during the boom year 1919.

In Great Britain the increase in the number of bankruptcies is not so spectacular as in the United States, but that great business losses are sustained during periods of trade depression is well known.

CONDITIONS OF WORK. WAGE RATES

The effect of the trade cycle on wages is somewhat complicated. So long as markets are adequate and employment good, workers are in a position to demand high wages and employers in a position to pay them. Consequently during the period of prosperity wage rates tend to rise.

When markets fail the position is reversed, and wage rates are more or less rapidly forced down. High wages during prosperity, low wages during depression, would thus appear to be the general effect of the trade cycle.

But in economics things are not always as they seem. During the revival and prosperity phases the cost of living frequently rises more rapidly than wages. Conversely, during the phase of business recession and the early stages of depression the cost of living tends to fall faster than wages do. So that, although the worker gets higher wage rates at one time and lower wage rates at another, the lower wages will sometimes buy more than the higher wages did. As it is usually expressed, *real* wages tend to be higher during business recession and in the first stages of depression than they are during prosperity.

This, however, is not quite the last word in the matter of wages and the trade cycle. During prosperity most workers are on full time, possibly are working overtime. During depression they are, as likely as not, on short time. Thus, although real *wages* may possibly be higher in the early stages of depression than they were in the preceding period of prosperity, it is possible that real *earnings* may be lower. But reliable statistical information on this point is almost completely lacking, and the question of the net effect of the fluctuations in trade on the remuneration of labour is a doubtful one, varying in different countries, and, above all, in different trades.

HOURS OF WORK AND WORKING CONDITIONS

While the effect of depression on real earnings is not easily determined, the effect on hours of work and working conditions generally is not open to doubt. During the period of trade stagnation employers are seeking desperately for means of reducing costs of production, this being the sole means of selling goods at a profit at the low level of prices prevailing. One way of reducing costs is to get workers to work longer hours for approximately the same wage. Another way is to cut off all "overhead" expenses and, incidentally, to prune away any small privileges granted during the prosperity period. As a consequence, practically every trade depression means a loss to the wage-earners of some of the gains made in the preceding period of prosperity.

STRIKES AND LOCK-OUTS

Wage rates are not reduced, hours of work lengthened, and privileges withdrawn without resistance on the part of the workers. In the same way, during the revival of trade, wages are not increased, hours shortened, and privileges gained without opposition from the employers. Each successive turn in the trade cycle thus tends to give rise to a fresh crop of industrial disputes, with consequent strikes and lock-outs when these disputes cannot be settled by negotiation. This is not to say, of course, that the trade cycle is solely responsible for industrial warfare, but it is safe to affirm that it does anything but act as peacemaker.

Such, then, are some of the major economic consequences directly traceable to the recurrent falling off in trade. Lower output, unemployment, and industrial unrest are the three outstanding features. We have now to examine what effect these consequences have on the conditions of life of the great mass of the people.

[1] National Bureau of Economic Research. *Employment, Hours and Earnings in Prosperity and Depression.* W. I. King, p. 87.

[2] *Business Cycles*, Wesley C. Mitchell, 1914.

SURVEY OF INDUSTRIES

(*Continued from page* 26)

II

AGRICULTURE

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THE war of 1914-18 clearly showed the importance of the agricultural industry in the economy of this country, and, as a consequence, it has received since then probably more attention than any other single industry. The subsidy on sugar beet, the educational schemes, rural housing, attempts at granting credit, income tax options, quarter rating, are instances of the growing realization that agriculture should not be allowed to decay.

The economics of agriculture are probably more closely connected with what may be termed the politics of agriculture than is the case in any other industry of similar magnitude. Since the repeal of the Corn Laws in the middle of the nineteenth century this country has accepted the idea of free trade in foodstuffs, in order to encourage the growth of manufactures and commerce. Consequently, through long years of peace it reaped the benefits of unhampered trade by importing more than half its food requirements and by neglecting one of its chief industries. The years following the Great War have been very difficult for agriculture as for other industries, and the question now is, in short, whether this country can, even if it desires, continue to pay for large quantities of food by means of manufactured articles, or whether some extended form of encouragement in the shape of higher prices shall be given to the agricultural industry simply because it is said that without such support it cannot continue at its present magnitude. The country, in other words, has to decide whether it will organize its resources of production for peace or for war, whether it will allow all forms of trade to seek unrestricted channels, or whether trade shall be guided and controlled, as in the Middle Ages.

At present the industry gives employment to approximately 550,000 regular male workers for wages, while the capital invested in England and Wales has been calculated to be £1,180,000,000, of which £815,000,000 is represented by the value of the land, including farm houses and buildings. The remaining £365,000,000 is working capital.

AGRICULTURE AN "UNSHELTERED" INDUSTRY

The industry is perhaps the most "unsheltered" of all. In whatever direction it turns its energies, whether it be for the production of beef, pork, wool, mutton, eggs, or cereals, foreign competition on a large scale has to be met. The extent of this competition is shown in the following table—

COMPARISON OF IMPORTS WITH HOME PRODUCTION

Description	Imports, 1925	Home production, 1925 (England and Wales)[1]
	£ millions	£ millions
Live stock and live stock products	287·6	154·5
Farm crops (including potatoes)	135·5	46·0
Fruit, vegetables (except potatoes) and flowers	16·5	24·5
Total	439·6	225·0

It will be seen that this country produces approximately one-third of its total food requirements and that live stock and live stock products account for nearly 70 per cent of that proportion. In view of the importance of this class of produce it was thought that the following table,[2] which makes comparison between 1908 and 1925, might be of interest. The figures for 1908 have been recalculated upon the basis of 1925.

OUTPUT OF ENGLAND AND WALES

	1908 (at 1925 prices) £000's	1925	Per cent increase or decrease 1925 on 1908
Live stock	88,200	78,970	− 10
Dairy produce	49,800	57,600	+ 16
Poultry and eggs	11,100	15,080	+ 36
Wool	4,100	3,000	− 27
Total	153,200	154,650	+ 1

The report does not give similar figures for farm crops, since a large proportion of these are not sold, but fed to live stock, but it is estimated that the quantity of farm crops sold in 1925 was between 10 and 11 per cent less than in 1908. In the case of fruit, vegetables, and flowers, there has been a substantial increase in production during the same period.

[1] *Agricultural Output of England and Wales*, 1925.
[2] *Ibid.*

RE-DIRECTION OF EFFORT

It will be seen, therefore, that the English farmer, faced with severe foreign competition in goods that will bear long distance carriage, namely, meat, wool, and grain, has diverted his energies and money into the more perishable commodities, milk, eggs, and fruit. This re-direction has been very marked since the war, and is continuing, so that at some time in the future, assuming no alteration in our fiscal system, the English farmers will find that the supply is overtaking the demand for these three types of produce, and some other re-direction will be necessary, if the same amount of farm capital is still to be employed. The demand for almost all kinds of agricultural produce is fairly inelastic, and it is this characteristic which accounts for many of the difficulties farmers meet when supply changes considerably in volume through various reasons, such, for example, as increased acreage, or weather conditions. The above table of imports of foodstuffs shows that the home market is dominated by the produce of other countries, so that to the English farmer market prices are fixed, and are usually at a level that leaves him little profit in the absence of adequate organization. In other words, farmers in this country have no kind of monopolistic advantage except possibly in liquid milk and potatoes, and, with the difficulties of regulating the output of such products, even this monopoly will prove of little help in maintaining prices.

The agricultural index number,[1] based upon all types of farm produce, gives an average increase over the 1911-13 figure of 50 per cent for the period September 1926 to March, 1927. Of the nineteen kinds of produce tabulated, those having the highest index are potatoes, 91 per cent; pork pigs, 78 per cent; bacon pigs, 69 per cent; fruit, 67 per cent; milk, 66 per cent. Briefly, these figures, in the case of potatoes are due to a small crop; in the case of pork to the embargo placed upon continental imports; in the case of bacon to the embargo and to changes in sources of supply; while the two remaining items, fruit and milk, are due to the greater attention given these products by English farmers as a means of evading some part of the pressure of foreign competition. It will be observed that both pork and bacon owe their high index figure to a temporary monopoly of the home market due to the present embargo.

CONVERSION OF ARABLE INTO GRASS LAND

In his attempt to minimize the effect of foreign competition, the English farmer, as has already been remarked, is concentrating upon milk production chiefly. This, together with poultry keeping, usually entails a conversion of arable into grass, the extent of which may be seen from the table shown below.

Even in this short period of five years a steady decrease in the area of arable land, amounting altogether to approximately 6½ per cent, has taken place The permanent pasture has increased during the same period by 2·8 per cent, so that there is both a substitution of grass for arable and a decrease in the total acreage cultivated.

ACREAGE UNDER ARABLE AND GRASS IN ENGLAND AND WALES[1]

In thousands of acres

Year	Arable	Permanent pasture	Rough grazings[2]	Total
1922	11,311	14,715	3,762	29,788
1923	11,181	14,762	3,801	29,744
1924	10,929	14,948	3,862	29,739
1925	10,682	15,073	3,920	29,675
1926	10,548	15,128	3,939	29,615

It should be remarked here that while increased milk production does not necessarily entail a change over from arable to grass, since some of the best foodstuffs for cows are produced on arable land, the tendency is to produce milk by feeding cows with grass, and what are termed "purchased" foodstuffs, namely, various cakes and meals. Whatever may be the real reasons for this policy, and there are several, the effect upon the agricultural industry as a whole in this country is serious if agriculture is to be regarded as a "key" industry. It has been calculated[3] that grass land will produce only half the amount of meat or milk per acre that the crops from arable land will when fed to cattle. The easier and less risky method is, however, usually followed. It is safe to say that very few farmers indeed produce arable crops solely for cattle feeding, the usual object of arable farming being to sell the crops. Even should market prices be so low that it would pay him to feed his home-grown crops to his cattle rather than use purchased cakes and meals, this is rarely done for several reasons, the chief probably being force of habit, insufficient live stock, or unsuitability of the foods for "rationing" purposes.

INTERNAL ORGANIZATION

As an alternative, or in addition to changing from arable to grass, or even from one class of product to another, the English farmer is gradually reducing the size of his farm in order to gain certain internal

[1] *Agricultural Statistics*, Part I, 1926.

[2] Plus approximately 1,124,000 acres of common, mountain, and heath land.

[3] Mr. T. H. Middleton, *Journal Board of Agriculture*, Vol. XXII, 1915, page 520.

Agricultural Statistics, 1926, Vol. LXI, Part II.

economies. The prices of his produce being fixed from outside, the farmer has two main lines of defence against low prices, neither of which has been utilized to the full. One is the reduction of internal costs of production by better organization on the farm itself, the other is in the adoption of much more efficient methods of marketing his produce.

If the first of these alternatives be now examined, there arises at once the question as to what method is to be adopted for comparing sizes of farms and their relative economic efficiency, whether, in fact, there can be applied to agriculture the idea of a representative unit or farm. A farm is an industrial unit consisting of an area of land, a proportion of which is under grass, the remainder arable, containing certain farm buildings for live stock, the farmer's house, and possibly the cottages of some of the workers. The first item of importance in deciding what is the economic unit is the proportion between the arable and the grassland, since this is often more or less unalterable by the tenant, because of his contract, and largely determines the chief use to which the farm may be put, namely, for live stock or for crop raising. The kind of farming to be carried on determines next the amount of capital required to stock and run the farm. Usually a tenant requires between 70 and 75 per cent of his capital for his live stock if on a mixed farm. There is, therefore, a definite connection between size, type, and capital required. The nearer a farm approaches this ideal point in regard to capitalization the greater the chance of financial success. It has often been stated that many large farms in this country are under-capitalized and that better returns could be obtained with a heavier capitalization per acre. On the other hand, many small-holdings are over-capitalized, and the remedy here is not to take away some of the capital, since this is often at a minimum and indivisible, but to add more acres, so that a lower capitalization per acre may result. In attempting to ascertain the most economical size of a farm, therefore, one must first of all classify farms according to their type, the usual method being to divide them into grass, mixed, or arable farms, according to the percentage of grass they contain. In each of these three main groups, farms are often placed according to acreage in class intervals, rising by 25 or 50 acres, and the class interval found to contain the greatest number of farms is considered the most economical unit for that particular type of farming. This method is probably the best if a general idea is required and is fairly satisfactory, but there are many limitations, the chief being that unless all farms in the country are tabulated, the sample upon which the classification is made may be either inadequate in size, or biased by including farmers above the average in intelligence and enterprise.

For example, it has often been stated that the statutory small-holding, namely, of 50 acres or less, is an uneconomic unit, because of heavy capitalization in the form of implements and buildings, and also because of high working costs, especially in the shape of man and horse labour. Yet it is probably overlooked that in the majority of cases small-holdings are occupied by men who either are not farmers, or, if so, are restricted in enterprise through inadequate command over working capital. Several of the most successful farms in Yorkshire are small-holdings well below the 50-acre limit. The truth of the controversy between large and small holdings seems to rest upon the human element. There is not the room on a small-holding for any kind of inattention to detail that a larger farm will bear; the work is much more intensive and requires concentration of effort. In urban industry the size of a factory is often determined by the extent of the division of labour possible, but this consideration does not enter, or only to a slight degree, in determining the size of a farm.

EXTERNAL REGULATION

The Corn Production Act of 1917 made farming almost a sinecure. With a minimum selling price for wheat and oats, a minimum rate for wages, and fixed rents, the farmer was encouraged to produce as much as he could, troubled only by the weather. With the repeal of this Act the farmer was again faced with competitive conditions in the market and the labourer with a pressure upon his wage. This latter aspect was remedied by the passing of the Agricultural Wages (Regulation) Act, 1924, but the other two sections of the 1917 Act have not been continued in any form. This has caused the feeling among many farmers that wages are too high and should be unregulated, or that they should be supported by a minimum price for produce as before. The 1924 Act has definitely raised the cost per hour of man labour, and this in itself is one of the reasons why farmers are reducing, wherever possible, their acreage of cereals and certain root crops, which entail a large amount of man labour. The incidence of higher labour cost is not, of course, equal for all farms, since the increased wages may be absorbed in economies in internal organization, or may be spread over a greater output, as in the case of milk production, or even by adding some complementary product, not hitherto produced, which can be grown with the same wage bill by better planning of the whole work of the farm. For example, a small arable farm in Yorkshire, producing milk only, found its labour cost far too high ever to make a financial success. Last year part of the labour cost was absorbed in growing a crop of potatoes, which were sold at a profit, so that the total profit made on the farm as a whole was almost trebled. Similarly, another farmer, employing a considerable number of men

on a mixed farm for milk production, has greatly reduced his labour cost by producing Grade "A" and certified milk, which command a higher selling price.

The wages paid to the individual labourers vary in different localities according to the type of district and the opportunities offered for alternative forms of employment; the question of relative wages arises. For example, there are three rates of wages operating in Yorkshire. The West Riding has the highest rate, namely, 36s., because of the " pull " of the large industrial towns, which would tend to absorb agricultural labour; the East Riding has a rate of 35s., and the North Riding, the most isolated, a rate of 33s., per week of 48 hours in winter and of 52½ hours in summer in each case. Few, if any, piece rates are fixed by the wages boards, yet there is a considerable amount of piece-work done in agriculture. The majority of such rates are fixed by custom. An inquiry made into this question in Yorkshire showed that while some piece rates varied widely for the same class of work, others showed a remarkable uniformity considering that no organized method of fixation has yet been adopted. For example, the rate for hoeing turnips varies from 4s. to 14s. per acre, while the rate for " pulling " peas is more uniform, varying from 9d. to 1s. per 40 lb. bag.

DISTRIBUTION OF THE NET PRODUCT

The question of the distribution of the product of industry is often a subject for academic discussion, a solution to which would probably solve many industrial difficulties. The same problem is very prominent to-day in a practical form in agriculture. What proportion of the net product ought to go to each of the factors in production is a keenly debated point, especially in view of the fixation of higher wage rates by Wages Boards. In this county it has been found[1] that while before the war labour actually absorbed 40 per cent of the value of the net product, this proportion has now risen to more than 50 per cent at the expense of the other partners in production, but chiefly the tenant farmer.

Since wages are fixed, the proportion of the net product absorbed by labour can only be reduced by an increase in that product. Apart from certain other considerations this may be done by the introduction of modern labour-saving implements, provided, and herein lies the difficulty, that the farm is of the correct size and type to absorb the charges of wear and tear and depreciation on such implements. Considerable attention is now being given to methods of standardizing farm implements in order that their cost of production may be reduced, and also to the invention of machines that will increase the efficiency of the worker. It is often assumed that a farm must be large in point of acreage before farm implements can be used economically, but this argument does not apply to the same extent as formerly. A considerable saving in manual labour can be effected upon a small farm if it is producing milk, and requires a number of men for milking the cows, by the use of electrical milking machines, each one of which replaces a man as far as actual milking is concerned. The farmer, of course, has to decide how far this substitution is desirable and practicable, and must so apply the theory of substitution, having regard to the nature of his farm as a whole, that he obtains the maximum reward or benefit. The extended use of implements is not possible on the farm to the same extent as in a factory because of the absence of cheap or bulk power. The recent Electrification Bill will, it is hoped, give to the countryside a supply of cheap power that will enable farmers to utilize to the full the mechanical devices now being perfected. The reaction of this upon the engineering industry should not be overlooked, and the reaction upon the national standard of living of an increased output, and of higher farm wages, is, of course, an important factor in social welfare.

[1] From data available in the Agricultural Economics Department, University of Leeds.

SOME SPECIFIC PROBLEMS IN PRODUCTION

(*a*) **Joint Products and Joint Costs.** In passing to a consideration of some specific problems in production which the farmer has to face, the first factor of importance is that agriculture is preeminently a seasonal industry. Secondly, almost all types of agricultural produce are in the nature of joint products, which means joint costs, with the attendant difficulty of ascertaining with any degree of accuracy the cost which should be allocated to any one particular product. This is so difficult in certain cases, such, for example, as in grain and straw, that an arbitrary division of costs is made, the former being charged with six-sevenths and the latter with one-seventh of the total cost. Some accountants assume the cost of producing the straw to be negligible and charge full costs to the grain only, for the reason that the grain is produced for sale, while the straw is used for the live stock within the farm. This question of the correct allocation of costs is a subject of much discussion among agricultural accountants, but space does not permit of any further considerations here.

In some instances, however, while the farm is producing joint products for consumption on the farm entirely, but the product sold is quite different, then the process of costing may be greatly simplified. For example, a farmer growing corn crops solely for feeding to cows whose milk is the only product sold, need simply charge all his costs of producing the crops directly against the cows; the question of joint costs need not arise. The same consideration applies in the case of a farm specializing in pigs or poultry.

(*b*) **Milk.** Another problem in production the English farmer has always to face is competition in the form of lower costs of production from countries having a lower standard of living. In regard to dairy farming " the producer . . . must see to his methods, especially from the point of view of cost, if he is to hold his own in the market without lowering his standard of living. Dairy farming is one of the most important, if not the most important, of the intensive forms of agriculture, and may, therefore, play a great part in the redistribution of population within the Empire."[1] The Milk and Dairies Order, 1926, in laying down stricter conditions under which milk may be produced, has, for the present at any rate, increased costs of production. These, however, may be offset later by keeping a herd of cows having a higher average milk yield than at present, or even by greater efficiency in handling the milk, since, as a rule, the older the cow byre and equipment the less efficient are they. The production of Grade " A " milk also entails heavier costs, which, however, have been proved to be more than offset by the higher price obtainable.

The farmer producing milk has also to face the problem of " surplus " milk. This is milk produced in excess of the quantity contracted for by the wholesaler, and is only taken from the farmer at a greatly reduced price per gallon. The farmer, unlike the factory occupier, cannot adjust production to the exact quantity specified in his contracts. Many farmers think the question of surplus milk would disappear if demand on the part of the final consumer could be increased, and a comparison is often made between the consumption per head in this country of about one-third of a pint per day, and that of three-quarters of a pint in America. The probability is, of course, that even with a consumption of one pint per head per day in this country, the surplus milk problem would be as big as ever, since supplies would be larger and would again be incapable of being exactly adjusted to demand. The only satisfactory solution seems to lie in the utilization of surplus milk by converting it into other products, such as butter or cheese. This would require to be done upon a large scale, probably co-operatively, if it is to be done efficiently, as in Denmark and in a few centres in England.

(*c*) **" Baby " Beef.** In other products besides milk the influence of demand has been greatly felt during recent years. It has often been said that the large family is now an exception and that, consequently, not so much meat is consumed per household as formerly. In other words, the demand to-day is for a small joint of good quality. Farmers, therefore, are having to produce animals which arrive at market condition at an earlier age, hence there has arisen the problem of producing " baby " beef. This is all the more important in that farmers here feel that successful competition against Argentine beef can only arise through producing a smaller and more tender joint than arrives from abroad.

(*d*) **Pork and Bacon.** The pig question is probably receiving more attention at present than any other agricultural problem. Briefly, farmers are debating whether to produce pork or bacon. The pig, as is well known, is very prolific, and many calculations have been made as to the number of descendants one sow may have in a very few years. Pigs, too, require a fairly heavy bill in the form of purchased foods, so that prices of cakes and meals often have a considerable effect upon the numbers of pigs bred. The English farmer, generally speaking, may be said to produce pigs solely for pork, a rapidly perishable commodity. As a consequence, fluctuations in pork prices have caused disproportionate fluctuations in the numbers bred, so that there has been a continual cycle of small supplies and high prices, large supplies and low prices. Hence the importance of the bacon market as a means of steadying these price fluctuations. The English farmer, however, does not want to lose the high prices of the pork market by concentrating upon bacon, neither does he wish to bear the full burden of a slump in the pork market if he concentrates upon pork. In other words, his problem is to find a method of producing a pig that can be converted into pork or bacon at fairly short notice, by a suitable process of feeding and breeding. He is, therefore, now attempting to produce a dual purpose sow, which will produce a pig suitable for either pork or bacon when crossed with a single purpose boar.

(*e*) **Eggs and Poultry.** In poultry, too, this problem of dual purpose is met. A good laying bird does not make a good table bird, and vice versa, so that a poultry farmer has either to decide whether he will produce eggs or table birds, or divide his energies and equipment, such as huts and feeders, over the two types of birds.

(*f*) **Wool and Mutton.** In sheep farming, the question lies between wool and mutton, but the output of both has considerably declined in recent years. Barley growing is usually more successful on land that has been well manured and trodden by sheep, hence low barley prices, as at present, affect sheep farming.

(*g*) **Crops.** In the production of crops, a farmer again has two alternatives, provided his land is suitable. He may give his main attention to the production of speculative or non-speculative crops. Grain crops, and at present sugar beet, are usually regarded as non-speculative ; green peas, potatoes, and carrots are speculative. In the case of grain, prices are fairly stable because of the world demand and world supply ; barley is an exception, however. In the case of beet, the farmer knows, before he commences sowing, what price he will receive per cwt., and can fix a contract for three years, if desired. In the case of green peas, potatoes,

[1] Report of the Imperial Economic Committee—Fourth Report—Marketing of Dairy Produce, page 15.

and carrots, however, there are several disturbing factors, the chief being absence of imports, large fluctuations in yield per acre, and large fluctuations in total acreage planted.

NEED FOR LARGE-SCALE CO-OPERATION

In order to lessen these wide fluctuations in products, of which the home producer has the monopoly, it has been proposed, in the case of potatoes, to form a co-operative pool to regulate, from a central control board, acreage planted and selling price per ton, but at present this is only a tentative scheme, one great difficulty being that many farmers prefer the speculative element in this crop. There seems to be no doubt, however, that in all types of English agricultural produce some form of co-operation will be required if the industry is to be able to hold its own with large scale competition.

The need of many farmers to-day is for long term credits in order to enable them, especially those who bought their farms during or shortly after the end of the war, to obtain sufficient working capital, so that their farms may be run at an efficient level. Much long-period work requires to be undertaken, such as special forms of drainage, or repairing and reconstructing farm buildings in accordance with recent legislation. A State land bank has not yet materialized, so that any form of credit beyond that granted by the ordinary commercial banks will need to be supplied by the farmers themselves acting co-operatively as in Denmark and Germany. At present this co-operative credit is practically unknown in this country.

IMPROVED MARKETING A NECESSITY

By far the most important aspect of English agriculture, however, lies not in production but in marketing. In many respects agricultural produce is marketed in a primitive way, that is to say every individual farmer spends a considerable amount of time and money in sending or taking a very small quantity, comparatively speaking, of produce to the local market. Arrived there, he or his man, perhaps both, have to wait a considerable part of the day before their particular "lot" is sold; and then often to a group of dealers or middlemen, who form more or less of a price ring as far as that local market is concerned. The argument, often used, that a farmer does not know how market prices stand unless he attends the market has surely lost its force now that prices are recorded both in the local press and in the official market reports issued weekly by the Ministry of Agriculture. It is safe to say that no other industry of the size of agriculture would think of marketing its output in this piecemeal manner. What is required is some method of marketing in bulk, and, as a necessary corollary to this, some agreed methods of grading or standardization. The Danes have shown English farmers that even agricultural produce, which depends so much upon conditions outside the farmer's control, can be standardized on what might be called the multiple standardization system. That grading pays for its cost is shown either by a comparison of the average price per dozen realized by Danish eggs with eggs from other foreign sources, or by comparing prices obtained in this country by graded produce coming from a farmers' co-operative society, with ungraded coming direct from the farm. Grading cannot be undertaken by individual farmers except in certain instances, such, for example, as producing pigs at a certain weight for bacon purposes. Egg and fruit grading and packing require considerable equipment in order to be done upon a commercial scale. The choice of two options lies before English farmers; the first is to allow private firms to do their grading and charge them for it in a wide margin between farm and retail price; the second is to do it co-operatively, and to retain this margin for themselves. Managing a farm is one man's job, if it is to be done at all efficiently, as is proved by the fact that farming by committee is always a failure; but marketing requires many specialists, if full advantage is to be taken of price movements. It therefore follows that the supplies to market must be sufficiently large and of a uniform quality to enable full-time specialists to be borne. Many farmers to-day are thinking along these lines, and are realizing that, in agriculture at any rate, production is only half the problem. The difficulty lies in the fact that farmers are, as a class, more individualistic than townspeople, are not so closely in touch one with another as other manufacturers, and, consequently have no representative institution that might give an impetus to a movement for co-operative large-scale marketing. The recent report upon this subject says: "It is clear . . . that co-operative marketing in England and Wales occupies a comparatively insignificant position in the total volume of agricultural trade. The share of the produce which it handles is small, and it has made as yet but little contribution to the marketing organization of the country as a whole."[1]

TENURE

Considerations of space have not permitted the discussion of forms of tenure and their reaction upon farming practice. Insecurity of tenure has long been held an excuse for inefficient farming, but recent legislation has given much greater security of tenure provided the tenant farms "in accordance with the rules of good husbandry." Standard methods of valuation of tenants' improvements upon leaving a farm have largely removed the fear that long period investments on the part of the tenant are to a certain extent a waste of money, and, in point of fact, comparatively few occupiers are rendered less efficient farmers by considerations of tenure.

[1] Ministry of Agriculture Economic Series No. 1, page 165.

LABOUR ORGANIZATION

(*Continued from page 28*)

II

TYPES OF TRADE UNION

We referred in the first section to "craft" and "industrial" unions. This implied that trade union organization takes different *forms* (of which the two above named are most important). To understand modern trade union problems and relations with employers' organizations we must first classify these forms. In doing so we shall find that the basis of organization varies in different trades and industries and that this variation has very important practical results, both for the unions themselves and for the community.

Until the end of the nineteenth century the typical British trade union was a small specialized group of craftsmen—only during the last dozen years of the century was there any strong movement to organize the "general worker" and the unskilled. Very few, even of the large unions, exceeded 50,000 in membership. To-day the large unions count their membership in hundreds of thousands. Each year the Ministry of Labour publishes a separate table of statistics relating to the hundred principal trade unions. In 1911 the membership of these was 2·2 millions; in 1924 it was over 4 millions, although the total number of unions had declined. The doubling of average membership is due partly to increased enrolment in craft unions, partly to the growth of large general labour unions, but largely to the development of the "industrial" type of union, as in transport and mining. This form of organization has gained ground steadily since 1910 partly owing to a belief in its superiority to the "craft" union for collective bargaining purposes, but partly also because it seems to the advanced spirits in the trade union movement an essential first step to the attainment of "self-government in industry," or even of a share in the control of industry. The idea of the industrial union, then, is that all the workers in the railway industry, or the engineering industry, or the building trades, whatever their craft or grade, shall be in one organization. The assumption of craft unionism, on the other hand, was, and is, that the bricklayer, the engineer, the house-painter, the clerk, by whomsoever employed, and in whatever industry, should be organized in a union confined strictly to his fellow-craftsmen—and, in highly-skilled crafts, to a specialized section of them. Examples of craft unions (many of them only local in their activities) are the Glass Painters' Union, the National Society of Pottery Workers, the National Union of Foundry Workers, the United Patternmakers' Association, the Card Setting Machine Tenters' Society, the Rochdale Male and Female Card and Blowing Room Operatives and Ring Spinners' Association. Societies such as these aim at obtaining certain working conditions suitable to the nature of the craft concerned, in addition to negotiating for adequate wages and adequate leisure. In many, though not all, cases their attitude is exclusive, and, if the craft concerned is highly skilled, "aristocratic." In the nineteenth century the members of such unions in the better paid trades were, indeed, a kind of aristocracy of labour, and were often inclined, as some still are, to assert their status. For instance, in some of our seaports, forty years ago, public-houses would set apart a special room known as the "shipwright's room." Into that room no lesser craftsman or labourer might enter to drink, save by special invitation. By the turn of fortune's wheel, many such craftsmen have during the last thirty years lost their superior economic and social position. This has applied particularly to the metal, engineering, and shipbuilding industries since the war—which had the effect of speeding-up the technical changes which had been going on in these industries for many years previously. The war's aftermath of industrial depression and consequent unemployment has also much reduced the wage-earning capacity of many varieties of skilled craftsmen. Changes such as these are likely to encourage the tendency to common action between different crafts and the spread of organization by industry or on an "employment" basis—e.g. the common organization of municipal, or State, or railway employees.

Craft unions, however, are not all organized on so simple a basis as those mentioned above, or as the "Bristol Channel Rivet Warmers' Association," or the "Sheffield and District (by hand) File Cutters' Society," whose names exhale the very essence of the craft union spirit! Some craft unions are really associations of related crafts, and have been more accurately described as "kindred craft" unions. (For a full analysis and classification of different types of trade union the reader is referred to *Organized Labour*, by G. D. H. Cole, 1924.) Of these there are a good number in the engineering, shipbuilding, and textile trades. Probably the outstanding example of this is the Amalgamated Engineering Union, which, a few years ago, combined a number of societies, of which the most important was the Amalgamated Society of Engineers—the famous "new model" craft union of 1850. The new union includes patternmakers, turners, fitters, millwrights, smiths of various types, electricians, and other specialized crafts. For many of these crafts other small and special unions still exist, and there is competition for membership. In the textile

industry the " Accrington and District Weavers, Winders, and Warpers Association " is one of many similar types of " kindred craft " unions. They are also found in the paper and printing industries and elsewhere.

CONFLICTING PRINCIPLES OF ORGANIZATION

The result of this diversity of organization is to introduce complications. An association of kindred crafts, particularly in such industries as engineering and shipbuilding, often has among its members a number of semi-skilled workers, for whom it may compete with a general labour union. It thus tends to come into conflict with the supporters of union by industry, of whom it may contain many in its own ranks. This happens, for example, in the building trade, as well as in engineering. But the most serious conflict here is with the specialized craft unions, and disputes are common, though decreasing. Another feature of " craft " unions is that the members of a union are often scattered throughout many industries. This is in some ways a weakness of this form of organization—it leads to difficulties in organization and in the formulation of policy, and involves the officials in an endless diversity of negotiation with employers—but in other ways it is an advantage, as when the members in some industries are able to finance the members in other industries which are suffering from trade depression or an industrial dispute. The National Union of Clerks and Administrative Workers, and the National Union of Enginemen, Firemen, etc., are examples of such unions. Then we find painters, plumbers, mechanics, carpenters and other craftsmen employed in the carriage works and other constructional departments of railway companies; also in and about mines. The result is conflict with the principle of " industrial " unionism or " union by industry," which is dominant among railway employees and in coal mining. Friction is continually recurrent between the National Union of Railwaymen (an " industrial " union) on the one hand and various craft unions on the other hand. The same difficulty occurs as between the various miners' federations on the one hand and the various craft unions of mechanics whose members are employed in coal mines.

UNION BY INDUSTRY

In examining the principle of " industrial " unionism, we must avoid confusion with the use of that name which was common, particularly in America and to a smaller extent in this country, in pre-war days. The name was used to describe the attempt to organize all workers, as such, i.e. the wage-earning proletariat, in " one big union " or in such bodies as the " Industrial Workers of the World," with objects which were political as well as industrial, and usually included the ultimate complete overthrow of the capitalist system. For this reason it is better to use the term " union by industry."

The object of " union by industry " is, as we have seen, to organize all the craftsmen, semi-skilled workers, and " unskilled " labourers who co-operate in producing one product or service, such as railway transport or coal. We have referred to the organizations of the railwaymen and the miners, which are, in different ways, approximations to " industrial " unions. In the building trade there is a movement in the same direction, though building is an industry in which this object is very difficult of attainment. The National Federation of Building Trades Operatives is, as its name implies, a federation of trade unions, but many of its members would like to see it become in fact an example of " union by industry."

The Miners' Federation of Great Britain is in reality an association of autonomous district miners' associations, but it has in recent years acted with sufficient unity to be regarded as an " industrial " union. The effect of the disastrous lock-out of 1926 may be to resolve it, for a time, at least, into its component units, and the National Federation, unless reorganized, may become a permanently ineffectual body.

Closely allied to union by industry is what has been called " employment " unionism. In the case of railway transport we have a close coincidence of the two forms—for if we regard railway transport as an industry, and the National Union of Railwaymen seeks, as it does, ultimately to organize everyone employed by railway companies, from engine drivers to hotel waiters, the result is that the " industrial " union is confined to a body of workers employed by a certain well-defined group of employers, while at the same time it includes workers whose occupation or craft is only subsidiary to that of the railwayman proper, and has no *necessary* connection with the service of railway transport. When, however, we find the employees of local authorities organized in unions of municipal workers we have a clear case of an " employment " union which cuts across the principles both of craft unionism and union by industry. Municipal employees may be tramwaymen, bus-conductors and other transport workers, or they may be clerks, engineers, or plumbers. When we find that a " general labour " union, " The National Union of General and Municipal Workers " also organizes municipal employees, we have still another case of overlapping. The same considerations apply to the case of unions confined to employees of co-operative societies or insurance companies.

METHODS OF REMUNERATION

(*Continued from page* 30)

II

GENERAL IDEAS

A DEFINITE statistical comparison is not available; and even if statistics of the present position were available it would be necessary, if a clear idea of the change during the last twenty or thirty years were desired, also to take account of the changes which have taken place in that time *within* the systems. The term "payment by results" is comprehensive, and includes a variety of forms of payment in which, along with payment by the piece, are contained numerous regulations, some of them of a time-rate character (the guarantee of a time rate to the piece-worker, the fixing of piece prices in reference to a time-rate basis, the payment for "waiting time," etc.). Since the end of last century there has been a very considerable increase in the application of regulations of the kind indicated, so that the system of payment by results, taking industry as a whole, is not quite the same in character as it was. To some extent the same may be said of the method of time payment, in which also—though it is not susceptible to as many variations—new devices have been introduced. These changes, which emphasize the need for remembering that both time- and piece-work are general terms, are dealt with later.

THE STANDARD RATE

Nearly all trade unions aim at payment according to some definite standard—a uniform minimum rate of payment generally applicable to work of the same kind wherever carried on in some more or less clearly defined district. Collective bargaining may be said to imply the existence of the standard rate, in so far as it would be impracticable to have wages agreements made between large bodies of organized workers and organized employers unless some form of common standard of wages were recognized. A first collective bargain, even where the working conditions and plant are more or less uniform, may take as the standards the rates which are paid in the various firms and which may differ, but the developments from such a beginning are generally towards a uniform minimum standard; the movement to this common standard comes from both parties to the collective bargain, the employers aiming at equality of competition in the matter of wages costs, the workers desiring a uniform minimum of remuneration. In many piece-working trades the machinery and the working conditions vary greatly from firm to firm, and the rates may be arranged for each firm separately; in so far, however, as these individual firm rates are fixed by reference to a common minimum standard of earnings, the same principle applies.

The standard rate may be a time rate or a piece rate, or, in some cases, may be a combination of the two. The standard, whether piece or time, is usually a minimum rate only, but in some cases may be regarded as a maximum as well as a minimum. Payment by means of a uniform standard rate does not necessarily result in equality of earnings. This is clear enough when one considers the large differences which may exist in the weekly earnings of workers paid on the same piece prices (standard rates). It is less clear when the standard rate is a time rate, but even when the payment is by time there are differences; higher rates than the standard may be paid by some firms; specially competent workers often receive rates in excess of the standard, or are specially considered in the choice of jobs; when attention is directed from the rate, often a rate per hour, to the weekly earnings or to the earnings over a longer period, the distinction between a standard time rate and uniform wages for time-workers becomes still more evident. The collective bargain in fact does not prevent the operation of economic forces in other ways; it is a very important manifestation of these forces which, however, act also in other ways—these including action rooted in the varying capacities of individual workers and individual employers.

ADAPTATIONS OF THE COLLECTIVE BARGAIN

Also, in respect of certain classes of time-workers, attempts are made to adapt the collective bargain so as to make the time rate correspond more closely with the individual worker's capacity (in the case of piece-workers the question does not arise in the same degree, since the same piece rate provides wages which vary according to capacity, but—as will be seen later—piece rates also are sometimes fixed, on somewhat similar grounds, at different levels, according, for example, as the worker is an adult or a youth, a male or a female worker). This refers to adaptations which may be specified by, and form part of, the collective bargain; that is to adaptations distinct from those already mentioned as made in individual bargains not at variance with the collective bargain. Commonly, however, the standard time rate is an undifferentiated minimum intended to be applicable to all the members of a class of workers when employed on the ordinary duties of the class. It should also be noted that sometimes, in trades where the standard is a collectively agreed time rate, there are special rules permitting a minority of old or incapacitated workers to be employed at less than the normal standard.

THE UNIT OF WORK

The idea underlying the standard rate is that of a measurement of earnings against efforts. It is obvious that a time rate of 1s. per hour, in circumstances where one unit of work is required in the hour, is a different thing from a time rate of 1s. per hour in conditions otherwise similar except that two units of work are required. Similarly, piece rates may be applied in conditions which are so shifting that the day's earnings to be expected from the piece rates are very uncertain. The idea of the standard rate, therefore, is the securing of a definite minimum wages sum in return for a certain outlay in effort. The standard rate in one case may be defined as a time rate, and in another as a piece rate. The argument is that, by means of the elaborate piece price lists of his trade, other things remaining the same, the cotton spinner can ensure that for work of a particular kind performed at a known speed on a certain size of mule his earnings will be stable; and that he cannot provide for this on the time-work system. The standard rates in this instance are the piece prices, including a variety of payments to meet exceptional circumstances, laid down in the list. A corresponding argument in reference to a bricklayer, say, is that piece prices cannot be so regulated that the worker may be certain that his earnings will correspond with the efforts expended. Here, therefore, the worker claims that he be paid in terms of the time worked; and the standard rate is in fact usually a time rate.

We should note in passing, though the fact does not affect the general argument, that the question of the suitability of piece-work, or time-work, to particular conditions is sometimes a matter of dispute. There are methods in which a piece rate is combined with a time rate of payment, the latter being designed to remove part of the uncertainty which might accompany a purely piece-rate method of payment. We should note also that technical developments take place in industry, so that where formerly one method of payment might be objected to as unsuitable, from the point of view of the preservation of the standard rate, under new conditions such objection may become untenable. Such change in technique may be a principal reason for alterations in the distribution of piece-work and time-work, or in the form of either time-work or piece-work, to which reference has already been made.

Though the *rate* may have reference to a quite small unit of work, an hour's work, or one or other of many small items in a price list, there are often other rules or customs the operation of which, in association with the rate, may have an important effect on earnings; some of the more important relate to the continuity of work. The nature of these rules or customs varies from trade to trade, and can be discussed most conveniently at later stages in this discussion. Here it is only necessary to indicate that the wage bargain is made so as to ensure wages for longer periods in some trades—piece-working or time-working—than in others. Though the rate may be studied as a thing by itself in fact, it is only one means to an end; if the end is a certain standard of life, wages—or some substitute—must be continuously forthcoming. The full discussion of the problems suggested by this consideration would, however, lead us into not only the provisions made for unemployment outside the wage bargain, but the various criticisms and proposed alterations of the whole economic structure; the conditions which we shall discuss are only such as are attached to actual wage bargains.

THE METHOD OF CALCULATION

It may also be suggested that the meaning of the standard rate is illuminated by the fact that in some of the most conspicuous illustrations of piece-work—for example, the cotton spinning trade—the method of calculation of earnings is so complicated that it is not thoroughly understood by many of those affected. Methods which are not fully understood by all concerned may, nevertheless, be accepted as a proved means of achieving the standard rate. It has often been demonstrated that there is objection to complicated methods which the workers cannot fully understand. It would appear, however, that these objections do not necessarily arise from the complexity of the method. If the method secures that relationship of earnings and effort or output which gives meaning to the standard rate, then many of those affected are satisfied if the complexities of the method are understood and settled by their representatives.

UNEMPLOYMENT

(*Continued from page* 32)

II

UNEMPLOYMENT IN THE PAST

ANCIENT AND FEUDAL TIMES

It is often assumed that the unemployment problem is essentially modern, the result of the Industrial Revolution of the eighteenth and nineteenth centuries. It is, no doubt, true that the development of mechanical industry very greatly intensified existing causes of unemployment and even created new ones, notably as a result of production for world-wide markets and the predominant development of industry in Great Britain at the expense of agriculture. Nevertheless, the problem of unemployment is not new.

Early traces of it can be found in the Biblical communities. "And he saith unto them, why stand ye here all the day idle? They say unto him, because no man hath hired us." Here, in embryo, is a reserve of labour "waiting for work." Again, *Latifundia perdidere Italiam.* The big estates, run by slave labour, deprived the small cultivator of his living and drove him to Rome, and in Rome the proletariat under the later Republic and the Empire contained numerous unemployed and many unemployable, kept alive by doles (*panem er circenses*).[1] Under the feudal and manorial systems, which aimed at providing a definite status and maintenance for every person, unemployment was at a minimum, but with the growth of towns evidences of it re-appear. The building trades, for instance, show in the methods adopted for their regulation signs of their seasonal character and of the essentially discontinuous nature of their employment; and the apprenticeship system, with its two apprentices to one master, may well have produced an excess of men in some trades and so caused at least temporary unemployment.

FROM THE FOURTEENTH TO THE EIGHTEENTH CENTURY

The breakdown of the manorial system and the freeing of the serfs, whilst giving liberty to bargain, meant increasing economic insecurity. Sir Charles Oman points out that, before the end of the fourteenth century, "in every craft there were unemployed men; below the journeymen in London were a mass of unskilled and casually employed labourers." At first, the shortage of labour following the Black Death favoured the labourer, since demand exceeded supply. But the sixteenth century saw a period of severe unemployment. This was due to a variety of causes, disbandment of baronial retainers and soldiers after the close of the wars, displacement of agricultural workers by enclosures and pasture farming, and the decay of the corporate towns under the competition of new centres of industry. A fourth element was the existence of large numbers of sturdy beggars. The difficulty was only being overcome at the close of the century.

So serious a crisis was not repeated for nearly 200 years; but from time to time evidence of unemployment and under-employment is found. The workers under the domestic system, for instance, appear to have suffered from periodical fluctuations in demand, though their sufferings were mitigated by the fact that they combined weaving with agriculture. Again severe unemployment followed the wars. Thus, after the Austrian Succession, the Pelhams assisted the establishment of Halifax (Nova Scotia) for the benefit of ex-soldiers, and serious riots of silk weavers were caused by unemployment after the Seven Years' War.

THE INDUSTRIAL REVOLUTION

The Industrial Revolution, as already stated, involved changes which greatly increased the magnitude of the problem, though to some extent, as with many other problems, it brought to light, rather than created, the difficulties. Two main features must be noted. First, the revolution involved fundamental changes in the methods of production, which created a vast amount of temporary unemployment. Secondly, it had great permanent effects. Large scale production and world-wide trade made long-period fluctuations a far more definite and regular part of the industrial system; and this was accompanied by increasing discontinuity of employment. A reserve of labour grew up, making permanent the mass of urban casual labour which the industrial changes had created. Noticeable among the important effects were the destruction of the yeomen class and of domestic employment, and the displacement of the adult worker by machinery and child labour. These various influences, moreover, were aggravated by the fact that the new system was not properly understood, and by contemporary events like the Napoleonic Wars, the Continental system, and Poor Law abuses. Consequently fluctuations were at first exceptionally frequent and severe. Serious depressions were caused by over-trading in America in 1811-12, and on the Continent in 1816 and 1819, and in 1825 by over-issue of bank notes and by the "most reckless speculation since the South Sea Bubble." Meanwhile the old Poor Law created unnecessary pauperism and manufactured the unemployable. Eventually

[1] That is real "doles," not unemployment insurance benefit.

things gradually righted themselves and industrial development, particularly the building of railways, absorbed the surplus labour, and has allowed the employment of an immensely increased population at a far better standard of living than before. But the regular cyclical fluctuation of employment and the large mass of casual labour remain as permanent results of the Industrial Revolution.

THE NINETEENTH CENTURY

Whilst Britain remained the workshop of the world, she enjoyed first steady, and then rapid, development, culminating just after the Franco-Prussian War. The subsequent years up to 1886 or 1887 are sometimes known as the "great depression." 1879 saw almost the worst unemployment in any one year, 1884-7 the most prolonged period of bad employment, before the Great War. Various influences are held responsible for this, including loss of the position of workshop of the world, growing competition, and the rise in the value of gold. Things then improved, and employment was, as a rule, better up to the outbreak of the War.

THE POOR LAW AND UNEMPLOYMENT

The reality of sixteenth century unemployment is shown by the attempts to deal with it. Elizabeth and her ministers reorganized the system of employment and training (Statute of Artificers) and attempted to "set the unemployed to work" (Poor Laws of 1597 and 1601). The task was hard, but reasonable success appears eventually to have been attained, the highest point being reached apparently in the years preceding the Great Civil War. Though the decline of royal power affected unfavourably a system so dependent on the Crown, the Poor Law seems to have worked quite efficiently till late in the eighteenth century, after which its abuses aggravated the problem.

LAISSEZ-FAIRE (1834-1885)

The unemployment problem of the nineteenth century was thus at first intensified by avoidable pauperism. *Laissez-faire* ideas were predominant, and the principles of "less eligibility" and "deterrence" were applied in 1834, under the conviction that public assistance destroys the faculty of self-help. The policy was valuable in removing much unnecessary pauperism, especially in agricultural areas, but it was carried out with unnecessary harshness, and hardly seems to have touched the fringe of the casual labour problem.

Thus, for some time after 1834, unemployment was treated as a form of pauperism, except for special emergencies, like the Irish potato famine (1845-6) [1] and the Lancashire cotton famine (1861-3). Relief works on a large scale failed badly in the former case, but in the latter were carefully organized and secured a qualified success. Apart from this, the able-bodied unemployed were left to the Poor Law, and at first the attempt was made to prohibit out-relief to them, notably under the Outdoor Relief Prohibitory Order. Subsequently a grant to them of out-relief was allowed under strict conditions by the Outdoor Relief Regulation and Labour Test Orders; but such relief continued limited and deterrent, and made no distinction between loafers and the genuine unemployed. More adequate provision for the latter came from the working classes themselves. The trade unions not only had in many cases excellent systems for assisting members to find work, but, by 1904, 81 of the 100 principal unions, with 950,000 members, were paying either unemployment benefit or the smaller travelling benefit. A few friendly societies also "helped their members in seeking employment, and made allowances to them in seasons of sla k trade."

[1] This period saw also (1848) the unsuccessful experiment with the National Workshops in France.

RELIEF WORK (1886-1908)

The first State effort to "take the unemployed out of the Poor Law" was made by the Local Government Board Circular, issued by Joseph Chamberlain in 1886 and re-issued in subsequent depressions. The Circular attempted to distinguish between the respectable working man unemployed through no fault of his own and the classes only fit for the Poor Law. It proposed co-operation between Local Authorities and Boards of Guardians for this purpose and the provision of suitable work for the genuine unemployed, in sufficient amounts to keep their homes together without resort to the Poor Law. The Local Authorities did not as a rule make a success of the administration, and the relief proved at best but a slightly more humane form of poor relief. Small doles of work (often three days a fortnight) were given, which were insufficient for the respectable unemployed and inadequate as a test of genuineness. Above all, relief work did nothing to remove causes of unemployment or make the unemployed permanently self-supporting. But it could be urged that the system had not been fairly tried.

The Unemployed Workmen Act (1905) allowed relief work to be attempted under the best available conditions. It was granted after careful inquiries, and definite spells of regular work (usually from four to sixteen weeks) were given, which afforded a better test of genuineness. Even so, relief work failed. It was avoided by the better types of unemployed, did nothing to render them self-supporting, and even reduced men's power of finding casual work. Yet, by promoting more hopeful experiments, like employment exchanges and farm colonies, the Act marked not only the definite failure of relief work, but the beginning of the new idea of prevention.

BOY LABOUR AND APPRENTICESHIP

(*Continued from page* 34)

II

THE PROBLEM IN THE PAST

EARLY BOY LABOUR

APPRENTICESHIP goes back almost to the dawn of industrial development, but boy labour, as a problem separate from apprenticeship, is a comparatively recent development. The problem itself is in no sense new. There must, in the Middle Ages, have been many unskilled workers, of whom we hear little because attention was concentrated on the gilds and apprenticeship. But there was at times a shortage of agricultural labour, notably after the Black Death and in the second half of the sixteenth century, and thus there were often ample opportunities for any surplus of labour, boys or men, in agricultural employment.

APPRENTICESHIP AND AGRICULTURE

In short, the problem of boy labour existed, but it was visualized in a form very different from that of modern times. It was regarded as a problem partly of apprenticeship and partly of agricultural labour; and, to mediaeval and Elizabethan minds, to deal with these was to deal with the whole problem. This attitude was maintained till the coming of *laissez-faire*.

It may be noted that the early Poor Laws relied largely on apprenticeship in dealing with pauper children, and the practice continued till abuse of pauper apprenticeships destroyed the system. Thus apprenticeships and husbandry together appear to have provided effectively for a very large proportion of the country's boyhood. For if, as is sometimes supposed, more apprentices were taken than could become journeymen, yet they were all assured of supervision and control during youth, and on reaching manhood those who did not become skilled workmen found employment in agriculture or in unskilled labour.

EPOCHS OF APPRENTICESHIP

The history of apprenticeship has three main epochs: first, the mediaeval municipal system under the gilds till the sixteenth century; secondly, the Elizabethan national system from the passing to the repeal of the apprenticeship clauses of the Statute of Artificers (1563 1814), and, thirdly, the system under *laissez-faire* since 1814. In the two first epochs apprenticeship covered both training and welfare. With the gilds every apprentice was under the care and supervision of a householder, thus providing for his physical and moral well-being as well as his technical skill.[1] Later an Elizabethan writer supported the system, because, "a yonge man for the most parte is wilde, withoute judgment and not of sufficient experience to govern himself"; and petitions against repeal in 1813 emphasized that "the young are provided during the most critical time of their lives with a guardian whose duty and interest it is to preserve their morals." The third epoch saw the differentiation and separate treatment of training and welfare.

[1] "Finding" (maintenance) by the employer was held at Ipswich to include clothing, shoes, bedding, board and *chastisement*.

THE GILDS

Apprenticeship began in the Middle Ages and grew with the growth of specialized crafts. By the fourteenth century it was general, and its regulation a definite part of the gild system. Though regulations varied from town to town, they had many common features, and the Custom of London was adopted over wide areas. The gilds at their best set a high standard of craftsmanship and sought to protect employer, apprentice, and consumer alike, but tended later to lose their ideals. Their chief fault was an inclination to monopoly, which was to prove their undoing. To escape the restrictions, journeymen and capitalists alike sought the open country; and there, and in the new towns, inferior methods of training grew up. Thus, by the middle of the sixteenth century the gild system of apprenticeship had broken down, except in London and a few other places, though the high standards of the "Custom of the City of London" made excellent foundations for a new structure.

ELIZABETHAN APPRENTICESHIP

Now, with an old system broken down and its place taken by new and inferior methods, the age of Elizabeth had somewhat similar problems to those of the early nineteenth century. Elizabeth and her ministers had the will and power to work constructively, and re-established apprenticeships on national lines as part of a general reorganization of industry. Yet the decline of fifty years was not easily arrested, and local administration was defective. Probably the system was not fully established till the following century. If, however, the building was slow, it was sure. For nearly two centuries new legislation on the subject was almost all devised to strengthen the system, and it appears to have received general support. New trades, to which the Statute of Artificers did not apply, voluntarily adopted apprenticeships, and they appear to have held almost unbroken sway till after the close of the seventeenth century.

THE EIGHTEENTH CENTURY

The eighteenth century soon showed developments which indicated a coming change, though

some of them did not at once affect apprenticeships. Large workshops were replacing small, as in tailoring, and trades, e.g. that of silversmith, were becoming more specialized; but both tailor and silversmith continued to be apprenticed. Again, the modern system of working with unskilled and female labour was growing fast in the silk and linen trades, and elsewhere the factory system was beginning to gain ground. Men's ideas also were changing. The new conception of liberty was applied practically in this, as in other spheres, before promulgated as a system by Adam Smith.

THE INDUSTRIAL REVOLUTION AND LAISSEZ-FAIRE

The Industrial Revolution affected apprenticeship mainly in three ways. Changed methods of production rendered some industries, like the textiles and metal smelting, no longer suitable for apprenticeships. Other trades, whose methods continued to be suitable to them, expanded so enormously their demand for labour that the system had to be temporarily suspended. This did not prevent its restoration after things had adjusted themselves, and, in fact, this happened in certain trades. Thirdly, the general increase in production required a reorganization of the system, which was more fundamental than that of the sixteenth century. Nevertheless, the new conditions of manufacture did not necessarily render such reorganization impossible. In some industries, like shipbuilding, it was apparently carried out in the first half of the nineteenth century. The difficulty lay rather in the realm of thought. The ideas of *laissez-faire* dominated economic opinion. The injurious nature of many existing restrictions, indeed, in part justified the reversion of policy, but the apostles of the new creed failed to distinguish the good in the old system from the bad. Moreover, the supporters of apprenticeship, who included most of the workpeople and the small employers, adopted an impossible attitude, demanding not revision of the old system to suit the new conditions, but its root and branch restoration, which would have been impossible.

Eventually, repeal of the apprenticeship laws (1814) left the boy entering industry to fend for himself. Yet the practical effects of the change were at first limited. The technical needs of some industries still required definite training. Trade opinion still sometimes enforced apprenticeships; and trade unions exercised some control. Hence, the decline in training was gradual.

CHANGED CONDITIONS

This third epoch, indeed, is one partly of decline and partly of development. In training, apprenticeship became less definite because of the growth of new and inferior methods which gained an increasing hold. It also became less general, because the new conditions often required new methods, and many industries needed, even for their skilled work, different forms of training, like that of progression (described later). Even where apprenticeship survived, workshop teaching came to play a smaller part than before and was increasingly supplemented by technical training.

WELFARE

A similar trend can be observed in regard to welfare. Perhaps more than with training, the changes involved abandonment of definite care of the individual boy. As already indicated, the problem of the boy labourer became more definitely separated from that of the learner. On the welfare side the results of the breakdown came earlier and were at first more complete. They are seen in the child slavery in factories and coal mines. The remedy, however, began with the Factory Acts, to which other organizations have been added in after-care, juvenile employment exchanges, and boy welfare work.

THE NINETEENTH CENTURY

The course of events may be indicated. By 1814 less regular methods were already appearing, boys moving about from firm to firm whilst learning, and unskilled labourers "picking-up" trades without apprenticeship; and these continued to grow. For a time, too, some trades were seriously overcrowded with apprentices and journeymen. Before long, however, matters began to improve. A big inroad into the evils of child slavery was made by the Factory and Mines legislation of 1833 to 1847; and a reduction in the excess of apprentices restored a better equilibrium between supply and demand. Otherwise, the changes continued in the direction both of a more flexible system and of further loosening of control. The length of apprenticeship was being definitely shortened, and a term of five years became common in many trades; whilst genuine work at a trade was sometimes accepted without apprenticeship, notably by the Amalgamated Engineers.

OLD AND NEW METHODS

The effects of modern methods must not be exaggerated. Often training still reaches a fair level, and the newer methods have certain advantages, notably in giving better chances to clever sons of poor parents. Nevertheless, the bad results have been serious. Trade union regulation has not been altogether adequate to fill the gap, the unions being often concerned less with actual training than with regulating the number of apprentices. Hence, in many industries, and to some extent in all, irregularities have multiplied. The most valuable element in the old system, the maintenance of definite standards, has been lost; and the Great War emphasized the weaknesses which followed lack of organization.

LEADERSHIP IN INDUSTRY

(*Continued from page* 36)

II

DIVIDED ALLEGIANCE

It may be said, in reply to what I have said as to the fundamentals of industrial leadership, that there is an insuperable difficulty. The employer ought to be the leader, much as the lord of the manor was the feudal leader, but another influence has cut across, and that is the trade union. The worker, it is said, is not free to follow the industrial leadership of his employer. On the contrary, it is urged, there are many cases in evidence where the worker has been enjoined definitely and positively to refuse to follow. Such cases may be grouped under the heading of limiting production, but they have many different types, and any obedience to the instructions of a trade union which involves action occasioning displeasure to the employer is of the nature of showing either that there is divided allegiance, or that the allegiance to the trade union comes before the allegiance to the employer. It is impossible to deny that in fact there is this dual allegiance. We might conjecture, perhaps, that if there never had been a trade union industrial leadership would be easier. This argument is likely to lead to disquieting deductions. The retort may be made that if there had been true industrial leadership of the kind which has been outlined there never would have been trade unions. Though the discussion is not quite so academic as might be thought, it is of little avail to pursue it. The simple fact remains that if the employers of to-day are to undertake industrial leadership they have to reckon with the trade unions, and they can only lead by means of some frank recognition of trade unionism. Industrial leadership which is hostile to trade unionism or which sets out to undermine it in some subtle way is bound to fail.

So we may consider from this angle what are the functions of trade unionism. It will be of some comfort if we point out by way of beginning that there is a very considerable field of human welfare which trade unionism at the moment does not affect directly. " The 40,000,000 wage-earners in the United States lose nearly 10 per cent of their time on account of sickness; they spend six times as much for fire protection as for health protection, and of their great army of people in America more than 500,000 die each year between the ages of 40 and 60 from old-age diseases that are largely preventable, and that have their origin in some part of the digestive tract." This is the summary of a recent writer, Mr. Floyd Parsons, and he is not at all likely to paint the picture too darkly. Clearly, we get a vista for leadership altogether beyond trade union leadership. Yet here also we get a vista of achievements which might be possible with the co-operation of trade unionism, so that we reach a tentative conclusion that we do not yet know the limits of the functions of trade unionism once it passes beyond mere hostility to the management. Primarily, it will deal with wages and conditions; secondarily, with what we may call constitutional questions in industry. We must not overlook the friendly and benevolent work of the trade unions, though it is not unfair to say that this has lost its relative importance, and, indeed, it was often a mask for the primary work, as we have stated it above. The modern task of corporate bargaining seems to include something of the primary work of the settlement of wages and conditions, and something of the secondary work of finding a constitutional place for trade unionism within the organism of industry. It would be a strain to describe that aspect of trade unionism which holds the strike weapon in reserve as being a constitutional part, but the task of the industrial leader of the future will be so to emphasize the constructive work of trade unionism as to leave the weapon of offence so much a weapon in reserve that it is never used. In other words, we are seeing that trade unionism itself must be amenable to the industrial leadership which sets out to have regard to the true welfare of every worker. The constructive or contributory aspect will develop, and the aspect of hostility will be merged in it.

There is a difficulty, of course, in the fact that the trade union forces are national in their scope. Within the unit industry there is often a feeling that the workers have to sacrifice their loyalty to their own industry to a wider loyalty to trade unionism on the national plane, and that decisions are reached at headquarters which are not necessarily in the interest of the worker in the unit industry. Undoubtedly this has had the influence of discouraging what we may call " local " thought and interest, and the stories of small attendances at local meetings point in this direction. The feeling exists, both on the employers' and on the workers' sides, and the movement during the war towards the appointment of shop stewards to represent the workers locally was an indication of some dissatisfaction. It is manifest that some evolution is before us whereby the workers in the unit industry will claim some range of freedom for local thought and action. Shops committees and Whitley councils will call for some such development. In fact it seems to be certain that the next stage in industrial organization will call for real leadership within the industries. It will no longer be possible for the employer to leave

all the questions of personnel to be settled by the type of corporate bargaining which settles questions on the national scale. There will still be questions to be settled on the national plane, but they will affect the bolder issues. Local freedom will be sought for multitudinous issues. The industrial leader will have no reason to complain that trade unionism has robbed him of leadership.

CORPORATE CONSULTATION

Probably he will have good reason to be thankful that a foundation has been laid for a wide extension of corporate consultation. It is all very well to sigh and say that in modern industry the employer does not know his workers. That refers to one particular type of knowledge —" Good-day, Jim," and the like, and it is not particularly deep. Knowledge which comes from the corporate expression of the general will of the workers is of far more weight. It may be that through years of agony and of misunderstanding we have been preparing the way for a corporate interest in the management of industry. It is true that in the process of so doing we have run the risk of so poisoning the relationship that no approach could be possible. Happily there are evidences that corporate action is possible. In fact, such hopes as exist of any condition of industrial peace are based upon the possibility of corporate action. The idea that employers can expect a docile body of workers ready to accept any conditions laid down for them may be banished. Such a basis of industrial peace can never be found after all that has happened in the past twenty years. Nor, to go a step farther, can it be found in a mere equilibrium of forces. That assumes that the forces are equal and also it assumes that they are opposite. The whole tendency to-day, in so far as it offers promise at all, promises it under the expectation that labour forces may be led, if not into accord with the employing forces, at any rate into what we may regard as parallel action.

The task of facing this need of to-day is not going to be easy. Industrial leadership has to meet suspicions based on past history, hostility which has been brought about by hostility, the hostility of organized unions which, too often, have saved their members the burden of thought. It has to face this problem in the hopeful spirit that what is really wanted is enlightenment, and that enlightenment can be given without hostility to organized action. All sorts of devices have been suggested to this end. Profit-sharing, co-partnership, works committees—all have the one aim, which is to encourage enlightenment and thought on the part of the individual worker, and by that means to make organized trade unionism into a contributory agent towards goodwill in industrial management. Moreover, it is being admitted, with singular frankness, that the trade unions themselves must move. Here is an extract from the *New Statesman* which is very much to the point: " Never in our memory has the trade union movement as a whole been so listless as it is now; and this listlessness, we believe, is largely due to a sense that the industrial politics and methods of trade unionism are no longer effective. There is a grave danger that, unless the unions can mould their methods and outlook to the changing conditions with which they have to deal, they will lose their grip on the workers " The warning has a double-edge. It is for leaders of administration to help this " listlessness," and make it, if they can do so, into constructive energy and enthusiasm, but that cannot be done by any spirit of trying to score out of the " listlessness."

DOMINATION AND LEADERSHIP

Thus we are reaching a point when the divided allegiances will vanish, not through the absorption of one side into the other, but in the assimilation by both sides of constructive ideas, in the realization of which each side must bear its part. It must not be understood as the sort of thing which will evolve all by itself, nor, at the other extreme, is it to be understood as a relationship which can be brought about by the will of man, certainly not by the will of one side only. If we are to succeed it will involve careful leadership in a thousand details, patiently studied, patiently handled. In truth, in the preparation for a constructive and consultative trade unionism we shall learn much to prepare us for the day when it comes. It may be said that there has never been such a thing as industrial leadership in the past. There have been fleeting glimpses and rare visions Men to whom has been given a dominating authority have used it wisely, led thereto by a precious instinct. But in the main we have to say that domination has not meant leadership. The man who knows that he can command has been only too sorrowfully ready to command and to use his authority as a crushing weapon. All the agonies of past ages which have come from this blind use of authority seem to be useless in teaching us its folly. It is only now, when the world has grown old—when, at any rate, the industrial world has grown mature—that we are beginning to realize the truth, and only then because those whom we dominated have in their corporateness become so strong as to protest against our mere domination. If we can find a way to use that corporateness more intelligently we shall have laid the basis of a real industrial leadership.

PUBLIC FINANCE

(*Continued from page 38*)

II

MODERN FUNCTIONS OF THE STATE

In the considerable German financial literature of the nineteenth and twentieth centuries the leading characteristics have been described as the historical nature of the work undertaken, the advocacy of social aims in taxation, and the erudite thoroughness of much of the effort. From the time of Adam Smith, French financial theory presented many differences as compared with German; it has sometimes been described as more conservative and individualistic. Italian and other writers have reached a high standard of merit. In Germany and other countries most of the authorities have directed attention to the rise of the historical school, to the disposition to treat finance as part of administration in the newer sense of that term, and to the advocacy of politico-social as opposed to purely financial aims in fiscal matters. As the outcome of this study, Professor Bastable thought there were certain beliefs which might be summarized in the following manner: (*a*) Public finance is a matter of national interest, and not merely a study of the distribution of burdens among individual citizens; (*b*) financial administration is largely dependent on national peculiarities, each country needing a system suited to itself; and (*c*) the same conception of relativity applies to the history of finance, that is, earlier systems, such as the Roman, have to be judged in relation to the circumstances of the age in which they existed.

EFFECT OF THE WAR ON PUBLIC EXPENDITURE

In the course of last century it was often suggested that a theory of public expenditure was hardly necessary, because the scope of the functions of government was definitely restricted. That argument is no longer applicable. Since the twentieth century opened there has been remarkable development in the functions of the State, in education, health, and in industrial and commercial undertakings. To a large extent these projects have increased public expenditure, and such schemes of social reform as old age pensions and others have substantially influenced British public finance. But the European War brought a revolution. Apart from the contributions of the Dominions and the Allies it is estimated that it cost Great Britain £10,000,000,000. For a period in 1917 and 1918 the national expenditure averaged nearly £7,000,000 a day. In the six years from 31st March, 1914, to 31st March, 1920 (31st March is the end of the Government's financial year), the public expenditure of the United Kingdom exceeded the total expenditure of this country for the two and a quarter centuries preceding 1914, the year in which war broke out. After the war, and especially in view of the difficulties of reparations and Allied debt adjustment, economy and retrenchment necessarily commanded considerable attention; hence the Committee on National Expenditure in Great Britain (commonly known as the Geddes Committee) and the Committee under the chairmanship of Lord Inchcape in India, to both of which reference has already been made. But in the use of the words "economy" and "retrenchment" care must be exercised. All the leading authorities on public finance have indicated that economy is not merely the saving of money but rather that wise expenditure which secures the greatest possible benefit from the use of public funds. Retrenchment goes beyond that, and means the removal of branches of public effort, or the definite curtailment of public services. Expenditure must always be considered as a whole. In practice no year stands by itself; the actual normal outlay in any period of twelve months is to a large extent determined by historical conditions or by previous legislation.

CONTROL AND POLICY OF NATIONAL FINANCE

In Great Britain control begins in a sense in the Departments, in most of which there is now a finance or an accountants' branch. All are subject to Treasury control. In Parliament there is the further check of the Estimates Committee, reviewing each year a portion of the current estimates, and the Public Accounts Committee, which, with the Comptroller and Auditor-General as chief official, reviews annually the whole of the Appropriation Accounts for the last complete financial year. In that case the review must be satisfied that the expenditure was in terms of the various Acts of Parliament, and that the money was applied strictly to the purposes for which it was voted by Parliament. In both Committees the discussion of policy is excluded, but recent decisions of the Public Accounts Committee indicate, within limits, a modification of that restriction. Ultimately, however, responsibility rests, and must always rest, with the Government of the day, and all debates on expenditure lead inevitably to the problem of Government policy. In the comparison of public and private expenditure it is often urged that private expenditure is determined by income, while public expenditure determines the amount of income necessary to meet the outlay. In arriving at the basis of public expenditure regard must be had to the

relation of the State income to the gross income of the nation. Public expenditure is substantially compulsory in character; within the range of its effort the object is to balance income and outlay, since all public financial principle is against budgeting for a surplus; in other words, it does not seek the profit which is normally associated with the finance of private individuals or companies. There is a further distinction in that special interests may be powerful enough to oppose successfully those of the State as a whole; in this way expenditure may be increased unnecessarily. Each year in the United Kingdom there is contest between the Treasury and naval and military experts with reference to the outlay on defence services; the Geddes Committee considered that there was much financial danger in accepting unchallenged the dicta of naval and military authorities. Mr. Findlay Shirras thought there was a strong tendency in a similar direction in young democracies or in cases where communal feelings and sentiments were strong. In taking up an occupation, the average citizen looks to net advantage in his expenditure; but neither the State nor the local authorities can proceed on such a basis in their outlay.

A FUNDAMENTAL ISSUE

This consideration leads naturally to the fundamental issue of the range of public activity, especially of a quasi-commercial character. In this sphere it is much more readily possible to divide the main schools of thought. One would restrict the functions of the Government mainly, if not entirely, to the primary duties of defence and the maintenance of law and order, to the control of public debt and the general oversight of civil administration. The other school is in favour of a general expansion of State activity, or of publicly-owned undertakings, and to that end would confer very much larger powers on the local authorities. The defenders of the first principle proceed as a rule on the assumption that private individuals will spend money to better advantage than a public authority, a doctrine which within recent times has been very widely challenged. German writers, in particular, have gone far in suggesting the extension of the scope of public expenditure to new social undertakings. They have, perhaps, magnified the claims of the State against those of the individual. To-day, in practically every country, there is a consistent demand for State intervention, especially in social services, such as health and education. On that point the Geddes Committee, while recommending many specific economies, expressed the hope that with falling prices and greatly increased incentive to economy the authorities responsible for this form of activity would be able still further to increase their beneficial work. The chief defence of expenditure on the social services is that they are of direct benefit to the State as a whole, in lessening the number of the unfit. Further, it is recognized that within policy in public expenditure there may be considerable diversion of wealth into other channels. Public expenditure should, as far as possible, minister to increase of efficiency and production. That improvement may be influenced by the way in which public expenditure affects the community's working power and saving power. It is, for example, very frequently contended that wise expenditure on education and public health may indirectly increase the ability and the power to save. In this problem there is an underlying consideration of great importance in the relation of national to local taxation, on which innumerable Royal Commissions, Departmental Committees and other representative bodies have presented a large number of reports. Just before the outbreak of war Parliament had before it a scheme of readjustment. When war began it was, of course, abandoned, and up to the present time, apart from minor amendment, no further steps have been taken. The scheme did not contemplate alteration of what is generally known as the percentage grant system, i.e. the State contribution to local outlay on such services as education and health on the basis of 50 per cent (or higher percentages in the case of certain services) of the approved expenditure. No further detailed review of the percentage method of Exchequer grants to local authorities took place till 1922, when the subject was remitted to a Departmental Committee under the chairmanship of Lord Meston. As will be observed later, that Committee did not present a report.

THE ECONOMIC FUNCTIONS OF THE STATE

(*Continued from page 40*)

II

HOW THE STATE WORKS

At every point of our life, therefore, we are gripped by the all-pervading, inescapable action of the State—" the keystone of the social arch ; moulding the form and substance of the myriad human lives with whose destinies it is charged " (Laski). We have seen how varied its action was—in what different fields it was exercised ; we turn now to the question: *How*, by what agencies, is this action exercised ?

THE GOVERNMENT

Generally speaking, we term " government " the complex system of institutions which carries out the activities of the State. We are all part of the State—but we are not part of the Government ; in fact, in everyday life the State *is* the Government, and it is only on rare occasions that the governed exercise their share of control over the actions of the governing part of the body politic. Once elected, a Parliament is largely free from the restrictions of public opinion ; and a great part of the Governmental machine works mainly free from any interference, and is, in fact, largely autocratic. However democratic our organization, we have to realize that, to quote once more Mr. Laski, " the modern State, for practical purposes, consists of a relatively small number of persons who issue and execute orders which affect a large number, in whom they are themselves included." If you are but an ordinary citizen, however much you may pride yourself on your vote and other privileges, your chief duty is to obey—or to disobey at your risks and perils.

THE THREE POWERS

Political scientists usually classify political power under three heads—legislative, executive, judicial. The legislative authority (Parliament) decides what should be done, the executive does it, and the judiciary judges those who disobey the laws and generally pronounces as to the right discharge of its functions by the executive.

This classification is, however, too simple to be accurate. The fact is all organs of government, although mainly belonging to one of those three categories, tend to overflow into either or both of the others. Parliament does not merely make laws ; it largely decides general lines of policy ; it can dismiss the cabinet, which is a non-permanent part of the executive ; it votes money and controls all expenditure ; it acts as a final court of appeal, and is formally called " The High Court of Parliament." It has, in other words, both executive and judicial functions. The executive, on the other hand, is not merely the agent of Parliament's decisions ; the increasing complexity of modern legislation is giving more scope and power to the Civil Service ; modern Acts of Parliament are little more than a statement of general principles, and a great deal of sheer law-making falls into the hands of those who apply those Acts in every-day life. Finally, by their interpretations of laws, by their decisions on doubtful points, judges may be said to make laws quite as much as judge law-breakers. Constitutional law, in fact, is far more made up of " case law " i.e. judicial decisions, than of actual statutes. But the attempt to separate those three categories has one great advantage: By preventing the accumulation of powers into few hands it increases the guarantees of individual liberty and the likelihood of each agent of authority confining himself to the function committed to him by law.

FUNCTIONS OF THE STATE

Although, therefore, this rough division of State action under those three heads has its utility, it must be borne in mind that no one organ of government can be said to correspond exactly to each of those categories and that there are few State actions which do not belong to all three. We can now enumerate the principal forms of State action (out of which we shall presently select one for special treatment), taking first those that are more directly the sphere of legislative action, and, next, those that are more directly that of the executive. (We here follow Professor McIver's classification.)

1. The definition and protection of the rights of individual citizens. Without entering here into any discussion as to the philosophy of " natural rights," it should be observed that there are no political or civil rights in law, save as granted by Act of Parliament.

2. The definition and punishment of crimes, using this term strictly in the technical sense. A " crime " is whatever is forbidden and punished by law ; many wrong actions may be lawful, and many things not morally wrong may be unlawful.

3. The fixation and alteration of the Constitution, remembering always that a good deal of our Constitution is judge-made, and that much of it is tradition rather than law.

4. The conferment of powers on the executive, reminding one of Sir John Seeley's definition of Parliament as being essentially a government-making organ.

5. The passing of private Acts– i.e. laws which only concern a section of the community, such as an Act allowing the building of a railway, altering trust deeds, etc.

6. The provision of poor relief.
7. The general promotion of material prosperity (a wide field, to which we shall return).
8. The oversight of morals and education.
9. The levying of taxes.

Of those activities, several reappear as spheres of executive authority, as follows—

1. Diplomacy and the control of foreign relations.
2. The making of war and peace (the sanction of Parliament is not necessary for the declaring of war or the signing of peace treaties).
3. The administration of poor relief.
4. The administration of education.
5. The supervision of the work of the Church.
6. The supervision of local authorities.
7. The granting of licences to certain occupations.
8. The protection and stimulation of trade.

Some of these items, as we said, are enormously comprehensive, and contain functions to which other writers would give separate headings. To give a few instances, it could be claimed that the enforcement of debts and contracts, the upkeep of ways of communication, the Post Office, the provision of gas, water and electricity, the establishment of weights and measures, coinage, sanitation, were problems in themselves, but a closer examination will show that they can very reasonably be said to come within the general province either of the defining of individual rights or the general development of trade and material prosperity. There is, in fact, no imaginable form of State activity that cannot be brought into this enumeration.

POSITION OF PARLIAMENT

Those numerous functions are exercised by a large number of officials and bodies, who all ultimately derive their authority from Parliament—a point which emphasizes the impossibility of making a hard and fast separation between the three powers. There is no official, whether he be a humble clerk, or a prime minister, or an ambassador, and no elected body, whose powers have not been granted—and could not be removed—by Parliament. Civil Servants are, as a matter of fact, virtually permanent officials, but as their salaries depend on a yearly Parliamentary vote their tenure is theoretically limited; while the servants of local bodies owe their position to the fact that Parliament granted to the authority that employs them the right to engage in the particular form of local action for which they are needed, and to levy public money for their salaries.

This position of Parliament is most important to note, as it is one of the essential features of the British Constitution. In most other countries, the powers of the Parliament (whatever name it bears) are limited by certain constitutional laws; there are certain things that Parliament cannot legally do, and the Acts of Parliament which embodied them would be declared illegal and unconstitutional by the Courts of Law. But in Great Britain no Act of Parliament can be illegal or unconstitutional; it is, on the contrary, the fact that it is contained in an Act of Parliament which makes a thing legal or constitutional. This is most important to bear in mind, as slipshod writers sometimes allude to measures they dislike as "unconstitutional"; they may be contrary to the hitherto accepted traditions of the Constitution, but, however revolutionary, if embodied in an Act of Parliament, they are constitutional, they become the law of the land. There is *nothing* that Parliament may not do if it chooses—this is the fundamental principle of the British political and legal system.

PARLIAMENT THE ULTIMATE LEGAL AUTHORITY

All this, of course, refers to strict legal and constitutional theory. Parliament is not *really* omnipotent; it is limited at every turn by tradition, precedent, habit; it must conform to public opinion and to the wishes of the electorate as expressed in by-elections. But in the strictly political and legal sphere, it is the ultimate authority; and through it alone is all State action realized.

We shall, at a later stage, have to make practical distinctions of great importance between the State acting directly through its *central* agents—Parliament, the Cabinet, the Civil Service, the Courts of Law; and the State acting indirectly through *local* authorities: County, borough, urban and rural councils and the officials employed by them. The harmonious balancing of central and local authority is to a great extent the secret of avoiding the evil of over-centralization on the one hand, of incoherence and confusion on the other; and we shall see, when discussing concrete problems of State interference, that, however much it may be argued in the abstract that interference in a particular question is right or wrong, however it is exercised, the exercising thereof by central or local authorities may change the whole aspect of the problem. But as all bodies, central or local, hold their authority from Parliament, we can say that in this country all State action is ultimately the action of Parliament.

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

(*Continued from page 42*)

II
INTERNATIONAL ECONOMIC CONTROL TO 1919

By D. H. BLELLOCH

(1)

INTERNATIONAL economic control is a two-fold conception; it implies international agreement (*a*) of a more negative kind, and of necessity mainly inter-governmental, to ensure the maintenance of such personal and material security as is required for the development of international economic relations, and (*b*) more positively and on less purely official lines, to encourage and promote active international collaboration. The history of international economic control is the history of the increased tendency of Governments to agree for these two purposes, and at the same time of the efforts made by individuals and private bodies, with or without official encouragement, to secure economic unification and co-operation.

PRE-WAR INTERNATIONAL ECONOMIC CONTROL

The first factor, in historical order, of which account must be taken is international trade. The prime requirement of a trader in a foreign country is security. Thus international economic control rests in the first place on commercial treaties, guaranteeing reasonable mutual facilities and PROTECTION TO FOREIGN SUBJECTS. The manner in which these treaties have been developed so as to form a general framework for international trade throughout the world is a familiar fact of economic history.[1]

The trader, however, is not the only person who proceeds abroad for economic reasons. In the nineteenth century the emigration of workers, attracted by prospects of an easier livelihood in foreign countries, assumed considerable proportions, and it became necessary for the Governments of emigration and immigration countries to take steps to regularize the position of these immigrants. Between the middle of the nineteenth century and the outbreak of the World War a large number of treaties and agreements, both bilateral and multilateral, were concluded. Such agreements began by merely guaranteeing the subjects of one country against special penalization on account of their foreign nationality in the territory of another; but by 1914 a number of treaties were in existence regulating the position of immigrants in regard to social insurance, compensation for industrial accidents, general labour legislation, transfer of savings, relief and repatriation, legal assistance, etc.[2]

[1] Cf. Hertslet's *Commercial Treaties* (actual texts).

[2] A full and concise account of such agreements will be found in the report issued by the International Labour Office in 1922 on *Emigration and Immigration, Legislation and Treaties.*

The second necessary condition for international economic intercourse is the existence of adequate MEANS OF COMMUNICATION. The modern international structure depends upon the immense improvement in communications which took place in the nineteenth century, and from the beginning of the century the Governments found themselves obliged to take common action in order to safeguard international transit.

Inland Waterways were the first subject of concern. Between 1804 and the World War agreements were concluded for the international regulation of navigation on the Rhine, Danube, Meuse, Elbe, Oder, Pruth, Dniester, Niemen, Vistula, Guadiana, Tagus, Douro, Scheldt, St. Lawrence, Amazon, Rio Grande, Rio de la Plata, Huang-Pu, Pei-Ho, and Suez Canal.[1]

In the early nineteenth century the international *postal services* were in an extremely chaotic condition, owing to the absence of international organization. From 1802 onwards a number of postal conventions were concluded between two or more nations. In 1862 the U.S. Government took the lead in proposing an international postal conference. It was not, however, until 1874 that the General Postal Union, which subsequently became the Universal Postal Union, was founded.

International regulation of the use of the *telegraph* preceded that of the postal services, as the International Telegraphic Union was founded in 1865. In 1863 and 1882-3 conventions for the protection (from damage particularly by fishing-boats and trawlers) of *submarine cables* were concluded. In 1906 a *Wireless Telegraphy* Conference was held at Berlin, with the result that a Radiotelegraphic Union, modelled on and closely connected with the Telegraphic Union, was founded.

International *railway* organization was secured for Europe by the foundation in 1893, after a series of conferences, of the International Union of Railway Freight Transportation. Technical unification of European continental systems is based on conventions elaborated at conferences held in 1882, 1886, and 1907. The more universal International Association of Railway Congresses was founded in 1885.

Maritime Navigation has been subject to international regulation from very early times. To the end of the Middle Ages maritime trade was regulated by a few effectively international codes. National laws have now taken the place of these codes, but in many cases the old international

[1] "The first appearance of special international organs created and appointed to carry out specific international purposes is in the Commissions appointed under the Treaty of Vienna to carry out the provisions regarding navigation on certain European rivers."—Woolf, *International Government*, p. 104.

provisions have been adopted in the more modern legislation. From 1898 onwards the regular annual conferences of the International Maritime Committee (the central organ of national associations in seventeen countries) discussed the question of unifying and codifying international maritime law. International conferences on maritime law were held at Brussels in 1905 and 1909 on the invitation of the Belgian Government, and led to the adoption of a convention on the law of salvage and collisions. A common signal code was adopted by England and France in 1864, which, having been thoroughly revised in 1899, was subsequently adopted by some forty other countries. Agreements between over thirty States in regard to routes of navigation arose out of conferences held in 1889 and 1899.

Finally, the pre-war international organization of communications includes the *Automobile* Convention of 1909 and the agreement in regard to the international law of *aerial navigation* of 1911.

The respect of property rights has provided a further subject for international agreement. Conferences on the PROTECTION OF INDUSTRIAL PROPERTY were held at Paris in 1880 and 1883; at the second of these a convention establishing an International Union of Industrial Property was adopted by eleven States. A number of States Members subsequently agreed to the establishment at the Bureau of the Union of an international registry of trade-marks, so that a trade-mark registered there and in one of the adhering States should be protected in all the others. International trade was also facilitated by the establishment in 1890 of the International Union and Bureau for the Publication of Customs Tariffs.

UNIFYING STANDARDS

The next step, in logical order, towards international economic unity, is taken when the problem of UNIFYING STANDARDS is tackled. In 1865 the Latin Monetary Union was formed, for the establishment of an identical and interchangeable coinage in France, Belgium, Italy, Greece, and Switzerland. The Scandinavian and Central-American States subsequently adopted similar (but unconnected) unions. In 1875 the International Metric Union was formed, conferring upon the twenty-seven States which adhered to it the advantages of a uniform decimal system of weights and measures. Industrial and scientific standardization has been secured largely through the action of unofficial bodies. The first of a series of International Congresses of Electricians was held in 1881, the activities of which have led to the general adoption of standard electrical units. An International Electrotechnical Commission was founded in 1906 and embarked on an international classification of machines and materials. In 1895 was founded the International Association for the Testing of Materials, in 1903 the International Commission for the Unification of Methods of Analysing Food Commodities, etc.

INTERNATIONAL COMBINATIONS OF LABOUR AND CAPITAL

While Governments and public organizations were thus removing certain obstacles, international economic intercourse was itself advancing with increasing impetus in many different fields. Labour was organized, both in the International Federation of Trade Unions (1901) and in various international trade federations; in 1912 there were thirty-two international occupational federations of workers. Numerous international cartels and trusts were formed[1]—the International Rail Syndicate (1883), the International Glass Cartel (1913), the Nitrate Combination, etc.[2] The shipping, insurance, cotton-spinning, flax-and-tow-spinning, and refrigerating industries, among others, were strongly organized internationally. The Chambers of Commerce were holding international congresses; and international exhibitions and sample fairs were being organized with increasing frequency.

International economic life had thus come into definite existence, and the barriers of purely national control were gradually breaking down. However jealously Governments might cling to the idea of watertight national sovereignty, and of international relations exercised solely through diplomatic representatives, international economic control was, in fact, being exercised increasingly, not merely by official international bureaux and unions, but even by and through semi-private and private bodies.

THE BREAKDOWN OF LAISSEZ-FAIRE

In the face of material progress, the doctrine of *laissez-faire* broke down in the international as in the national sphere, and the Governments found themselves co-operating not merely to remove obstacles to economic progress but actually to encourage progress along certain definite lines. In both spheres *laissez-faire* was first abandoned on social and humanitarian grounds. From 1814 onwards the struggle against the slave trade became international. The progress of international agreement for the protection of emigrants has been referred to above. Eight Governments were members of the International Association on Unemployment along with a number of public and private bodies and individual members. Above all, the activities of the (originally quite private and unofficial) International Association for Labour Legislation led in 1905-6 to the adoption, at conferences held at Berne, of international conventions on the use of white phosphorus in the manufacture of matches and on the night work of women.

[1] Liefmann (*Kartelle and Trusts*, 1920, p. 36) reckons that by the outbreak of the War over 100 international cartels existed with German members.

[2] Other internationally controlled commodities were tubes, nails, screws, enamel articles, silk, zinc, sewing-thread, bleaching powder, borax, meat, oil, and tobacco.

STATISTICS

(*Continued from page 44*)

II

SOME PRELIMINARY OBJECTIONS

THE claim of statistics that it is a valuable instrument for the promotion of economic science does not pass unchallenged. The question may be raised whether it is justified even in its more modest claim to throw the light of truth on the facts of history and of contemporary social life. At the risk of labouring the obvious, it may be worth while to consider the main criticisms of the use of statistics in economics; it may serve to suggest dangers to be avoided, and to indicate the limits within which the method is of use.

STATISTICS "WILL PROVE ANYTHING"

The first objection is suggested by Mark Twain's statement that there are three orders of lies—lies, damned lies, and statistics; or it may be put in the more familiar form that "statistics will prove anything." The phrase expresses a distrust of the use of figures in argument which is almost as widespread as the belief in one's own ability to use them, and which probably arises from their constant employment to prove a case. From the same official report on the statistics of foreign trade, the free trader will prove the wisdom of the policy of the open door, and the protectionist of the tariff wall; and the individualist and the socialist both find, or seem to find, support for their arguments in the same statistical material. The devil, it is alleged, can quote Scripture for his own purposes, and the politician is no less adept in the use of figures. But the fact that controversialists deliberately or unintentionally mislead themselves and their audiences does not prove the uselessness of statistics any more than the misuse of drugs proves that they are valueless. What the latter does prove is that the administration of drugs should be in the hands of those who understand them and can control their operation, and in the same way statistics can be safely employed only by those who have carefully studied their use, are aware of their limitations and their dangers, and know the conditions under which statistical evidence can be accepted as general proof or must be rejected as merely particular. All of which means simply that the statistical method must be studied before it can be safely and usefully employed. That, of course, applies to every other method and every other subject; the peculiar temptation and danger in the case of statistics lies in the fact of the widespread interest in figures, already alluded to, the ease with which, in many cases, they can be manipulated, and the air of finality which they contribute to any argument.

STATISTICS AWARE ONLY OF QUANTITY

The second objection is to the use of statistics in the building up of scientific law, and applies especially to such use in economics. The objection is to the effect that statistics can take account only of those factors in a group of instances which are capable of measurement. But, particularly in economic and social life, results follow from complicated combinations of causes, only some of which are quantitatively determinable, and consequently, it is argued, the statistical method omits vital factors and builds its conclusions on insufficient data. Thus, to take the case already quoted, the statistician finds a connection between infant mortality and the number of inmates to a room, and he does so on the basis of his observation of cases presumed to be similar in all respects except in housing conditions. But, it is alleged, there may be other accompanying differences, unnoticed by the observer, which are at least contributory causes of the variations in the infant mortality rate. There may, for instance, be differences in maternal care. Or, again, the crowded condition of the houses and the high infant mortality rate may both be results of one and the same common cause. From an observed relation between the variations in two quantities, the statistician jumps to the conclusion that the quantities are causally related; a conclusion which may be quite unjustified.

Although this objection has been carelessly stated, there is an aspect of truth in it which must be granted. There can be no objection to the use of the statistical method as such. Correctly used, it is a logical instrument of scientific proof. It is a case of the inductive method, and where the inductive method can be applied its employment is justified and helpful. By a combination of its two methods of agreement and of difference unassailable conclusions can be drawn from a number of given facts. The pertinent part of the criticism concerns the applicability of the method in a field (such as economics) where every result follows only from a composition of causes, and where the difficulty of disentangling the variety of intricate threads is so great and accurate observation so rare. What this means is that the chief difficulty lies in the preliminary business of observation rather than in the later business of drawing conclusions from the facts observed. And the moral to be pointed out is that statistical work to be sound must be built on a foundation of careful observation.

IGNORES OTHER ASPECTS OF LIFE

A third objection to the use of statistics is that it degrades life, reducing beauty to ashes and turning the oil of joy to the spirit of heaviness. To

change the figure, it presents the skeleton without the flesh and blood, and, what is worse, presents it as if it were the flesh and blood. Here, again, it may be freely granted that if quantitative facts and relations are claimed to be the whole of life the criticism is valid, but that is a claim that the statistician would be the last to make. If he knows his business, he is aware that he is dealing with only one aspect of his material. He knows, for instance, that he cannot "measure" such a thing as poverty. He can find the number of people in receipt of public relief, or, with more difficulty, of organized charity. But that is only an indication of poverty. Uncriticized, it may not be a correct indication even of the *extent* of poverty, for the numbers relieved vary with changes in the law and its administration; and in any case it is no indication of the *intensity* of poverty. But behind the criticism there is something more. There is the mistaken view that to explain is to explain away, which, driven to its logical conclusion, means that knowledge and feeling are mutually destructive and that only ignorance can see beauty in the world of men and of things. And in that sense, of course, the objection is entirely unsound, for it would apply equally to every attempt at accurate knowledge of the world in which we live. Every science would, on this ground, stand equally condemned; for every science is partial. By its very nature it must attend to only one aspect of things at a time. The chemist and the physicist have each their own explanation of the material world, and their specialized and partial explanations are necessary to our understanding of that world. But neither would claim that his science fully explains the whole nature of the matter with which he deals; and a knowledge of chemical and physical laws, if we have our wits about us, need not render us blind to the beauty of the world, or deaf to the "mighty voices" of the sea and the mountain. A waterfall is no less wonderful because the path of every drop of water in it is determined by physical law, and can be described in the language of figures. Nor, to take an illustration from another sphere, is a high rate of infant mortality less distressing because it can be traced to particular causes revealed by statistical investigation.

DEVELOPS A FATALISTIC HABIT OF MIND

Closely related to this criticism is another, that statistics yield fatalistic conclusions and tend to develop a fatalistic habit of mind. To show that there has always been unemployment as far back as figures will carry us is to suggest that unemployment is inevitable; to demonstrate the regularity of the recurrence of industrial depressions in the past is to suggest their regular recurrence in the future.

Against this danger and that referred to in the previous paragraph, both the statistical investigator and his reader must be constantly on their guard. Two things, if borne in mind, will afford sufficient protection against these dangers. These are, first, that in the sphere of social life the quantitative is only one aspect of things and that it must be interpreted in the light of non-quantitative considerations, ethical, political, or personal, which, in the circumstances of the case, may be of equal or greater importance. Second, that statistical investigation reveals what is or has been and not what must be. Even where it discloses a causal relation, universally valid, that relation always appears in the form "If A, then B," and statistics can say nothing of the inevitability of A.

"PRACTICAL" AND "SCIENTIFIC" VALUE OF STATISTICS

Within these limits, the method is proving itself of increasing value, both for "practical" and for "scientific" purposes. On the former side, reference need only be made to the place in modern industry now held by cost accounting, which is nothing more than the scientific application of statistical analysis to the results of different business methods. On the latter side, statistical investigation has been of special value in the promotion of economic knowledge. For different reasons modern economics has assumed more and more of a statistical appearance. This may be partly due to the changes which have occurred in actual economic institutions and relations, which make it no longer safe to begin, as did the classical economists, with big assumptions about the nature of economic society or the economic man, and which have led to increasing emphasis being laid on the facts of experience and an increasing willingness to learn what the facts have to teach. But it is partly due also to the growing volume of statistical material available to the investigator. That material, as will be shown in a later article, is still far from sufficient to satisfy even the most modest seeker after truth, is still lacking in continuity, and is still arranged and its content determined for the most part from administrative and not from scientific considerations. But it does grow, and Government reports, supplemented by industrial and commercial reports and by private investigations, now offer a field for an increasing body of scientific workers. These, aware of the limits to the validity of their instrument, alive to the danger of pressing its use beyond these limits, and recognizing that their instrument is only one among many for the attainment of truth, can make valuable additions to economics. The ordinary reader, if he would avoid being misled by the dishonest or the unscientific, must also understand the methods and the limitations of statistics. To this we shall proceed in the next article.

STATISTICAL APPENDIX

(*Continued from page 44*)

GROWTH OF POPULATION BY COUNTRIES AND DISTRICTS

TABLE VII shows the world population as at 1910 and 1920 and the actual and percentage increase during the intervening period.

A further analysis of the figures for Europe is made in Table VIII, which shows the population of the principal European countries, and Fig. 3 shows graphically the growth in the

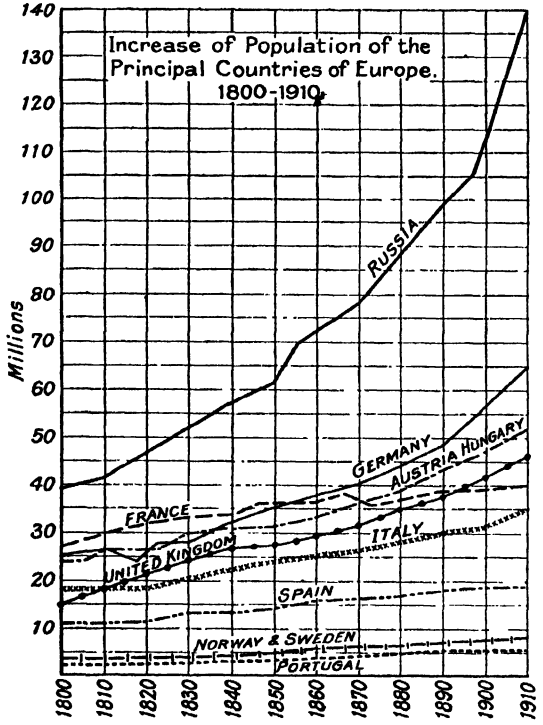

FIG. 3. POPULATION OF PRINCIPAL COUNTRIES OF EUROPE 1800-1910

population of European countries between 1800 and 1910.

Table IX, shown on page 94, gives the average birth-rates and death-rates in the principal states of Western Europe, arranged in order of birth-rates, for the period 1901-1910.

The decline in birth-rate and death-rate, already shown to have taken place in England and Wales, has been general throughout Western Europe, as appears from Table X, shown on the next page.

TABLE VII[1]

WORLD POPULATION

	1910 Thousands	1920 Thousands	Increase Thousands	Increase Per cent
Europe	647,480	652,102	4,622	1·0
America	180,397	207,909	27,512	15·2
Africa	126,854	132,580	5,726	4·5
Asia	858,497	990,809	132,312	15·4
Oceana	6,866	8,096	1,230	18·0
	1,820,094	1,991,496		

TABLE VIII

POPULATION OF THE PRINCIPAL COUNTRIES OF EUROPE AT THE MOST RECENT CENSUS

(From the *Registrar-General's Statistical Review of England and Wales* for 1925; page 120.)

Country	Year of census	Enumerated population Thousands	Decennial rate of increase or decrease
Austria	1923	6,527 (provisional)	− 1·8
Belgium	1920	7,462	− 0·3
Bulgaria	1920	4,847	?
Czecho Slovakia	1921	13,613	+ 0·1
Denmark	1921	3,268	+ 11·8
Finland	1920	3,365	+ 8·0
France	1921	39,210 (incl Alsace-Lorraine)	− 1·0
Germany	1925	62,475 (excluding Saar territory)	+ 5·6 (since 1919)
Greece (incl. Thrace)	1920	5,669	?
Hungary	1920	7,980	+ 4·9
Italy	1925	42,116 (provisional)	+ 5·4 (since 1921)
Jugo-Slavia	1921	12,017	?
Netherlands	1920	6,865	+ 17·2
Norway	1920	2,650	+ 10·8
Poland (according to boundaries fixed 1923)	1921	27,193	?
Portugal	1920	6,033	+ 1·3
Russia in Europe (area as adjusted 1921, excluding Don region)	1920	66,486	- 7·7 (from 1914 est pop)
Soviet Government's Autonomous Republics and regions	1920	60,164	− 8·1 ,,
N Caucasus and Don Republic	1920	6,322	− 4·2 ,,
Ukraine	1920	6,851	+ 0·6 ,,
White Russia	1920	26,002	− 6·1 ,,
Spain (incl Canary Islands)	1920	1,634	− 14·1 ,,
Sweden	1920	21,338	+ 7·0
Switzerland	1920	5,904	+ 6·9
	1920	3,886	+ 3·2

Figure 4 shows the comparative birth-rates from 1861 to 1914 of England and Wales and of certain principal Western European countries,

[1] Carr-Saunders, *Population*, page 83.

TABLE IX[1]

Country	Birth-rate	Death-rate
Austria	34·7	23·3
Spain	34·4	25·2
Prussia	33·5	18·4
Italy	32·7	21·6
Portugal	31·8	20·2
Finland	31·2	18·0
Netherlands	30·5	15·1
Denmark	28·6	14·2
Scotland	28·4	16·6
Norway	27·4	14·2
England and Wales	27·2	15·4
Switzerland	26·9	16·7
Belgium	26·1	16·4
Sweden	25·8	14·9
Ireland	23·3	17·1
France	20·6	19·4

namely, England, Wales, Scotland, Ireland, Denmark, Norway, Sweden, Italy, Finland, Switzerland, German Empire, Austria, Holland, Belgium, and France.

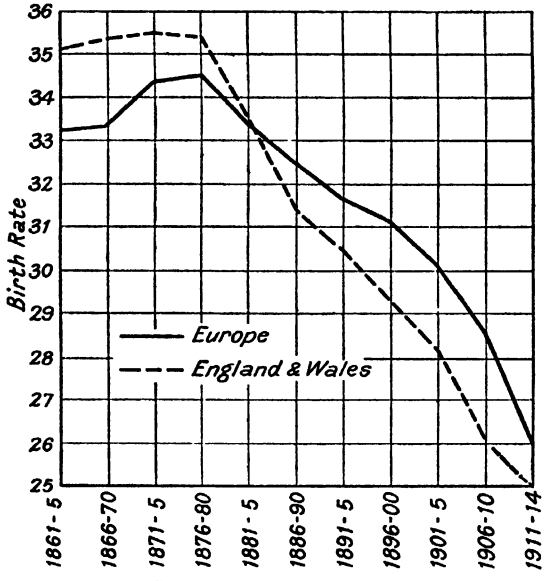

FIG. 4. COMPARISON OF BIRTH-RATES OF ENGLAND AND WALES WITH THOSE OF EUROPE

[1] Based on Yule, "Growth of Population," *Statistical Journal*, January, 1925, page 31.

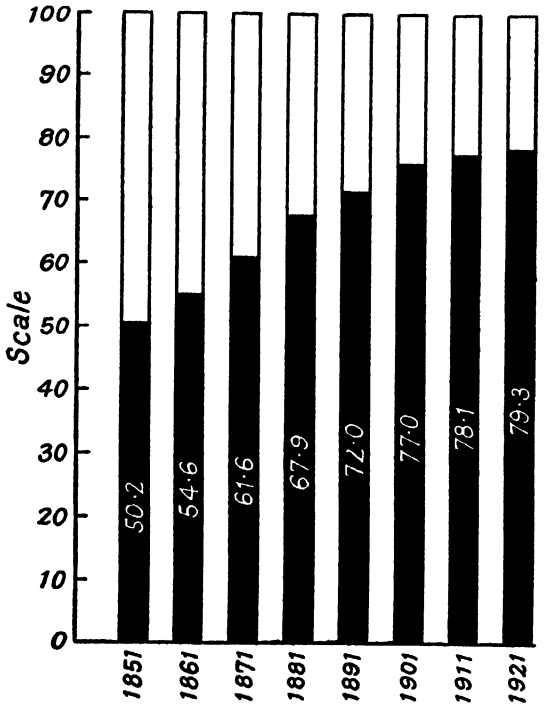

FIG. 5. URBAN AND RURAL POPULATION (ENGLAND AND WALES)

TABLE X[1]

DECREASE IN BIRTH-RATE AND DEATH-RATE IN WESTERN EUROPE BETWEEN 1871–80 AND 1901–10

Country	Fall in	
	Birth-rate	Death-rate
England and Wales	8·2	6·0
Scotland	6·5	5·0
Belgium	6·2	6·4
Finland	5·8	4·0
Netherlands	5·7	9·2
Prussia	5·5	8·2
Sweden	4·7	3·4
Austria	4·3	8·2
Switzerland	3·8	2·3
Norway	3·6	2·8
Denmark	2·8	5·2
Italy	2·3	2·6

[1] *Loc. cit.*, page 33

A FORECAST FOR EUROPEAN COUNTRIES

Professor Bowley has recently prepared for the Economic and Financial Section of the League of Nations estimates of the working population of certain countries in 1931 and 1941. The general results of these estimates are given in Table XI.

The estimates are based on certain assumptions, among which the most important are that death-rates will continue unchanged during the period under consideration, and that there will be no migration. The estimates include only the population from 15 to 70 years of age.

TABLE XI[1]

POPULATION, MALE AND FEMALE, BETWEEN THE AGES OF 15 AND 70

(Areas throughout as in 1925)

Date	Sweden	Denmark	Great Britain	Belgium	France	Germany	Switzerland	Italy *b*	U.S.A.	Australia	Japan
	Recorded number (000's)										
1910*a*	3,472	—	27,019	4,881	28,400*b*	35,300*b*	2,457	22,425	60,033	2,911	33,070
1920*a*	3,859	2,096	29,353	5,267	27,823	39,780*b*	2,664	25,060	69,085	3,561	34,946
	Estimated numbers, assuming no migration (000's)										
1931	4,333	2,437	32,737	5,667	28,078	45,720	2,961	28,737	81,740	4,160	40,184
1941	4,690	2,700	34,179	5,778	27,583	47,360	3,102	31,037	89,863	4,688	43,588
	PERCENTAGE GROWTH (APPROXIMATE)										
1910-*a* 1920	11	—	9	8	−2	13	9	12	15	22	6*c*
1920-*a* 1931	12	16	12	7½	1	15	11	15	18	17	15
1931- 1941	8	11	4	2	−2	3½	5	11½	10	13	8
1910-*a* 1941	35	—	26½	18	−3	34	26	38	50	61	32

(*a*) The actual Census dates vary in different countries. The figures given are those of enumerations nearest to 1910 and 1920.

(*b*) Estimated, to allow for territories lost or acquired.

(*c*) Five years only, 1913-18.

TABLE XII

URBAN AND RURAL POPULATION

ENGLAND AND WALES

(Compiled from Census Reports)

		1891	1901	1911	1921
Number of districts	Urban	1,011	1,122	1,137	1,126
	Rural	575	664	657	672
Population	Urban	20,895,504	25,058,355	28,162,936	30,034,385
	Rural	8,107,021	7,469,488	7,907,556	7,850,857
Percentage of total population	Urban	72·0	77·0	78·1	79·3
	Rural	28·0	23·0	21·9	20·7
Increase in population in the areas as constituted at the date of each Census over the population of the same areas at the previous Census	Urban	15·4	15·2	11·1	5·2
	Rural	3·0	2·9	10·2	4·3

[1] Bowley, *Estimates of the Working Population of Certain Countries in* 1931 *and* 1941, 1926, page 4.

URBAN AND RURAL POPULATION

The following table shows the number of persons to the square mile in several European countries—

TABLE XIII

DENSITY OF POPULATION FOR EUROPEAN COUNTRIES

1921

Country	Persons per square mile
England and Wales	649
Belgium	634 (1920)
Holland	554
Italy	337
Germany	328 (1919)
France	184

England and Wales is now the most densely populated country in Europe, having more than one person to the acre in 1921. This compares with 208 persons to the square mile in 1821.

Table XII shows the distribution of the population of Great Britain between urban and rural districts in 1891, 1901, 1911 and 1921; and Table XIV makes a more detailed analysis of the urban portion. In interpreting these tables the arbitrary and temporary nature of the distinction between rural and urban should be kept in mind.

The increasing urbanization of the population of England and Wales is shown diagrammatically in Fig. 5.

For comparative purposes the classification of the population of the United States into rural and urban is shown at different dates in Table XV. This table should be compared with Table XII, but it should be noted that for statistical purposes the population of the United States in towns of 2,500 inhabitants and upwards is classified as urban.

TABLE XIV

DISTRIBUTION OF THE POPULATION OF ENGLAND AND WALES IN 1921

(Percentages in U.S. given for comparison)

(Based on Table in Newsholme's *Vital Statistics*, and Reports of Registrar-General, England and Wales)

Population of urban districts	Aggregate population	Percentage of population	
	England and Wales 1921 Thousands	England and Wales 1921	United States 1920
Over 1,000,000	4,483	11·8	9·6
500,000 and under 1,000,000	2,453	6·5	5·9
250,000 ,, ,, 500,000	2,738	7·3	4·3
100,000 ,, ,, 250,000	5,103	13·6	6·2
50,000 ,, ,, 100,000	3,855	10·2	5·0
10,000 ,, ,, 50,000	8,387	22·1	11·4
Under 10,000	2,955	7·8	9·0
Total in Urban districts	30,034	79·3	51·4
,, Rural ,,	7,851	20·7	48·6
	37,885	100·0	100·0

TABLE XV

DISTRIBUTION OF POPULATION OF UNITED STATES

(Proportion per cent)

	1880	1890	1900	1910	1920
Urban	28·6	35·4	40·0	45·8	51·4
Rural	71·4	64·6	60·0	54·2	48·6
	100·0	100·0	100·0	100·0	100·0

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page 50*)

III

THE MEDITERRANEAN CIVILIZATION

"From this it is clear that the city-state is a natural organism, and that man is by nature a social animal, and that the man who is a member of no state—I mean by nature, not owing to chance circumstances—is either worthless or a superman . . . moreover, by nature the city-state is prior to the household or to any individual one of us, for the whole must necessarily exist before the part."—ARISTOTLE, *Politics*, Book I. (LAISTNER, *Greek Economics*, pp. 136-7.)

THE shores of the Mediterranean Sea witnessed the development of the successive civilizations which have moulded the thought and defined the outlook of the west. Here the external conditions offered favourable opportunities for the settlement of and the intercourse between organized groups. There was a considerable degree of unity, because, when once men had mastered the navigation of the great inland sea, they had an easy means of inter-communication. The river valleys of the seaboard were similar to one another, and colonists who left one place for another were able to reproduce communities on the model of their old homes. The natural products of the Mediterranean region are alike, and immigrants found that the soil was suitable for the extension of the cultivation of flax, vines, olives, etc. The environment of the typical settlement may be resolved into three elements: (*a*) The valley, in which agriculture could be established; (*b*) the port, which could be made the basis of commerce, and (*c*) the hills of the hinterland, where pastoral life was maintained. The settlements mingled these three ingredients in different proportions. The valley life of these Mediterranean people probably represents traditions brought by settlers from the eastern banks of the Black Sea, where communities had early discovered the possibility of cultivating the soil. So they were acquainted with a variety of trees, fruits, and cereals. Naturally, they would establish settled villages which would by degrees become fortified cities, for the culture of the soil demands concentration, and to defend its yield from marauding hill peoples defence is necessary. So city life became the chief characteristic of Mediterranean civilization; it came to be conceived as the environment in which man reached his true stature. Instead of the family grouping of pastoral peoples or the temporary alliance of hunters, there emerged an organization, public and permanent, within which the individual had fuller opportunity for realizing his capabilities. The older sanctions of force or custom gave place to the idea of law; a growing sense of public justice ensured to each full member of the community freedom to follow any lawful enterprise. Phoenicians, Greeks and Romans were all city dwellers.

THE PROBLEM OF ECONOMIC STABILITY

The Phoenicians were predominantly traders. On the coast of Syria they founded the old world ports of Tyre and Sidon, where they were in touch with the empires of the Nile and of the Tigris-Euphrates valleys. They were active in opening up trade routes by sea, and establishing centres where they bought and sold goods. They ventured to the shores of the Western Mediterranean, and even to the mysterious ocean beyond, bartering articles which appealed to the natives for the metals and other raw materials they required. Of their settlements in the west the most famous was Carthage, and after the fall of Tyre (572 B.C.) it became their chief city. They traded in weapons wrought in copper and bronze and in ornaments of gold and silver; they knew the arts of spinning, weaving and dyeing. But the strength of the Phoenician cities—commercial prosperity—was also their weakness. They neglected the agricultural basis. With settlements far from one another and regarded primarily as markets, the Phoenicians could not solve the problem of stability. How to avoid revolution was a question which occupied the attention of the political thinkers of the Greek city-states. They knew from example that over-concentration on commerce was dangerous. Plato suggested that intercourse by sea was inimical to good government, and Aristotle was of opinion that the ideal situation for a city-state was one in which it could take advantage of a port without being completely identified with it. Everything points to the fact that the early settlers in Greece had passed from the pastoral to the agricultural stage. At the dawn of history there are revealed communities cultivating the soil, with a knowledge of crops which they must have brought with them from elsewhere. On this agricultural basis they built up a variety of crafts—those of the textile worker, the potter, and the metal-smith—and gradually the separate communities, divided from one another by the intervening hills, began to establish relations by sea. The villages had become urban centres before the beginning of historical record. They were ordered groups, dependent on the arts of peace in a world where violence was still rampant. In the Greek city-states, when our knowledge of them becomes fuller, there can be detected the intermingling of types. Sparta was an armed camp in which a ruling minority maintained control over a large subject population. In Athens commerce had naturally developed, for Attica was a peninsula with easy access to Asia

Minor by sea. Its citizens enjoyed greater liberty, but its government was less stable than that of Sparta.

THE INSTITUTION OF SLAVERY

The interesting question is what kind of economic relations existed between the different elements in these settled communities. Land was obviously limited in extent and appropriated for special cultivation. There was a large proportion of landless men who in some condition of slavery or serfdom did the agricultural work for a small number of rich landed proprietors. Whether the agricultural workers were conquered peoples or had been reduced to dependence by the burden of taxation or debt, the fact remains that settled cultivation of the land involved a hardening of social relations and the clear emergence of classes. Discontent sometimes threatened the stability of the city state, and relief was sought either in emigration or in revolution in favour of the oppressed. There was a tendency to relegate labour and trade to slaves and freedmen. The intelligence of the Greek was not applied to mechanical invention and, apart from the development of the use of money, it played very little part in the elaboration of commercial methods. Apparently, when the city-states were at the zenith of their power, there was a considerable amount of trade, but it did not notably react on industry. It is possible to exaggerate the consequences of the institution of slavery; but there is no doubt that its existence created an atmosphere unfavourable to the growth of the ideas which we regard as essential for the full economic development of a community. What the Greek city-state made of its environment, then, depended on a number of factors, of which the most important was the conflict of different types. Successive waves of invaders imposed their will by conquest on the people they found in possession. It was not a matter of a homogeneous people trying to find a solution to the problem of settlement in a region not hitherto appropriated.

THE ASCENDANCY OF ROME

In Rome, also, there was a blending of types. Situated in a more or less characteristic Mediterranean valley, the site of Rome invited settlers from Etruria on the north side of the Tiber, and from Latium in the south, as well as from the sea. The legends of Ancient Rome all point to a mingling of Etruscans, Latins, and Sabines. How they differed from one another is largely a matter of conjecture. That they became settled agriculturists may be inferred from the situation and the stories that were told later of the early days. Romulus is said to have traced the walls with a plough, and agriculture was long held in peculiar esteem. The geographical situation was not suitable for the growth of commerce. It was by military power that Rome established its control step by step over Italy, Greece, and, ultimately, the whole Mediterranean seaboard. The extension of the Roman Empire facilitated the spread of the ideas which had their origin, as far as we know, in the city-states. A certain uniformity was thus given to Western Europe which it never entirely lost. The weakness of this imposing structure was economic. Rome itself, in the days of its splendour, based its prosperity on the tribute which it exacted from its provinces. It never distinguished between plunder and commerce. For a great city—and at the beginning of the Christian era it probably had a population of three-quarters of a million—it was singularly unproductive. Industry remained in the hands of small craftsmen and mechanical invention made no progress. The wealthy accumulated capital, which was usually applied to agriculture, mines and forests. It was often invested in foreign trade, but practically not at all in industry. Generally speaking, therefore, the Roman Empire did not achieve economic integration. Most trade was local. The articles which entered into wider commerce were luxuries demanded by the rich. Supplies of corn were obtained as tribute, that is, without sending other goods in exchange for it. In the two centuries before the Christian era the growth of great slave plantations (*latifundia*) attracted much attention. The plantations often extended to thousands of acres. They offered opportunities for the investment of capital and were generally owned by those who had acquired riches in the exploitation of the provinces. How far this movement involved the decay of smallholding is not clear. That the conditions of employment were often most oppressive is demonstrated by the revolts of the slaves, the best known of which is that of Spartacus in 73-71 B.C. In the long run, however, the system was found unsatisfactory. Large estates survived, but they were let out to free tenants. Columella, who wrote a treatise on agriculture about the middle of the first century of our era, recognized that slave labour was costly because it was wasteful. In the cultivation of cereals it had been particularly unsuccessful. But freedom had not won a final victory. As the Empire entered into its decline the free tenants fell into a condition of serfdom. They were bound to the soil, and the burdens of their payments increased. The causes of this reduction in status were manifold. Men surrendered their freedom to those who would relieve them from the burden of taxes, or would protect them in times of growing disorder. They would engage to make payments in kind, i.e. agricultural produce, or to work for their protectors for so many days a week. So the Mediterranean civilization which had achieved so much failed to secure permanent personal freedom for the masses.

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page 52*)

III

LABOUR

THE subject-matter of geography is really the same whatever the particular standpoint of the geographer may be in a particular study. But we have distributions of physical features and of living organisms, and we may investigate the relations of the two at different times. Physical geography—the distribution of land and sea, highland and lowland, heat and rain, soils and minerals is always the essential base ; but historical geography studies the particular development of a particular people in a particular area, and political geography relates national characteristics to natural conditions. The essentials are the same in both cases ; we study in turn the position, the relief (i.e. physical character of the land), the climate, the resources, and then the people. There are, of course, little differences of detail, in the choice of facts, in their interpretation, and in the order in which we take them. At one time an island may be important mainly because it is safe from foes, at another because it offers facilities for cheap and easy commerce.

But in early times the permanent inhabitants of every natural region were *forced*—in order to get a living—to adopt certain habits and occupations, e.g. build houses for shelter and catch fish for food Obviously, these habits and occupations were concerned mainly with means of sustenance, and they crystallized in time into national characteristics and special ways of living. In other words, the number, the distribution, and the habits of a people depended really on their economic resources ; but, historically, man used first what came naturally to his hand. So political, historical, and economic geography are simply different and often overlapping ways of studying the same essential phenomena.

OUR PROPER AIM

What, then, is the proper work of economic geography ? It is certainly *not* to collect multitudinous statistics as to where products are found, or produced, or exchanged. The figures are only a great burden on the memory and little help to the understanding. One's object is an attitude of mind, not a body of knowledge. If one gets the right attitude of mind, and learns to think geographically, all sorts of details—statistical and otherwise—stick in one's memory automatically ; but no amount of statistical knowledge by itself teaches you, or helps you, to interpret and to forecast. The vital questions are " how " and " why," not " what " and " where."

The proper work of economic geography is, then, to study *how* man makes use of the earth to supply his material needs—how he uses the advantages of any region, or struggles against its disadvantages ; why a land lacks certain things, and has a surplus of other things. It should present the world as the home of man, where one region and its people depend on another region and its people ; each has something to give, and wants to get something. And each type of man and region should be doing its own proper work, i.e. what it can do best, and minding its own business. For instance, Canada *could* supply three out of every four persons in this country with all the bread that they eat, and four out of four with all the cheese. Russia never could do either ; indeed, for the last forty years Russia has never had enough bread for her own people—though millions of tons of wheat have been exported—and thousands of Russian children have died every year from starvation. People do not believe statements of this sort, but it is only because they are profoundly ignorant of economic geography.

OUR PROPER REWARD

Economic geography is, also, easier to grasp than either historical or political geography. It is much easier to understand how climate affects plants, e.g. how lack of snow ruins crops of winter wheat in Russia, than how it affected the civilization of Athens 2,500 years ago, when she turned out in one century twelve men, all of whom stand in the first twenty on the world's roll-call of art and literature. It is also the most useful as well as the easiest to grasp ; for it has a real cash value in business, it keeps your finger on the pulse of the world, and so it widens your outlook and your sympathies—you make a much better citizen.

Obviously, amongst the great problems of economic geography are such things as labour, products, routes ; and in each case we want not merely to know, but to understand, the essential facts. Mere knowledge is relatively useless. For instance, we want to know *why* labour is so largely a human response to a *climatic* control.

CLIMATE AND LABOUR

Climate decides most of the natural occupations and opportunities of man, and often even how he normally and naturally uses these opportunities. Thus, historically—in times when men's work was done mainly out of doors, and when artificial light was very poor—labour was favoured where there was a long winter day, and thus little need for any artificial light. (Our " summer " time illustrates the same idea, though we get our summer

time in a very stupid way, which pretends that the sun is wrong, and which no one but a politician would ever have invented.) And a long winter day is found only in low latitudes, i.e. rather near the Equator. But labour was also favoured where the summer day was not very hot; and the summer day in low latitudes is very hot. Obviously, then, labour was going to be most favoured in neither high nor low, but middle latitudes, where there was a fairly long winter day with a fairly cool summer day.

Then, it is a great advantage if the climate allows a maximum percentage of outdoor work at all seasons instead of crowding it into one season; and this is possible only where there is neither great heat nor great cold. The absence of great heat allows man to do hard muscular work in summer without undue exhaustion, and some degree of cold encourages him to do it in winter in order to keep warm. These are perfectly obvious things, affecting only the bodily comfort; but, if they are true, why should not climate affect man also in other ways that are not physical? Why should it not affect his mind and his *moral* as well as his muscles?

Perhaps it does. Certainly an annual winter encourages thrift and foresight, for he must look ahead, and save up food, etc.; an eternal winter, as in the Arctic or Antarctic regions, condemns him at the worst to despair and at the best to sheer endurance. As a matter of fact, the Antarctic continent has neither plant nor animal life, and, therefore, man cannot live there at all. An annual summer brings reward for toil and so hope, but an eternal summer makes man lazy and improvident. When there is no variation of season from year's end to year's end, and when Nature provides abundance of food, why should man look ahead? Why should he work? The cycle of life is twenty-four hours.

TYPES OF LABOUR

These mental and moral qualities are bound to be reflected, then, in the type of labour. The *best* labour comes from the temperate zones, which harden without exhausting, and where Nature rewards you for work, but where, if you will not work, neither shall you eat. And it is specially good when it comes from lands of varied relief—mountains and plains, with forest and grassland; then people are accustomed to different kinds of work, and so are more versatile, more useful generally. The *worst* labour comes from extremes of heat, especially damp heat. Extremes of cold keep man very hopeless, but he must be ingenious and brave and enterprising take the Eskimo—or he could not survive at all. *Most* labour comes from the plains of middle latitudes, such as the plains of the Ganges, the Yangtse, and the Nile, where there is naturally a huge supply of food, e.g. rice, and where this encourages a dense population. But most of this labour is too cheap and too uniform; the people are so badly nurtured that they are poor workers, and they can do almost nothing except dig. For instance, they make wretched coal miners in India.

Of the three areas mentioned, the Yangtse is much better than either of the others; and this is due to the climate. The Assuan dam in Egypt stands practically on the tropic of Cancer; Hindustan is farther from the Equator, but the huge Himalayas shelter it from the bracing cold which it might have in winter, and frost is almost unknown. But the average temperature during January in Hankow is the same as in London, so that the people have a bracing winter; and, as the average temperature during July is twenty degrees higher than that in London, they have a very trying summer. Further, the winter is dry, and the summer is damp. The Chinese can work, then, in a great many kinds of climate.

GEOGRAPHIC AND NON-GEOGRAPHIC

We must be cautious, however, about not overlooking factors which are now *not* geographical, though they have been a response to geographical controls in the distant past. For in the effort to adjust themselves to their environment with maximum results, peoples may be greatly helped by "racial" gifts. The character of the land and the climate, the presence or absence of fuel and other resources, the position in relation to other lands and other peoples, are all obviously geographical.

The purely geographical field is very wide because human life has so many aspects—social, economic, political, etc., and can be affected by its environment in so many ways, but once the whole world was known, and international relations and movements became world-wide, migrants carried to new lands instincts and aptitudes which were associated—perhaps as a response to the inorganic control—with quite different conditions. These instincts and aptitudes, of course, affect their attitude to the new lands—sometimes adversely. For instance, Europeans have often built houses (quite suitable in Europe) in tropical lands, where a corrugated-iron roof may mean death.

In our present inquiry these minor incidents are insignificant. We are only discussing the obvious geographical relationships, and need emphasize only the actual fact, e.g. that the Chinaman can work well in almost every kind of climate, and that he is, therefore, both a very useful helper and a very dangerous rival.

PRODUCTION

(*Continued from page 54*)

III

CERTAIN forms of expenditure (i.e. of consumption) will be generally recognized as wasteful or injurious; as involving an accession of "wealth" to individuals but a destruction of wealth for the community. The seeming paradox is not difficult to explain; a single example should suffice. To eliminate the activities of the bookmaker and of those whom he employs—to eliminate, indeed, the activities of every type of social parasite—would result in an increase in the totality of wealth available to those engaged in producing it. "Welfare" and "wealth" are so obviously not synonymous terms. But who is to judge authoritatively what constitutes "welfare"? That question we cannot here explore. We must be content at the moment to recognize that the production of wealth is conditioned by the desires of individuals; that the efforts which these same individuals put forward are directed, in the first instance, towards the acquisition for themselves of what they themselves want; that, nevertheless, these efforts constitute, taking them as a whole, the means to the production of all the wealth the community requires; and that in so far, therefore, as there is misdirection or mal distribution of effort or of desire, "wealth" and "welfare" will fail to correspond. This criticism of an economic order which is based on the free interplay of motives and desires will be implicit in our account of it; we shall not, however, need to recur to it continually.

(9) THE DIVISION OF LABOUR. ITS FORMS

Some allusion has already been made to the division of labour—a principle of organized activity which is so fundamental and so obvious, and which has been discussed for so long, that it is not possible, in this twentieth century, to say much that is new about it. Nevertheless, we must give it careful consideration, for we shall need to know, not only what this division of labour implies, but also the precise nature of its complex reactions upon our lives, habits and outlook. Familiar as we may be with the underlying idea we shall still, perhaps, be surprised to discover how far-reaching these reactions are.

The underlying idea, it is suggested, is obvious enough. It is no better understood to-day than it was by Plato and Aristotle, though the world in which they lived was founded upon a social theory as different from ours as is the "Republic" from the world of William Clissold. But its significance, as a key to the intricacies of economic interaction, was exhibited to his contemporaries by Adam Smith with a force and a cogency that startled them. From his time onwards it has been accepted as a commonplace of economic analysis. But, whatever the form in which this underlying idea may have been stated, there can be no escape from the overwhelming implications of the corresponding facts. The history of civilization, as we understand that term, is very largely the history of the extension, in one direction or another, of an all-pervading principle

We will not, however, succumb to the temptation to present those flashes of kinematographic history by which its development is sometimes illustrated. They tend to provoke more misconceptions than they allay. We will aim rather at illustrating the division of labour by reference to some contemporary facts. In so presenting it, a second, and hardly less important, purpose can be served: that of exhibiting, in a form in which their essentials can be readily grasped, some facts which may serve to illustrate "occupational distribution" within an industrialized community. Some of the problems of production and distribution, which later we shall want to discuss, can thereby be made more intelligible.

We can regard the division of labour, in its application to productive organization, as assuming four main forms—

(*a*) Division of labour as between one occupation and another; a characteristic, in greater or less degree, of all but the most primitive communities.

(*b*) Division of labour as between processes—an extension of occupational division which became significant with the "Industrial Revolution," and has since proceeded, and is still proceeding, apace.

(*c*) Division of labour between functions, i.e. those of "enterprise," management, and direct labour. This is a characteristic, and an increasingly important characteristic, of capitalistic organization. We shall consider its implications when we come to discuss the part played by capital in production.

(*d*) Division of labour as between one community and another, or between different regions or districts within the same community. This development, looked at historically, is a direct consequence of the growth of commercial competition. Lancashire, for example, because it can undersell its competitors in foreign markets, manufactures certain classes of cotton goods for sale all over the world. Denmark, similarly, concentrates on the production for export of certain agricultural products. But the problems of industrial "concentration" and "localization," and of the division of labour as between communities, must, for the moment, be deferred.

We can, however, illustrate, in the remaining

sections of this chapter, what the division of labour under our first two heads implies; we shall then be in a position to justify or to criticize it, and to appreciate its economic consequences.

(10) THE NATION-STATE AS AN ECONOMIC UNIT

The industrial community of which we are members is one of some forty-five million souls. To say this, is to assume that the boundaries of what is properly to be regarded as a distinct economic entity are co-terminous with those of a nation-state. And this assumption, though it is only true with certain qualifications, substantially meets the case. There is clearly a sense in which the whole world is an economic entity. Here, in Great Britain, we consume cotton from the U.S., silk from China, coffee from Brazil, and so forth — there is not a State in the world that does not trade with us or a port where our flag does not fly. In return, we sell our coal to Italy, our machinery to Australia, our textiles all over the world. In so far as we do these things, we can regard ourselves, together with those who consume our products and whose products we consume, as fellow members of a gigantic economic unit which embraces all civilized communities. For some purposes it is necessary to do this. But the effect of the obstacles which the boundaries, physical and political, of the nation-state impose, to say nothing of differences in race, language and culture, and the extent to which every nation-state is differentiated from others by its laws, its administration, and its tax-system—the effect of these is to emphasize its internal unity, its own economic solidarity, to an extent which renders it still the only possible unit for the purposes of a broad analysis. We can, within reasonable limits, attempt to apply to that social organism, the nation-state of which we are members, the generalizations which economic theory suggests to us, but to attempt to apply most of such generalizations to the world at large would lead us nowhere; the obstacles which divide State from State are still of so much greater significance than the common interests which unite them.

(11) THE GROWTH OF NATIONAL PROSPERITY

To resume, we may look upon the community to which we belong as an industrial unit of some forty-five million members. That enormous and dense population, having about 500 persons, on the average, to every square mile, we somehow contrive to house, clothe, feed, and educate, and to maintain in conditions of health and decency, which, however far they may seem from the goal to which our social aspirations urge us — and that is very far indeed—would at least have astonished Adam Smith. Across the Atlantic, a community nearly three times as populous, and endowed, it should be added, with natural resources a hundredfold greater, maintains itself at a standard of comfort which is nearly twice as high. And that great community and our own can both look forward, with every confidence, to an increase in prosperity—far more rapid, no doubt, in their case than in ours — which will place as considerable a gulf between the circumstances of the future and the circumstances of to-day as divides us now from the dark ages.

How is this continued advance to be explained? In terms of two things—advancing knowledge, and the division of labour. Every new discovery and invention which is applicable to the betterment of the material conditions of life has become operative through the utilization of specialized knowledge and specialized skill; and every increase in such specialization renders possible the further exploitation of such discoveries and the facilitation of new ones. The printing press, the steam-engine, the telegraph, the technique of antiseptic surgery—it is in terms of such landmarks as these that economic progress can be measured, and the effective utilization of the inventive powers that they commemorate is indissolubly bound up with the continued development of occupational skill.

As for the division of labour itself, the facts which follow will afford some indication of the part that it plays in wealth-production. The community carries on, mainly in terms of the pursuit by individuals of their own immediate self-interest; but also, be it noted, on the tacit assumption, which Mussolini for Italy has recently sought to proclaim explicitly, that "labour is a social duty"; that it is the business of every citizen to contribute something towards the augmentation of the community's stock of wealth. That it is not, in our own community, as easy as might be supposed to translate this pious aspiration into practice is shown by the fact that, at the moment of writing, one million persons out of our forty-five millions are capable of doing work but cannot find work to do. Yet, even with the handicap of this huge burden of unemployment, the community contrives to maintain its standards somehow. How, for this purpose, is it organized?

BUSINESS MANAGEMENT

(*Continued from page 56*)

III

LOCATION (1)

IN the second article of this series an attempt was made to frame some of the most important preliminary questions which presented themselves to anyone about to embark upon a career as an independent business man. One of those questions was concerned with the locality in which the business should be established, and it is proposed in this article and the next to indicate the factors by which the answer to that question will be determined.

In some cases the range of choice is very limited. Many industries are essentially local in character, that is to say, each of the establishments supplies a market in the vicinity. To that problem we shall return later. In farming, quarrying and mining, the choice is limited by obvious considerations. The potential colliery proprietor will only sink a shaft where coal is obtainable, and his first problem is to decide whether it should be sunk in a coalfield which has already been largely exploited or in a new coalfield (such as that of South Yorkshire) to which a considerable number of other business men are turning their attention.

INHERENT ECONOMICS—MARKET

When we turn to manufacturing industry we find that the range of choice becomes wider, but that its measure is governed by the cost of transport. In the case of bulky articles which will not bear a heavy transport cost (such as building-bricks) the producing establishment must obviously be situated within easy reach of the market, and in such cases the industry is widely distributed. Articles which are less bulky in proportion to their value can be transported greater distances and therefore enjoy a wider market. It is in such cases that we find a marked tendency for the producing industries to be concentrated in particular regions.

RAW MATERIAL

In considering the latter it is desirable to distinguish between those factors which determined the location of the industry in the early stages of its growth and those other factors which have become important as the industry has grown, in other words, to distinguish between the natural advantages offered by particular regions and those advantages which they come to offer when their resources have been partly exploited. In some cases the location of the industry can only be explained by causes which operated in the remote past, but these are few in number and not of much significance for our present purpose. In practically all other cases it has been determined by one or more of three factors. In the first place, it may have been established near the place from which the raw material is obtained. If, in the process of manufacturing the product, a great deal of the material is " wasted," this factor is of considerable importance. By working up the materials on the spot the manufacturers save the cost of transport on the waste. Again, industries have frequently been attracted to particular regions on account of the fact that there was already available an adequate supply of labour suitable for the purpose. On account, however, of the increase in mobility which has taken place in recent years this factor is likely to diminish in importance. But it should not be forgotten that if an establishment is erected in an undeveloped region it may be necessary for the owner to supply capital for providing housing accommodation for the workers who are drawn from other parts of the country.

POWER

The most important factor, however, during the last hundred years has been the need for supplying power at reasonable cost. The main source of power during the nineteenth century was coal, and since the coal was itself destroyed in the process of rendering its particular service, a considerable gain was achieved by establishing the factories within easy reach of the coalfields. In some cases coal was used not only as the source of power but also as a raw material, and the attraction of the coalfields became irresistible. It was for that reason that large manufacturing areas grew near the coal mines of this country and large areas remote from the coalfields remained almost untouched by the industrialism of the nineteenth century. In recent years, mainly on account of the use of electricity as a source of power, the attraction of the coalfields has grown considerably weaker. The resulting tendency towards a redistribution of industry will be examined as we proceed.

The factors which have already been indicated explain the tendency for certain industries to be established during the nineteenth century in particular regions. As time went on those regions were able to offer additional facilities, which strengthened the tendency towards concentration. Transport facilities were increased : railways were constructed, and roads and other local transport agencies improved or created. In coastal regions docks were constructed or enlarged and in all important centres warehouse facilities came into existence and various distributing agencies were established.

RESULTS OF CONCENTRATION

Industrial concentration led, moreover, to the creation and development of economies of a special character. In the first place, a supply of specially trained labour came into existence, and in many cases this proved a very important factor in the further development of the region. In the second place, a large number of subsidiary industries were established to serve the needs of the main industry Thus, for example, the growth of the textile industry in Lancashire and Yorkshire led to the establishment of a special branch of engineering devoted to the making of textile machinery ; the growth of locomotive and wagon building in the Midlands led to the development of a drop forging industry for the supply of accessories. Moreover, the development of some manufacturing industries led to specialization on the part of antecedent industries which provided material for the former. Thus, for example, the manufacture of high-speed steel tends to be concentrated in those regions where high-speed steel is needed as raw material. The growth of the tinplate industry in South Wales has led to the development of a steel industry which concentrates upon the making of tinplate bar. The growth of shipbuilding on the Clyde has resulted in the specialization of the Scottish steel industry and the manufacture of ship plates and heavy forgings. Finally, it should be noted that the main industry itself tends to become specialized in particular regions. Bradford concentrates upon the manufacture of worsted cloth, while the heavy woollen section of the industry is found mainly in the Dewsbury district.

INDUSTRIAL MOMENTUM

Those advantages which result from concentration give the industry a momentum which carries it forward after the original forces have grown weaker or even disappeared, with the result that where the district has had a long start it may go on growing at the expense of other districts which, under the conditions of later years, might have proved at least as attractive if a new start had been possible But, ultimately, the rate of growth diminishes, and it is important for any business man to determine whether districts which are superficially attractive are approaching the limits of growth. There is reason to believe that in future the sites of many industries will be determined less by the fixed conditions of Nature and more by factors under human control. If such is the case it is not improbable that the next generation will witness a considerable redistribution of industry in this country, and that the market will prove a greater attractive force than in the past.

THE INFLUENCE OF LEADERSHIP

The importance of this tendency may be seen from a consideration of a few industries in which those primary factors which have already been indicated do not operate with any great strength. The industry engaged in the manufacture of ladies' blouses and underwear is already widely distributed, and an important branch is to be found in almost every large town. The firms started in a small way by supplying hand-made things to customers in the neighbourhood. They gradually introduced machines and built up fairly large businesses, supplying not only local demands but also demands from distant places. The cost involved in assembling the material and distributing the finished product is relatively small. Electrical power for driving the machines is obtained at reasonable cost. Success or failure thus depends mainly upon the quality of the management. The manufacturer who has been successful in Glasgow would probably have been successful if he had lived in Nottingham. The chocolate industry supplies another example of this type. Some of the largest establishments engaged in the manufacture of cocoa and chocolate are situated far from the coast, although all the raw cocoa and nearly all the sugar is imported from abroad. The firms originally started upon a small scale and supplied local markets ; their growth was due to business ability, and the present large establishments remain in the same place as the earlier workshops, although they supply a very wide market.

The distribution of the motor-car industry is being slowly altered, and the change is due largely to the preferences of outstanding business men. The industry was once concentrated mainly in Coventry, Birmingham, and Wolverhampton ; the largest single works is now situated near Oxford. The owner of that works started at Oxford on a very modest scale and through sheer ability has become the leading manufacturer. If Mr. Morris had lived at Reading or Warwick it is extremely unlikely that his works would have been established at Oxford. But it should be noted that the Oxford works is devoted to the assembling of the parts and the construction of the car, not to the manufacture of the component parts. The process of manufacture is still carried on in districts which offer either " natural " or " acquired " economies not at present shared by Oxford.

The last of the above examples serves to bring out one of the qualities of leadership. A born leader thus reveals his gifts not by ignoring but by recognizing the importance of the factors to which reference has been made in this instalment.

FINDING CAPITAL

(*Continued from page 58*)

III

FINDING CAPITAL FOR THE NEW BUSINESS (*continued*)

THE friend however is in a position to approach his associates and address them thus: "I have known Smith for years and he is a sound man. He wants to start a business to develop this line. He has £750 of his own and he wants an additional £1,500. I have gone over his estimates very carefully, and here they are, with a statement of his proposition. I think it is a good thing. Take the papers with you, and let me know if you will consider it." If these people also know Mr. Smith, so much the better, but in any event, the presenting of the case by a third party vouchsafes a much more favourable reception.

FORM OF THE BUSINESS

The One-man Business. The financial form which the business will take is important and must be considered at this stage. There are a number of possibilities, taking forms such as

1. A one-man business.
2. A partnership (*a*) unlimited, (*b*) limited.
3. A limited company (*c*) private, (*d*) public.

It is, as a rule, injudicious, in the small type of business which we have been considering, to start off with a limited company. The proper time to form a company is when the business has been running for a period. This will be dealt with at length in the next section, under the head of finding additional capital. Of course, the friends who put up capital in the first place may, and very often do, insist on the formation of a private company so as to limit their liability, but the whole question may be postponed meantime.

Objections to the One-man Business as an Investment. For the sake of simplicity, we have so far written of the man who is going to start a business. In practice, it is always easier for an active partnership of two or more persons to raise capital. The one-man business, no matter what form it takes, does not appeal as an investment like the partnership, for its success is dependent on the health, energy, and honesty of a single life. A business that came recently under our notice is a good illustration, although in this instance it was not a question of finding the initial capital, but of raising money to cope with expansion. The present capital of the concern, which is carried on as a private limited company, is some thousands of pounds, but as the whole of the shares, with the exception of a few issued to a second shareholder to meet the requirements of the Companies Acts, are held by one individual, it may be treated as a one-man business. For the last few years a dividend of 40 per cent has been paid. It was desired to increase the capital by an issue of 10 per cent preference shares, but the money could not be found. A very experienced solicitor, who was approached, explained his reasons for turning it down. "Mr. C's health may fail, or he may die, and where is my security? Again, I am sorry to say, I have seen so many promising young men get on, and when they have seen their business expand and obtained fresh capital, they have found themselves in command of far more money than they have been accustomed to, and they have gone off the rails. If I had a client who was looking for an active directorship, I should certainly recommend this to him, especially if a proportion of ordinary shares went with the preference ones, for the man who puts his money into a one-man business ought to go in with his money to look after it."

Methods of Meeting these Objections. There was a great deal of sound common sense in these remarks, but a man about to commence in business is not always fortunate enough to have a partner or partners associated with him. If he is alone, there are certain steps that he can take to minimize these risks. The dependence on his health may be surmounted by his insuring his life for the amount advanced by his friends, and assigning the policy to these friends, the premium being charged as an expense to the business. In the event of his death, the proceeds of the policy would suffice to repay the capital advanced, irrespective of the position or the continuance of the business.

Parenthetically, it may be observed that every man setting up in business should make his will, if he has not previously done so, and ensure that proper provision is made, in the event of his death, for the appointment of competent executors or trustees who will carry out his expressed wishes in regard to the winding-up or otherwise of the business. He would be equally well advised, in view of the hazards of business, to provide a minimum assuring continuity of his dependents' home life by turning over, through deed of gift to his wife or eldest child, such essentials to the existence of a family as his private residence, the furniture and effects therein, and a certain sum in cash—if need be, by a separate life-policy taken out under the Married Woman's Property Act.

It is usually better to raise capital from a number of friends than to take it all from one. Apart from the question of control in the latter case—and that may, and does many a time, have awkward consequences—there emerges again the risk arising out of dependence on a single life. Should the friend who advanced the money die, the

business man may find himself compelled on very short notice to repay to the estate of the deceased the amount of capital the latter had advanced, and it may be difficult, or very expensive, just at that juncture, to obtain fresh capital to replace the money withdrawn.

Appointment of Auditor. The dependence on the honesty, and to a certain extent on the judgment, of a man engaged in business on his own account is lessened by the appointment of a professional accountant as auditor. If the audit is a six-monthly one, and the auditor is given a general supervision of the books, so much the better. The public accountant, chartered or incorporated, is nowadays more than a mere watchdog of finance. His practice brings him into close contact with every variety of problem that confronts the business man, and full advantage of his experience should be taken by the owner of the small business. A very successful tobacco factory goes so far as to make the auditor, in his capacity not as auditor but as accountant, responsible for the financial transactions of the business. He receives all monies and makes all payments. Tenders are passed to him to calculate the lowest price on which an estimate can be given. Each month he submits a costing statement of the various lines manufactured, and alterations if necessary in the ingredients of the various brands are made so as to maintain the requisite rate of profit. The active partner is satisfied because he can devote himself to the practical side, while the men who are financing him feel that the element of risk is largely eliminated.

Avoidance of Responsibility for Firm Debts. In this section we have assumed that the person providing capital for the young business does not intend to take any part in its management. It should be remembered that, in law, where persons carry on any business together and are jointly interested in the profits or losses of the venture, they become partners, and are each liable, up to the last farthing of their possessions, for the whole of the losses occasioned by transactions of the partnership. At one time, all people sharing net profits were necessarily partners, but now, while the mere sharing of profits is still prima facie evidence of partnership, it is not in itself sufficient to constitute partnership, if three conditions are strictly observed—

1. There must be no active participation in the business by the lender.
2. The arrangement between the parties must be clearly stated in writing.
3. This contract must be signed by all the parties.

If A lends £600 to B on the stipulation that he receives one-fourth of the profits of the business as interest, he must, in order to avoid liability as a partner, see that an agreement is drawn up and signed by himself and B, setting out the fact of the loan and the consideration, and negativing any suggestion of partnership rights. A may thereafter give advice or inspect the books, but on no account must he in any way interest himself actively in the conduct of the business, or give anyone reason to believe that he so interests himself, or he will make himself liable, as a full partner, for debts incurred while he so acts.

B, on his part, should take care that in the contract adequate notice - say six months- of intention to withdraw any of the loan should be given to him. Provision should also be made for the preparation of accounts and the procedure to be adopted if the business is dissolved.

LIMITED PARTNERSHIP

It sometimes happens that the person desirous of investing in the small business hesitates because, aware of the pitfalls of partnership law, he is afraid lest at some time and in some way he may unwittingly incur the responsibility of a full partner. In such a case, the business may be converted into a limited partnership. On the Continent a firm is a legal person distinct from the partners of whom it is composed, a conception leading directly to the principle of limited liability as regards the partners; and it is a common practice there to have partnership where the liability of the partners for debts of the firm is limited. The Limited Partnership Act of 1907 was an attempt to adapt the Continental principle to the conditions of this country. Under that Act a person may become a partner in a business and fix the limit of his responsibility for firm debts at the amount of capital which he contributes or engages to contribute. Thus, if he agrees to contribute £2,000, and actually pays in £2,000 to the business, he has no further liability. Should, however, a portion of his capital, say £500, be repaid to him at some time by the firm, he may be compelled, in any proceedings against the partnership, to pay back this £500. A limited partner is in a position very like that of a shareholder of a limited company: if he draws out any part of his contribution while the partnership continues, he is liable for the firm debts up to the amount so drawn out.

A limited partnership is constituted simply by registering at Somerset House a specified form containing the particulars required by the Act. These are —

1. The firm name.
2. The general nature of the business.
3. The principal place of business.
4. The full name of each of the partners.
5. The term, if any, for which the partnership is entered into, and the date of its commencement.
6. A statement that the partnership is limited, and the description of every limited partner as such.
7. The sum contributed by each limited partner, and whether paid in cash or how otherwise.

MARKETING

(*Continued from page 60*)

III

In a later contribution spot transactions and dealings in futures will be described. At the moment the former may be regarded as through dealings for immediate delivery of recognized grades of commodities, or of produce actually inspected or sampled. Futures are dealings in which neither immediate payment nor immediate delivery is contemplated. At this stage it is more important to describe the internal or domestic system of the principal produce exchanges. In the more highly organized exchanges transactions do not proceed directly between original suppliers of produce and purchasers; the middleman function is important. In all exchanges produce on its way from producer to consumer passes to a large extent through the hands of middlemen; they specialize in various forms of service.

MEMBERSHIP OF EXCHANGE

Membership of exchanges involves considerable variety of position and privileges. In some cases certain classes of dealers must undertake not to transact any business directly or indirectly for their own account. In the London Stock Exchange, for example, a special class, jobbers, are forbidden to deal directly with the outside public. As will be readily understood, membership of leading exchanges is a valuable privilege; the numbers are often limited; seats are purchased at a high price; and the price of membership frequently tends to vary with the state of trade. When members act as agents for others in exchange operations they are called brokers, and the term brokerage is applied to payment for their services in this capacity. Many rules seek to protect the public. They aim also at the better definition of legal liability on contracts. Some exchanges insist that all transactions in futures shall be entered into in the names of members only, even where the latter are in reality acting for others. That is one of the rules of the Liverpool Corn Trade Association, subject to some modification in respect of contracts on the basis of cost, insurance and freight. The substantial rule is that members are liable on all contracts involved in their exchange, whether made on their own behalf or on behalf of others. Membership rests largely on security, which is exacted on admission. The system of frequent periodic settlement brings further protection. In American produce markets, especially grain exchanges, there are two methods by which commodities may be introduced. Under the first a member may simply receive consignments from country elevators to sell at a stipulated rate of commission on the selling price, or at a fee of so much per bushel. These members are described as commission men. Secondly, the dealer on the exchange may buy outright from consignments at a distance. In that case he will depend for his profit on selling at an enhanced price. But the two classes of operation are not necessarily distinct.

LONDON AND OTHER EXCHANGES

The Liverpool Corn Trade Association was formed in 1853, and incorporated as a company towards the end of last century. It now controls the whole of the great wheat trade at that important port. Admission to membership is governed by elaborate rules; applicants must furnish ample security; incorporated companies as such cannot be members but may nominate at least two representatives, who can trade only on behalf of the company; otherwise they are on the same footing as private members. Wholesale and speculative business are covered by this exchange. It is a spot market for the purchase and sale of flour, meal, and cereals generally. It has the usual committees for grading and other arbitration in cases of dispute. London has long been a great centre of exchange, but its produce markets have developed somewhat differently from those in other large similar centres in the world. Under the formal title of the Baltic Mercantile and Shipping Exchange, Limited, lies an interesting story, which began about the middle of the eighteenth century with a group of merchants engaged in trade with the Baltic ports of Russia; gradually they grew into a regular association. To-day the Baltic, as it is popularly described, deals with most of the London business in grain, shipping, oil, and other less important products; its membership is unlimited, and no real difficulty is placed in the way of admission of reputable merchants or dealers. Associated with the Baltic is the London Corn Trade Association, dating from 1878. Its objects are similar to those of the Liverpool body. Practically all London dealers in grain belong to both the Baltic and the Corn Trade Association. In this way import business is greatly facilitated, for shipping can be chartered immediately a deal in grain is concluded, without leaving the building. Mark Lane Exchange, officially known as the Corn Exchange, London, is a kindred illustration. Most of the London import and foreign business in grain is transacted on the floor of the Baltic, but it proceeds by way of the official contract forms of the London Corn Trade Association, Limited, managed by an executive committee of twenty-five members. This association makes provision for arbitration in the case of disputes affecting the trade.

LIVERPOOL COTTON AND CORN

Closely adjacent to Lancashire, the Liverpool Cotton Association covers practically all the cotton reaching England. In its present form this Association dates from 1882, and is the central world market for raw cotton of all growths. Membership proceeds by election, on the payment of entrance fees. The general arrangements are such that dealers in cotton in all the important centres of the trade can keep in close touch with Liverpool; in fact, it is often said that transactions can be conducted between them with Liverpool as headquarters just as if there were at any moment only one cotton centre in the world. This organization has the usual committees for arbitration and classification, and it includes a clearing house for facilitating the transmission of documents, payments and settlements between members. Twenty years ago, assisted by some of the members of the Liverpool Corn Trade Association, arrangements were made for establishing a grain future delivery market at Buenos Ayres. The purpose was to handle the large quantities of cereals usually available for export from Argentina. Grain traders in that part of the world had already formed an association with substantial support. This body was used for the organization of the new market. Among the advantages to growers was the presence of a definite market with which they could deal, ability to sell for delivery when transport could be provided, freedom from dependence on travelling agents and middlemen, with the advantage of full and reliable information regarding every movement in world markets affecting its products. If its rapid expansion has been hindered to some extent by poor harvests and war time export prohibition, it is believed that the revival of international trade will bring greater prestige to this newly-organized centre.

EUROPEAN AND AMERICAN EXCHANGES

In Germany the majority of the exchanges are on the Berlin model, whose organization is prescribed by a Government decree dated 1885. Originally it included a third section for manufactured goods, an arrangement which, after a short trial, was given up as unworkable; the two leading sections remained, one for securities and one for produce. As in other countries, persons of standing can usually obtain cards of admission. This exchange has the customary arbitration committee. Of its brokers, some are official and some private, but both classes can transact all kinds of business. In internal organization the produce exchanges of France and Holland have few special features. In France they are mainly attached to the local chambers of commerce, while, as we have seen, such supervision as is exercised by the Dutch municipalities is broadly nominal in character. Among important produce exchanges the Chicago Board of Trade is an outstanding example. Its organization dates from 1848, and eleven years later it received its charter from the state of Illinois. The objects of this exchange are: (1) to maintain a commercial exchange; (2) to promote uniformity in the customs and usages of the merchants; (3) to inculcate principles of justice and equity in trade; (4) to facilitate the speedy adjustment of business disputes; (5) to acquire and disseminate valuable commercial and economic information; and (6) generally to secure to its members the benefits of co-operation in the furtherance of their legitimate pursuits. The New York Produce Exchange is of somewhat similar constitution, with membership limited to 3,000, but in this case its rules include benevolent provision for the widows and families of deceased members. Membership is obtainable by the purchase of certificates, at prices varying with the demand. The importance of the cotton crop in the trade of the United States is indicated by the high price of places in the New York Cotton Exchange. Its management is substantially the same as that of other American exchanges. The New York Coffee Exchange was incorporated in 1887. The United States, per head of the population, is, amongst civilized countries, one of the largest consumers of coffee, a fact which materially increases the importance of the coffee exchange. Since wheat and other cereals lend themselves readily to organized dealing, grain markets have sprung up in various centres in America. All the United States wheat exchanges are in session simultaneously, an arrangement which facilitates communication with one another and with New York and Chicago. The broad effect is to establish one single market for wheat in the United States. But the minor centres specialize: for example, in the red winter wheat at Toledo, the hard winter wheat at Kansas City, the winter wheat at St. Louis, and the barley at Minneapolis. In all exchanges commission rates are fixed by the rules; in the New York Cotton Exchange an elaborate scale depends on the price of cotton. In the Liverpool Cotton Association minimum rates of brokerage are fixed, and intricate regulations govern the minimum scales which relate to the operations of members, associate members, non-members, and others. Strict provision is made by most exchanges against fraud or dishonest practice by their members. Two of the important rules generally applicable provide that no member under any circumstances is permitted to be both principal and agent in any transaction; and no member may, by his own act or the act of another member or broker, become agent for both buyer and seller.

VALUE AND DISTRIBUTION

(*Continued from page 62*)

III

HOW THE SOCIAL DIVIDEND IS DISTRIBUTED (*continued*)

(*c*) To small shopkeepers, and other persons in business "on their own," about £50,000,000.

This is still, statistically, the most difficult category of income to estimate, and there may be a wide margin of error in the figure given.

(*d*) To salaried persons, whether engaged in industry and commerce, in administration, or in teaching and other professions, about £750,000,000. (The basis of this estimate is the return to Income Tax, Schedule E.)

(*e*) To weekly wage-earners, i.e. to the great mass of the working population—about £1,600,000,000. We have, as regards this all-important factor, fairly definite data to go upon. It will be noticed that the wage-earner's average money income, under present conditions, is a little over £100 a year. As we shall discover later, he also receives, through the mechanism of various governmental devices, a substantial addition in kind. But with such additions to money income we are not at present concerned.

13. We can now bring together our rough estimates of the distribution of social income -

	Income £ millions	Numbers millions
(1) To owners of land and buildings, and to occupiers of land	250	? 1·0
(2) To owners of capital, employers, and professional men	1,150	·5plus
(3) To small traders, etc.	50	? ·5
(4) To salaried persons	750	3·0
(5) To weekly wage-earners	1,650	15·5
	3,850	

The numbers of income-recipients shown in the second column are very approximate indeed. Collectively, they come to more than our total of "producers" (19,500,000-20,000,000), for two reasons: (1) A certain number of persons in other categories are, in addition, "capitalists," and are, therefore, income-receivers in more capacities than one; (2) our second category also includes persons who, in the sense in which we used the term in presenting our first "snapshot," are not productively occupied at all. Their part in production, though important, is a passive one.

Comment on the inequalities of distribution, in the light of the above table, is superfluous and might at this point be misleading. Inequality of distribution is bound up with inequality of ownership. It will be one of the aims of the discussion on which we are now embarking to explain the existence of both, and to provide the necessary materials for justification or criticism.

(NOTE. The statistics of national income, from which this summary of the facts has been adapted, are to be found in Bowley and Stamp, *The National Income*, 1924, which all serious students are advised to consult for themselves. The various explanations and qualifications, which it has not been possible here to reproduce in detail, are there clearly set forth.)

14. OUR THIRD "SNAPSHOT" HOW THE SOCIAL DIVIDEND IS DISPERSED IN THE SATISFACTION OF WANTS

The estimates put together in our second "snapshot," though rough, rested upon fairly solid foundations; the estimates of which we now propose to make use are little more than guesses. It seems, however, well worth while to put them forward, partly because it is useful to present our argument concretely, partly because our figures, though in a sense guesses, are believed to be sufficiently close to the facts to produce the right sort of impression. It seems important to try to make apparent, not only what social interactions underlie the facts of exchange and distribution, but also what is the essential content of the relations we are seeking to understand. We will endeavour next, then, if with some temerity, to supply an answer to the question: How is the social income dispersed? What are the goods and services upon which the community spends the money that it earns by its various exertions?

15. We have seen that the social dividend, for one year, amounts roughly to £3,800,000,000. We are trying to discover how, in the course of the year, its recipients dispose of it. Our answer is that it is spent, approximately, as shown on the next page.

(The last item is put in brackets since it is evidently necessary for certain purposes to count it twice over. Its recipients themselves spend their £150,000,000 upon goods in the other categories enumerated.)

16. Here, then, is £2,650,000,000 accounted for. We are left with £1,150,000,000; what happens to this?

As regards this remainder, £300,000,000 go to the State in the form of direct taxes (over and above what is required for payment of national debt interest, already excluded from our aggregate

		£ millions
A.	On accommodation	300
	On gas, light, fuel, etc.	50
	On food	950
	On alcoholic liquors	300
	On tobacco	150
	On apparel	150
	On motor-cars and motoring	100
	On other recreations and amusements	250
	On education, etc. (exclusive of what is paid out of rates and taxes)	50
	On travelling and communications	150
	On newspapers and books	50
	(On personal service	150)
		£2,650 millions

of social income). About £500,000,000 is " saved," i.e. is devoted ultimately to the purchase of capital goods and to that extent establishes a claim for its owners upon the future product of industry. The remainder consists of the income of corporations, etc., which, in so far as it is subsequently distributed to individuals, has already been counted in, and of a balance expended in various ways not enumerated. So that our final rough estimate of the disposal of our £3,800,000,000 of " social income " is as follows—

		£ millions
B.	Direct expenditure by individuals (as in A above)	2,650
	Compulsory contributions for national or local purposes	300
	Aggregate savings	500
	Corporate income and income of non-residents, etc.	250
	Not accounted for	100
		£3,800 millions

17. We can now bring together the facts as they emerge from our three " snapshots." They do not, of course, go far towards answering the questions we want to put. But they enable us to realize the nature of that complex of activities which is the subject-matter of our study. To this end we may put down at this stage the following provisional statements—

(*a*) The wealth that is needed to satisfy the wants of the community is produced continuously by the community itself. The use of capital goods and the continued extension of the principle of the division of labour are of fundamental importance.

(*b*) The work which individuals perform, i.e. the part that they play in production, depends upon the guidance that their own self-interest affords to them. (The extent to which the individual's initiative and inclinations are in fact hampered by considerations arising out of his environment and upbringing will be discussed elsewhere.)

(*c*) The money payments that individuals receive for the work that they do, and for the services they render (including those passive services which arise out of the ownership of capital), collectively constitute the social income.

(*d*) In so far as this social income includes a surplus, over and above what is required for the immediate needs of those engaged in production, a problem of " distribution " arises.

(*e*) The money payments made to individuals are spent, ultimately, upon purchasing the goods and services which these same individuals produce. (For the purpose of this statement, the special problems of overseas trade are ignored.) The relation between the two has been suggested in our second and third " snapshots."

(*f*) Just as the individual pursues his own self-interest in the productive sphere, so also does he pursue his own self-interest in regard to the purchase of goods and services. This principle obtains throughout the complicated series of exchanges which the processes of production involve, and operates finally, and not less strongly, in regard to " consumption " goods.

(*g*) The direction of the community's productive activities is, therefore, determined by the character of the wants of those who themselves co-operate in production. They are the consumers of one another's goods ; hence

(*h*) The individual members of the community function, in regard to the determination of its economic equilibria, in a double capacity. As consumers, they establish a demand for goods of certain kinds and in certain quantities. As producers, they set themselves to satisfy that demand.

18. The facts that we have been considering do not in themselves carry us very far. We must seek now to discover how individuals, animated in the two spheres of " production " and " consumption " by their various self-regarding motives, contrive to establish an equilibrium—if such, indeed, they do establish—which is socially satisfactory. We shall need to consider further upon what principles the wealth which the community produces is actually distributed. Why does an engineer to-day receive, say, 45s. a week, and a printer, say, £4 a week, while there are manufacturers and dealers whose earnings are hundreds of times as great as those of engineers or printers ? For these facts are not freakish or arbitrary ; they will be equally true next year ; they are a part of what seems to be an established equilibrium. Why, too, when it comes to disbursing, should a gramophone, or a suit of clothes, or a week-end in the country, all cost me about the same ? These things too seem to be determined according to some plan. To these mysteries, the principles upon which goods and services are exchanged will supply the clue. It is these principles, then, that we must seek now to explore. The starting point of our expedition is a theory of value.

CURRENCY AND BANKING

(*Continued from page 64*)

III

THE QUANTITY THEORY OF MONEY

FUNDAMENTALLY, the general theory of value is applicable to the case of money as to other commodities, and it is necessary to consider the value of money as being governed by general conditions of demand and general conditions of supply. Later it will be necessary to examine the component parts of a developed money economy, but in order to simplify the present discussion it may be supposed that the only money in circulation consists of uniform tokens in metal or paper. It may also be assumed that the article which is used as money is only employed for the purpose of facilitating exchange-transactions and that the total demand for it is purely for monetary purposes.

THE DEMAND FOR CURRENCY

Under these conditions the total demand for currency will depend upon the numbers of the population and upon their habits. One way of looking at the matter is to examine what considerations will determine the amount of money which a person will find it convenient to hold on the average or carry with him. A person whose wealth increases will tend to carry with him a greater number of money tokens, and to that extent his demand for currency will be increased. But, as a result of the general development of banking facilities, it may be possible for that person to hold a smaller amount of tokens than formerly, in which case his demand will have been reduced, and these banking facilities will be said to have effected important economies in the use of money tokens. But changes in social organization may also be responsible for changes in the demand for currency. Dr. Cannan[1] has pointed out that with the breaking up of families during the war—with the drafting of men into military and naval service and the drafting of women into munitions—the aggregate demand for currency increased "because the members of families, when separated, found it convenient to keep much more currency by them in the aggregate than when they were living at home and together." Similarly, a person who is paid a salary quarterly would, other things being equal, tend to hold on the average a larger amount of currency than a person who had the same annual income but who was paid once a week. In the same way the aggregate demand will tend to grow as population expands, though this increase may be partially offset by the introduction of new economies in the use of currency of the type which will be described later. On the other hand, a great plague—such as that which swept England in the thirteenth century—which destroyed half the population would have the opposite effect of reducing the aggregate demand.

Under normal stable conditions the habits of a people in this respect change but slowly. But if confidence in the value of money is shaken, the total demand for it will be seriously affected. On several occasions this has been an important factor, even before the great collapse of certain European currencies in recent years. Let us suppose, for example, that prices are rising so rapidly that confidence in the future value of a currency is undermined. People will naturally become less willing to hold stocks of it since its value will fall during the period in which they hold it. Thus a person in Germany at a certain stage of the collapse of the mark might be paid a million marks at the end of a week. At that time he might be able to purchase a certain amount of goods. But a week later, if prices had doubled, he would only be able to purchase half the same amount of goods as before for his million marks. Experience under these conditions would teach him to purchase goods as quickly as possible and not to hold any large quantities of depreciating currency units; and if such a "flight from a currency" became general, the total demand for money would be greatly reduced. On the other hand, if prices were falling rapidly the demand for money to hold might increase. In general, therefore, the demand for money depends upon the extent to which public confidence in its value is satisfied; i.e. upon the efficiency of money to serve as a standard of value. But given that condition the total demand will depend upon the habits of the people, while it will also tend to increase with the growth of population.

We may next suppose that the general conditions of demand are given. In that case the value of a unit of money will depend upon the supply of money units. If the supply is increased, and the total demand remains the same, the value or purchasing-power of each unit will fall; if the supply is reduced and the total demand remains the same, the value or purchasing-power of each unit will rise. Expressed otherwise, with a given demand for money the general level of prices will vary directly with the supply of money.

THE VALUE OF MONEY

This provides us with a simple statement of the quantity theory of money. In this statement of the theory we have assumed that the conditions of demand were given. But we might equally put the case on the assumption that the supply of money was given. In that case the value of

[1] *Money*, page 75

the unit of money will vary directly with the demand. If the demand increased, the value of the unit of money would rise, i.e. prices would fall; if the demand declined, the value of the unit of money would fall, i.e. prices would rise. And, if we assume that no change has occurred in the habits of the people, these variations in demand will reflect changes in the volume of transactions which are to be affected through the medium of money. More generally, it is important that the quantity theory should not be so interpreted that sole stress is placed upon the quantity of the money-supply. Such an interpretation involves the fallacy which is inherent in certain theories of value which ignore the demand side of the problem and concentrate entirely upon the side of supply. In a general statement of the theory it should be recognized that changes in the value of the unit of money may proceed from either or from both sides. Moreover, under certain conditions an increase in the supply of money may for the time being lead to an increased demand for it on the part of individuals or banks which are prepared to hold larger stocks of it than formerly. To that extent the price level will not show an increase proportionate to the increase in the total supply.

It will be convenient to give to the quantity theory a somewhat more definite expression. For that purpose certain simple algebraical formulae have been employed, and these are useful not because they prove the theory but because they correlate the different influences which operate upon the general level of prices or the value of money. Two different examples may be cited—

(*a*) The ordinary public under a set of given circumstances will tend to keep a certain definite proportion of their real resources in the form of money. Which proportion will be so kept will depend upon which is regarded as necessary for convenience. It is not that the public want to hold a certain number of money units but rather a quantity which "is determined by the amount of *purchasing-power* which it suits them to hold or to carry about, and by nothing else. The amount of this purchasing-power depends partly on their wealth, partly on their habits."[1] Let us suppose that the total real resources of the community are expressed in terms of wheat and that the total real resources so expressed is R. Suppose also that the community decides to keep a command over a proportion k of these resources in the form of money. If then there are M money units, the value of one unit of money in terms of wheat will be $\frac{kR^2}{M}$. This formula indicates that provided k and R remain constant, the value of money will vary inversely with M. But if k and R change while M changes, the effect on the value of the unit of money will not be proportionate to the change in M.

(*b*) The second formula is associated with the name of Irving Fisher.[1] Let M represent the number of money units and T the "volume of trade" or the volume of goods and services to be exchanged for money. Over a period of time however, each unit of money will serve to effect many transactions, hence the total of money payments is equal to the number of money units multiplied by the average number of payments made by each unit of money. If we signify this "velocity of circulation" by V, the total of money payments is MV, and the quantity theory can be expressed in the form $P = \frac{MV}{T}$ where P is the general level of prices. In short the total of money payments must equal the number of exchange transactions multiplied by the price of each. This has been criticized on the ground that it is a truism. Even so, the formula expresses simply and clearly the relationship between the four relevant factors.

The two formulae which have been cited express the same ideas but in different forms. In the Fisher formula, P represents the general level of prices. In the former formula, $\frac{kR}{M}$ was equated to the value of the unit of money, and we have already seen that the value of the unit of money is the inverse of P the general price level. Hence comparing the two formulae, $\frac{kR}{M} = \frac{T}{MV}$, or $\frac{kV}{T} = \frac{T}{R}$. And since $\frac{T}{R}$ will be constant under given conditions, kV will also be constant. In other words, if k increases, i.e. the proportion of the community's real resources over which it chooses to keep command in the form of money V the velocity of circulation will decline in proportion. It is a matter of choice, however, which of the two formulae we prefer to use.

The value of money or the general level of prices is, therefore, the resultant of several sets of influences, and must be regarded as such. Theoretically, we are not entitled to place any special emphasis on one of the factors to the neglect of the others. This emphasis is necessary because the theory has frequently been criticized on the ground that price movements do not occur exactly in proportion to changes in the quantity of money. It is not necessary, however, that such definite connections should be found. The theory points to other factors which are also relevant. The practical problem must be considered in relation to the circumstances of the case. In the next article we shall consider the general effects of price movements of the kind described.

[1] Keynes, *Monetary Reform*, page 76.
[2] Cf. Pigou, *Essays in Applied Economics*, page 176.

[1] Cf. Fisher, *Purchasing Power of Money*.

INTERNATIONAL TRADE

(*Continued from page 66*)

III

THE EXPORT OF CAPITAL

THE foregoing analysis is not invalidated by the assumption in respect of other invisible items of trade; the actual position is only complicated somewhat by the inclusion of other items. The broad conclusion remains that there must be a balance between all the items on the one side of the balance-sheet and all the items on the other side. In that sense it is true that exports pay for imports, and vice versa.

But the crude mercantilist conception went astray in another direction, viz., in its view of the significance of gold movements. It was held that the extent of the gold influx was a measure of the profitableness of the country's trade. It is possible by reference to the actual conditions of the period to offer some defence of mercantilist practice in that respect. The supply of the precious metals was inadequate for the growth of trade and industry. But the fundamental attitude was wrong, and it will be shown later that the real significance of gold movements as between different countries is to facilitate trade, not to measure its advantages. The discussion of that point must be delayed until the theory of money has first been worked out. For the present certain of the foregoing analyses may be illustrated by reference to actual trade relations.

TRADE BALANCE OF U.S.

In that connection the trade balance of the United States is particularly instructive. From 1789 to 1874, with the exception of the period from 1838–1849, the visible trade balance of that country showed an excess of imports over exports; since 1874 there has been an excess of exports over imports. How are we to interpret these facts? In the earlier period the United States had a mercantile marine of considerable relative and absolute importance, and part of the excess of visible imports may be taken as representing payment for the services rendered by the mercantile marine to the nationals of other countries. This, however, does not explain the entire excess. Nor were other "invisible" items important in that period. The other factor which was important was the extensive borrowings of capital abroad for the internal development of the country. Immigration was increasing, and fresh capital was required both for the employment of this increased supply of labour and for the opening up of the country, and this movement was reinforced by strong speculative tendencies in other countries.

The short period during which visible exports exceeded visible imports was due to temporary disturbances which checked the investment of foreign capital in the United States, and probably called for some repayment of loans already made. But from 1849 to 1874 the excess of visible imports continued. The Civil War in the early 'sixties occasioned fresh dislocation, and subsequent developments were responsible for one important change in the commercial balance-sheet of the country. The mercantile marine of the United States diminished rapidly in importance, and, instead of providing a source of income, brought about a debit item in respect of the services rendered by the mercantile marines of other countries, and of the United Kingdom in particular, to the nationals of the United States. In 1830, 94·2 per cent of United States imports and 86·5 per cent of United States exports were carried in American ships; in 1860 the corresponding proportions were 63·0 and 70·0 per cent; in 1870, 33·1 and 37·7 per cent; and in 1910, 10·0 and 7·5 per cent. But while immigration and the influx of foreign capital continued the payment of interest on foreign capital in the country became an important item of invisible imports and was represented by the rapid growth of visible exports which exceeded visible imports.

It is interesting that several economists in the late 'sixties and early 'seventies anticipated the change in the visible trade balance which actually occurred. The interest charges on foreign capital invested in the United States had increased to a high total and, in the absence of adequate invisible credit items, the payment of that interest had to be reflected in an excess of visible exports, and since 1874 that excess has continued. It would be wrong, however, to interpret that excess solely by reference to the factor just mentioned. The investment of foreign capital in the country did not receive any real check until 1914. With the opening up of ocean communications foreign travel became increasingly important, and on balance the United States was a debtor in respect of its citizens abroad. The debit item in respect of shipping services also increased. And large sums were remitted by United States immigrants to their lands of origin.

These several items are necessarily difficult to estimate, but taking the average for the years 1911-13 there was an annual excess of visible exports (including bullion) of $586,000,000, and net capital borrowings of $20,000,000. On the debit side of the balance sheet, net interest payments on foreign loans amounted to $200,000,000, U.S. tourists' expenditure to $175,000,000, immigrants' remittances to $175,000,000, net freight charges

to $35,000,000 and miscellaneous items of a debit nature to $30,000,000. The difference between the two sides of the drawn-up balance sheet may be taken as representing a small margin of error in the several estimates.[1]

CHANGES SINCE 1914

The influence of events since 1914 is also important and some further change in the visible trade balance is not impossible in the future. During the war years, the United States became one of the chief creditor countries of the world, whereas formerly she had been on balance a debtor country. Sir George Paish estimated that in 1910 some $6,000,000,000 of foreign capital was invested in the country, against which might be set $1,500,000,000 of American capital invested abroad. By the end of 1918 some $2,000,000,000 of United States securities formerly held abroad were repatriated, while large loans were raised for the belligerent countries of Europe. The question which arises, therefore, is whether in the years to come the payment of interest on American capital invested abroad, together with the repayment of the principals, may not lead to an excess of visible imports over exports. It is reasonable to expect that such a change will, in fact, occur. In the pre-war period, 1911–13, the annual average excess of visible exports (excluding bullion) was $598,000,000. The corresponding average for the period 1921–23 was $960,000,000, and for the three years 1924–26 it was $620,000,000. For some time the change may be delayed by the continued fresh investment of American capital in Europe and elsewhere. The ultimate position will depend upon the relative importance of United States invisible credits and debits; i.e. upon whether American indebtedness abroad in respect of tourists' expenditure, immigrants' remittances, freight charges, and banking and insurance commissions exceeds or is exceeded by the invisible credits in respect of the interest payments on American capital invested abroad.

The table given below summarizes the estimates of the balance of payments prepared by the United States Department of Commerce for the years 1922–25.

It will be noticed that there is not a perfect correspondence between the two sets of totals. Such a correspondence would hardly be possible on the basis of inductive estimates relating to invisible items, but the general result is sufficient for illustrative purposes. Comparison of the pre-war and post-war figures shows in what way the United States is now an important lender of capital abroad, and how interest payments due to the United States exceed interest payments due by that country. But, for the present, America's invisible debits exceed her invisible credits, and the excess of visible exports remains.

[1] Cf. Boggs, *The International Trade Balance in Theory and Practice*, pp. 63–64.

	1922 $ millions	1923 $ millions	1924 $ millions	1925 $ millions	1926 $ millions
Credits—					
Excess of exports of merchandise and bullion	488	93	748	834	350
Interest on inter-allied debt	126	167	159	160	160
Private interest and dividends (net)	225	250	305	355	528
Freights on exports in United States ships	71	65	76	75	113
Expenditure of foreign tourists in United States	60	100	100	100	115
Moving picture royalties	50	60	70	75	71
Repayment of foreign loans and other capital items	325	576	387	578	835
Increase in foreigners' bank deposits	375	3	216	-	003
Total credit items	$1,720	1,314	2,061	2,177	2,775
Debits—					
Government expenditure abroad	16	19	5	5	5
Freights on imports in foreign ships	64	73	68	83	175
Immigrants' remittances	325	290	300	310	287
United States tourists' expenditure	360	500	600	660	761
Charitable expenditures	75	70	55	50	46
New foreign loans in United States and other capital items	963	417	959	1,072	1,397
Decrease in foreigners' bank deposits	—	—	—	61	254
Total debits	$1,803	1,369	1,987	2,241	2,925

THE TRADE CYCLE

(*Continued from page 68*)

III

THE SOCIAL CONSEQUENCES OF THE TRADE CYCLE

THE social consequences of the trade cycle are in some ways more difficult to gauge than the economic consequences. For one thing, many additional factors enter into the calculation. For another, social consequences are usually classed as " good " or " bad," and different people have widely different ideas as to what is good and what is bad. It is possible, for instance, to argue that poverty brings out what is best in human nature, that unemployment strengthens character, that cut-throat international competition makes men quicker and more resourceful, and so on. On the other hand, it is possible to hold the opinion that, while adversity undoubtedly has its good points, yet, so far as poverty, unemployment, and cut-throat competition are concerned, these good points are definitely outweighed by the bad. This latter view is undoubtedly the more general and is the one held here.

POVERTY

Two of the chief economic consequences of the trade cycle, as we saw, were decreased output and intermittent unemployment.

Decreased total output necessarily means that there is so much less of the necessaries and amenities of life to go round. The community as a whole is that much the poorer. But this loss is not spread evenly over the whole community. Those subject to unemployment during the period of depression suffer relatively far greater deprivation than do the rest. This unemployment, moreover, falls with particular intensity on certain classes of men and women—the ageing, the slow, the weak, the less adroit, the unprotected, and the unorganized. Out of work during depression, casually employed much of the remaining time, in full employment only when trade is booming—it is they who in effect bear most of the loss resulting from the trade cycle. The connection between the " submerged tenth " of our industrial cities and the 10 per cent reduction of output attributable to the recurrent depression of trade is something more than a mere coincidence of figures.

This is not to say, of course, that all poverty is due to trade depression. Shiftlessness and improvidence play their part. But if production were not continually being restricted by the state of trade, if employment were regular, year in, year out, instead of good one year and bad another, there is little question that poverty would be neither so widespread nor so abject as it now is.

To what extent poverty, as it exists in the modern industrial state, is responsible for drunkenness, prostitution, insanity, poor physical development, preventable diseases, infantile mortality, and stunted lives generally, is a question too wide to be entered into here. But that there is a connection few people would deny.

INDUSTRIAL UNREST AND " CLASS ANTAGONISM "

There is little question these days that a large number of the men and women employed in industry are profoundly dissatisfied with their lot. Whether or not this dissatisfaction is justified is a question which need not be considered here. The point is that this discontent and the resulting unrest are considerably accentuated by the cyclical fluctuations in trade.

Both the prosperity phase and the depression phase of the trade cycle tend to give rise to industrial unrest. During the prosperity phase the worker's rancour is naturally aroused by the sight of apparently large profits being made out of him. His attempts to get higher wages, although usually successful, leave him little or no better off, since what he gains by bargaining or by striking is silently taken from him again in the shape of higher prices. When the slump in trade comes he is thrown out of work, as likely as not through no fault of his own. If he manages to retain his job, he probably has to suffer some considerable reduction of wages.

Under such circumstances as these it is hardly to be wondered at that the belief has grown up that " the working class and the employing class have nothing in common." At each stage it is true that the worker is in reality at grips with the trade cycle rather than with the employer, but the employer appears as the opponent or oppressor in every case, and it is against the employer that his chief anger is naturally directed.

This is far from saying that the trade cycle is the sole cause of industrial unrest. Were there no such thing as a trade cycle there would still be a certain conflict of interests between employer and employed—as there necessarily is between any other buyer and seller—but the trade cycle unquestionably tends to make this conflict, and the bitterness arising from it, far more acute.

INTERNATIONAL CONSEQUENCES

The social consequences of trade depression are not confined to the country which happens to be suffering from it at the time. Quite apart from the fact that depression in one country is liable to induce depression in another (e.g. by reason of the falling off in international trade) the actual

social effects of depression in one country tend to influence social conditions in other countries.

If, for example, owing to severe depression, Germany or any other great industrial country changes from an eight-hour day to a ten-hour day, competitors on the world market will find it difficult, in some cases impossible, to maintain an eight-hour day. Or, again, if one country refuses to take a step forward in social conditions, owing to the depressed state of its trade, the advance in social conditions in all other countries will be impeded.

To take an actual instance, Great Britain has, so far, failed to ratify the International Labour Convention adopted at Washington in 1919 providing for the general eight-hour day in industry. There is little doubt that one of the main reasons for Britain's failure to ratify is the fact that for the last seven years British industry has been suffering from severe depression. But it is quite certain that until Britain ratifies this convention the great industrial countries of Europe will also refuse to ratify; and, in the meantime, social progress in this direction is held up, not in one, but in half a dozen or more countries.

What is true of hours of work is true of other conditions of labour. Bad conditions in one country tend to induce, or at least to maintain, bad conditions throughout the industrial world. In this way trade depression in any one of a group of competing countries is liable to present an effective barrier to any concerted move forward towards higher standards.

In yet another way the social effects of the trade cycle are international. Four years out of every five anything between 20 and 80 per cent of the industrial countries of the world are suffering from, entering into, or emerging out of, trade depression. This general prevalence of depression results in a continual, ruthless, and often unscrupulous, struggle for markets, which from time to time strains the bonds of international peace and amity to the breaking point. Many students of history, indeed, regard the international struggle for markets as one of the chief and most fundamental causes of modern war. And this world shortage of markets is essentially the trade cycle, seen in its international aspect.

STUDYING AN UNKNOWN FORCE.

From the preliminary survey made in this and the two foregoing articles, some idea may be gained of what the study of the trade cycle really means. It is not simply a matter of acquiring information upon some cut-and-dried question of little, if any, practical importance. On the contrary, we are dealing with a force underlying the whole fabric of economic and social life, a force, moreover, the exact nature of which is still unknown. Looked at in this light, the study of the trade cycle can hardly be regarded as a "subject," like geography or mathematics, for instance. It is something more in the nature of a "quest"; a quest lacking the melodramatic excitement of the detective story or the search for hidden treasure but none of the reality. For if a tithe of the charges made in this and the preceding articles are true, even in part, the trade cycle is an arch-criminal on half a dozen counts; and the wealth of all the Pharaohs and all the Incas put together would be little in comparison with that resulting from the application of an effective remedy for trade depression.

To find this remedy is, in fact, one of the main tasks devolving upon the modern student of economics. "Political economy" a century ago was the "dismal science," chiefly concerned, as it seemed, with the formulation of "economic laws," which appeared to make all human progress impossible. To-day, its object is "to study the direction of man's efforts for the attainment of material ends: and to search for possibilities of improvements in that procedure which may increase the command of the peoples of the world over their resources; and enable them to develop their higher faculties."[1] It is safe to say that no single discovery in the whole range of economic science could do more to this end than the solution of the problem of the trade cycle.

[1] *Money, Credit and Commerce*, by Alfred Marshall, preface.

SURVEY OF INDUSTRIES

(*Continued from page 74*)

III

ECONOMIC FACTORS AND THEIR EFFECTS IN CHEMICAL INDUSTRY

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We are inclined to disagree with the suggestion, made in a recent number of a technical paper, that the chemical industry possesses few characteristic aspects, and we are at variance with the statement chiefly because we agree with the General Editor's preliminary survey, which implies that any industry must of necessity be essentially unique in its economic problems.

In the chemical industry the more generally recognized economic factors are, of course, little different from those of any industry which comes under neither the provisioning nor distribution classes of industry; questions of supply and demand, the marketing of the goods and the financing of the projects are fundamental problems of any industry. But the solution of the problem is characteristic of the industry concerned. Fortunately, we are prevented from taking the next step by our Editor's decision that it is unnecessary to define very carefully what is meant by chemical industry; but it will be advantageous to digress a little in order to grasp what is in mind when speaking of chemical industry.

The industry is, comparatively speaking, quite young, and, as we now know it, cannot be traced back more than about a century and a half. Two stages in its previous history can be distinguished, and in their very radical difference from present practice they witness to the statement made in the last sentence. First was the period, extending from the birth of man up to, say, the time of Boyle, when only naturally occurring compounds were used, and then by reason of their cost, only for strictly utilitarian purposes to the exclusion, that is, of ornamentation. The only notable exception to this state of affairs was the dye extraction of Eastern origin, carried on solely for the ornamentation of princely or priestly robes, in both of which cases tradition has always held that there is no immediate concern for costs. The more important chemicals then used were all of natural origin, and, without the exception even of common salt, commanded a fabulous price.

Then came, gradually of course, but, in comparison with the development of previous centuries, relatively quickly, the birth of experimentation, which was only possible when philosophers discarded the theory of matter being composed of some or all of the " elements," earth, air, fire, and water. This change led to the discovery of new compounds and, more important at that time, of methods of preparing artificially the natural products then in use. We say " preparing " advisedly, for manufacture of even the simplest compounds was at first out of the question, until, in fact, cheap acid and alkali were available. During this second period the field of preparations was severely restricted by the fact that only comparatively weak acids—vinegar and tannic acid were available.

THE NEW SCIENCE

In the meantime man was beginning to appreciate the possibilities of the new science. True, he had no thought of synthetic dyestuffs or high explosives—indigo was fairly cheap, and gunpowder very often got beyond his control, but his household salt was still a luxury, for its extraction was only possible in distant lands where hot suns would evaporate salt-laden lakes; and soap was a desirable addition to the household equipment. We would not presume, as being interested in chemical industry, to think that man's call for chemicals furnished all the impetus which eventually made the Industrial Revolution possible. We must, however, claim that every minute's delay of that revolution meant a retarding of the development of an industry which was otherwise kicking against the pricks in an endeavour to supply the enormously increased demand for its products. The chief deficiency was a source of suitable power, for it was just those manufactures which are now classed as heavy chemicals, and which demand reasonably cheap and plentiful supplies of energy, that were being called for most urgently. Those chemicals which were available without the need of excessive power—vinegar, salt, and alum—were already moving in reasonable quantities; the manufacture of, for instance, stronger acids and cheaper alkalis in bulk was held up until power became available in quantity. When this happened, of course, manufacture commenced to expand in leaps and bounds.

Another heavy industry which developed almost parallel with the manufacture of acids and alkalis is that of tar distillation. The manufacture of gas turned out on to the market crude tar as a cheap by-product, which eventually was distilled for its more valuable ingredients. And here we might instance a constantly recurring incident in the history of chemical industry, wherein the initial manufacture of a compound becomes subsidiary to the developed extraction of what was formerly a by-product. It happened in the alkali works and saved the le Blanc process from extinction by the alternative ammonia soda process. It happened

in the gas industry and similarly in the coke oven industry, whereby the liquid fractions, initially by-products, became the raw materials for an industry which produced much more valuable products such as ammonium sulphate, benzole, carbolic acid, creosote, etc., and the tar distilling industry in its turn has been continuously modifying its manufacturing processes to compensate for the change in significance of its numerous products.

A UNIQUE ECONOMIC FACTOR

This very point is a unique economic factor of the industry, and is so fundamental as to set chemical manufacture entirely apart from the general run of industries. It is, of course, true, and especially so to-day, that every industry must be awake to modern improvements, and be prepared to make drastic changes in process, at considerable expense, immediately on improvements being available. But, in the majority of cases, and certainly in the important cases—the manufacture of cotton, wool, steel, leather, coal mining, and so on, the main product has remained unchanged throughout the history of the industry, and in so far as this governs the general principles in manufacture, the changes which are made are not more than modifications of existing processes. But when, for instance, the gas industry realized that their by-product liquid fractions were of more value than the gaseous fraction, an entire change in orientation had to be made, whereby manufacture had to tend towards the maximum yield of suitable tar, with an eye kept on the gas yield to ensure that this product suffered in quantity and quality by no more than could be justified by the increase in the tar fraction. All this means that constantly every unit of the chemical manufacturer's plant is liable at any moment to become not so much obsolete as inadequate, and whereas, in the former case, a system of profit cutting very often ameliorates the position at least temporarily, it is impossible by similar means to make up for the drastic price reductions which immediately follow when a main product becomes a side line, and a former by-product becomes the chief manufacture.

Sufficient has been said to indicate that there is ample justification for a separate study of chemical industry economics, and we shall pass now to some of the points raised in the Editor's preliminary survey, and investigate how much further the peculiar economic factors we have mentioned may be extended.

SECTIONS OF CHEMICAL INDUSTRY

A natural division of chemical industry into the manufacture of heavy and fine chemicals is possible whereby such substances as commercial quality acids, alkalis, and salts, as well as compounds like carbolic acid, naphthalene, and mixtures like benzole, refined tar and creosote, produced in quantities of the order of tons, are considered separately from "fine" or pure chemical manufacture, where the products numbering many thousands are prepared in small quantities of the order of a pound avoirdupois or a gallon. The distinction between the two industries is marked when viewed from any aspect, and especially from the economic standpoint, and we shall, therefore, deliberately consider the two sections side by side in this article rather than separately, hoping thereby to emphasize the different conditions under which the two industries work, while at the same time preserving that sense of relationship which should prevent the reader from considering the two types of manufacture as being unrelated industries. For this they are not, nor ever will be, and at a convenient stage we purpose to indicate how far and why this intricate structure known as the chemical industry is considered as an economic entity.

GEOGRAPHIC DISTRIBUTION

Immediately we begin to consider the factors governing the distribution of chemical industry, we find it necessary to go much farther in classification than is suggested in the distinction between fine and heavy chemicals. Fine chemicals we certainly can consider as a single unit, and dispose of the question of geographic distribution comparatively briefly. A fine chemical is, speaking generally, not bulky, and is expensive in relation to its bulk. Its market, consisting of pharmacy, research laboratories, and a large number of widespread and unrelated interests, is at least the whole of the home country, and in the case of a country reputed for fine chemical manufacture, is world-wide. In a similar way, the diversified nature of its products demands a wide field of sources of supply. Organic chemicals come originally from the tar distiller, insulin from the abattoir, metallic salts from almost every country of the world where the metal is extracted, methyl derivates from the wood distiller or the synthetic methanol manufacturer, and ethyl derivates from the fermentation industries. With such widely diversified sources of raw materials it is impossible to decide on these grounds the distribution of the fine chemical industry as a whole. It is, of course, possible in a very small number of separate units of the industry that the orientation of plants will be dependent on this factor. A works specializing in coal tar intermediates would probably be a part of a dye manufacturing plant, and the place of manufacture of insulin and of thyroid gland was—until the synthesis of the latter became a manufacturing possibility—inevitably conveniently near a well conducted and fairly extensive abattoir, i.e. in a well populated area; the more recent developments of lacquer solvent productions and beet sugar extraction (an essentially chemical process) are similarly governed. But multiply these cases as far as

possible, and then it will be found possible to account for only a small section of the fine chemical industry.

The third factor normally governing distribution of an industry is power, which, though in relation to the amount of yield is high in this section of the chemical industry, is in the absolute sense, quite low.

It is clear, therefore, that no factor is overwhelmingly important, and, we might almost say, that distribution is practically accidental, the only point of importance being the centrality of the location for facilities in distribution of products.

The heavy chemical industry is not so easily dealt with. The relation between power and output is high, but varies considerably with the product. The suitable power system varies with the nature of the product, and with its mode of preparation. Thus, for instance, the manufacture of methyl alcohol and acetone prepared by wood distillation is powered by coal and/or wood refuse, while the synthetic products are made by electrochemical processes. Caustic soda is manufactured by double decomposition of sodium carbonate and lime, necessitating heat treatment effected by coal fuel, or by electrolysis of salt solution necessitating electric power supply. In this country, of course, the ultimate power supply is coal, whether used as such or in the form of electricity, so that the problems are unified into a determination of the relative importance of one power supply as against other factors, such as raw materials and markets. But in a consideration of world chemical industry, the supply of power from hydro-electric sources becomes a significant factor, and has been the determining factor in a number of cases in chemical industry. The nitrogen fixation industry is - potentially —confined to those countries where abundant hydro-electric supplies are available (it must be appreciated that British manufacture is singularly blessed by exceptional conditions of coal supply); similarly, the more economical method of methanol manufacture using hydro-electric power is shifting the manufacture of products of the wood distillation industry very effectively away from the heavily forested countries to those possessing accessible water-power. Thus the relative importance of power to raw materials and markets varies with the kind of power available.

As regards raw materials, as is generally the case with heavy industries depending on mineral deposits, it is essential that raw materials should be immediately available, as the finished product cannot bear the cost of high freightage charges on raw materials. Fortunately, both in this and other countries, it is generally found that fuel supplies and the raw materials for the heavy chemical industry are within reasonable distance of one another, and as both factors were of first and probably equal importance the problem has been automatically solved.

MARKETS

There remains the question of markets. A product cheap compared with its bulk is clearly unable to justify any considerable distribution costs, and, therefore, it is natural that for the purpose of home trade a heavy chemical industry must be centrally placed relative to its markets. This might be claimed to be the deciding factor in the geographical distribution of the heavy chemical industry. The markets for heavy chemicals consist of a widely varied class of interests distributed geographically at random all over the world. In some cases—that of fertilizers, for example—the interests are spread over the whole of the country with no definite centralization of markets whatever. In addition, the heavy chemical producing countries are comparatively select and few in number; at least this was true up to the war period, and while the rate of development is now comparatively rapid in hitherto non-producing countries the position is potentially the same. Some figures which indicate the absolute size of our export trade in some heavy chemical items important in international trade will be found on pages 120 and 121. Following this (page 122) are tables giving census of production data for some coal tar products, the first according to the 1924 Census of Production of the Board of Trade for coke-ovens and other coke producing units, and the second from an independent source and based on 1927 estimates for the tar distilling industry.

It will be realized from these figures that an important section of the markets represents export trade, and proximity to seaports is essential. Summing up, therefore, we might say that for the heavy chemical industry, so far as it can be considered as a whole, markets—export first and a uniformly distributed home consuming section second, determine primarily the location of the industry at or near the coast, and that raw material supplies and power take second and third place respectively.

One outstanding exception to this is the coal tar industry. Distribution is, of course, more or less even over the country, being most concentrated in highly populated areas where are the gas works. In fact, distribution might be said to follow fairly closely the distribution of population.

THE INDUSTRIAL UNIT

It will be convenient to open up the consideration of the characteristics—size, scope, value, and so on—of the production units of chemical industry by an examination of some figures which were published in America (*Chemical and Metallurgical Engineering*, New York, for September, 1927, pages 586-7). Let it be granted here that interpretation of the table must be conservative, for the data are probably only correct to a first approximation, and, again, the connotation of the various items is artificial, and does not necessarily coincide

with the field we should include under the various heads in this country. Nevertheless, the figures are the result of very careful work, and a study of one or two items would prove of advantage to a subsequent consideration of our problem.

The following might be indicated as significant: Three quarters of the sulphuric acid production of the U.S.A. is absorbed by chemical industry, mainly by fertilizer manufacturing processes, of course, but petroleum refineries also take a large quota It should be pointed out that the relative importance of these two customers for the trade is unique for the U.S.A., in that petroleum refining is more extensive than in most other countries. The coal by-products industry follows up well, accounting for 10 per cent of the acid production, absorbed, of course, in the manufacture of ammonium sulphate fertilizer. It will be noticed that the paint and varnish industry is a rather better customer for sulphuric acid than would have been expected. Hydrochloric and nitric acid figures are not phenomenal, apart from the fact that the latter is almost exclusively absorbed by the explosives industry. Oxalic acid consumption within the chemical industry is relatively low, by reason of the large quantities used in laundry work. Alcohol consumption is equally divided between chemical and non-chemical industries, the bulk of the former portion being absorbed by the fine chemical section for use as a solvent mainly, and a raw material for the manufacture of ethyl derivates to a secondary extent. Soap manufacture absorbs the bulk of the caustic soda production, and comes second to glass manufacture as a customer for soda ash.

The reader will appreciate from this and a glance at the remainder of the table that chemical industry is of necessity a network of inter-relationship, almost every manufacture being dependent on one or more of the rest for either raw materials or agents for the fabrication of its raw materials into finished products. This, of course, is a natural outcome of the tendency which we noted above for by-product manufacture to become an increasingly significant factor in the development of the industry. In fact, it is only by ensuring that every by-product is finally made up into a marketable article, that the chemical manufacturer achieves an economic unit. Further, by the very nature of his by-products (or waste-products as they were called until their significance became appreciated), the manufacturer is almost invariably compelled to proceed to its marketable stage himself, and so the network approaches completion.

But there is a further important observation to be made on the table indicated, and that is concerned with the general high percentage of the production of each chemical which is used in the chemical industry compared with that which finds its way to other industries, and direct to the consumer. Without having made any careful study of the corresponding relationship in other industries, we would hazard a suggestion that chemical industry is unique in the extent to which this interchange of products goes on within an industry.

INTERLOCKING

What, then, are the consequences of this interlocking ? The first effect was, of course, an extension of the heavy chemical unit towards the complete economic system which would result ultimately in the marketing of both main and by-products. This came at a time when manufacture of heavy chemicals had expanded to such an extent that individual control was being forced by financial and administrative factors to yield its place to multiple ownership, and this development was hastened, therefore, by the immediate necessities of the industry in the way of additional capital and supervision to cope with the necessary working up of by-products.

Parallel with these two incentives towards the more complete chemical unit there came the development of international competition due to alternative methods of manufacture. The former had the general effect of enlarging the whole unit and the latter resulted in an impetus being given to the working up of side products into profitable lines which helped to carry on the original process

VALUES OF SOME CHEMICAL
1903–17

	1903	1904	1905	1906	1907	1908	1909	1910	1911
Bleaching materials	214,029	159,271	192,019	209,471	229,844	171,220	195,836	210,537[1]	194,772
Carbolic acid	—	146,431	157,533	150,774	154,030	126,783	104,296	118,484	162,529
Copper sulphate	1,021,734	1,379,832	1,125,392	996,282	1,318,203	1,593,077	854,278	783,425	1,508,881
Ammonium sulphate	1,994,278	2,171,445	2,381,568	2,460,689	2,752,931	2,763 584	3,030,452	3,376,708	3,819,747
Potassium nitrate	37,525	38,163	41,753	44,722	44,742	35,355	41,233	52,084	53,209
Sodium carbonate and bicarbonate	388,678	410,226	463,982	554,550	600,934	491,908	548,421	589,117	665,683

[1] Bleaching powder only after 1910. Other bleaching agents are not relatively

and in some cases supplanted the original manufacture as the main product.

Competition in heavy chemical industry has never been absent since the introduction of the alternative methods of manufacturing soda by the ammonia soda process. Since that period the rivalry has expanded rather than diminished, with the result that improvements in process have been continuous. Within the last few years the tendency has been to amalgamations, which have cut out a considerable amount of useless price cutting, without unnecessary or unwarranted increase in prices, and apparently without any suggestion of loss of activity in research after improvements in present practice or alternative methods of manufacture.

The above remarks apply mainly to heavy chemicals in Germany, Great Britain, and, to a lesser extent, France, and Belgian interests have just completed negotiations with a similar end in view. Russian chemical industry has apparently some working arrangement in force, but it is doubtful whether any appreciable advantage is visible as yet. In the first mentioned countries, amalgamation is by no means complete, though a fair section of the German interests are combined in the Interessen Gemeinschaft. There is, however, in all cases, sufficient outside interest to create a correcting influence on the combination, so that monopoly has not been the result of the new movement.

AGREEMENTS AND COMBINES

In other sections of chemical industry agreements are more common, and combines less so. Generally speaking, no extensive development of the combine movement is present in the British coal tar industry. There are, on the one hand, local amalgamations, and on the other, arrangements between gas works as corporation undertakings and the tar distillers, but both these are of a different type from those existing in the alkali industry, for example. There is here no representation of manufacturers from all over the country in the form of a combine, and it is clear that no monopoly is in existence, or can reasonably be anticipated in the near future. One is rather inclined to consider the tar distilling industry as a thing apart from other sections of chemical manufacture in this respect, for competition has remained unrestrained throughout the history of the industry and this without the extremely severe price cutting which characterizes other sections.

Fine chemical industry is again something of a law unto itself, and again the reason is primarily the large number of products which are manufactured under the class of fine chemicals. A comprehensive system of price conventions would be impossible, and such methods of restricting destructive competition are reserved therefore for some of the more widely used compounds—bismuth and mercurial compounds, some iron salts and citrates, while, alternatively, one meets virtual monopolies such as borax, some types of chemotherapeutic substances, methylated spirit, and so on, which after all are the speciality of one or a limited number of manufacturers more for convenience than anything else.

In addition, a natural international tendency towards combination of fine chemical manufacturers who are owners of drug stores has taken place, a move which is common to most important countries. This again has not become in any sense a monopoly, and in so far as the fine chemical manufacturer probably supplies a greater proportion of his production more or less directly to the public than any other type of chemical manufacturer, it is probably a wise dispensation that has left the position as it is at the present stage. On the other hand, competition is more severe in the fine chemical markets than anywhere else—chiefly because of the facility of distribution of products and also because of the marked endeavours of the premier nations to build up a home fine chemical industry, and one cannot therefore rest assured that some correcting influence will not soon be brought to bear on what is daily becoming a more acute problem. In this respect, one would like to see less duplication of production, and more numerous manufactures,

Exports of British Manufacture and 1921–25

1912	1913	1914	1915	1916	1917	1921	1922	1923	1924	1925
179,858	168,648	158,775	180,931	142,658	39,175	201,277	156,209	138,567	160,369	175,599
209,263	190,400	135,303	250,519	201,098	406,574	138,114	283,430	400,921	251,908	245,106
1,719,504	1,701,219	1,423,018	1,625,037	1,700,615	2,703,899	1,017,062	1,108,454	1,051,557	959,490	925,446
3,991,262	4,390,547	3,767,553	3,970,548	4,354,295	1,188,412	2,059,922	2,381,459	4,045,877	3,720,902	3,277,153
52,270	46,580	30,048	43,593	48,686	30,636	27,053	33,607	32,577	36,226	24,769
701,144	686,863	770,949	949,538	1,063,834	1,146,922	1,179,747	1,606,494	1,665,453	1,581,570	1,476,855

important, and the figures are not, therefore, materially affected.

with, as is necessary and under conditions of extended peace—possible, a collaboration between nations for the allocation of manufactures. At its best, a fine chemical process is necessarily extremely inefficient as an industrial undertaking, and any method of reducing the inefficiency—we prefer that designation to the more direct but less pointed omission of a double negative—should be carefully considered.

Finally, under this head we must mention that standardization of method is obviously almost impossible in the industry as a whole.

It will, of course, be recognized that a standardization of a chemical process is an entirely different problem from the standardization which either Mr. Ford or Mr. Morris has in mind for his motor-cars. Chemical manufacture necessitates the collaboration of continuously trained chemists on the works "foot-plate" so to speak. On the other hand, in so far as repetition of procedure is standardization, the skilled kiln-burner of the heavy chemical works is no more than a trained labourer, more often than not possessing no knowledge of the chemical names of the products with which he deals. Nevertheless, standardization of process is represented in every works, and while the products are only standard to a first approximation, and are bought and sold at prices varying with the degree with which they approach the ideal of 100 per cent purity, each works has its individual practice, the standard being set by the control laboratory.

PRODUCTION FIGURES FOR THE COKE-OVEN BY-PRODUCTS INDUSTRY

Products	Quantity	Value
		£
Coke	12,803,000 tons	16,859,000
Tar	500,000 tons	1,430,000
By-products—		
Sulphate of ammonia	185,000 tons	2,257,000
Anthracene	66,000 cwts	23,000
Benzol	37,900,000 gals.	1,819,000
Carbolic acid	28,000 cwts.	19,000
Naphtha	1,812,000 gals.	87,000
Naphthalene	191,000 cwts	54,000
Pitch	151,000 tons	423,000
Tar oil, creosote oil, and other heavy coal tar oils	17,132,000 gals 1,669,000 cwts	507,000
Toluol	320,000 gals 20,000 cwts.	25,000
Other distillation products	—	160,000
Waste heat (including gas) sold	—	465,000
Electricity sold	—	117,000
All other products	—	144,000
Total value of output	—	£24,389,000

ESTIMATED PRODUCTION OF COAL TAR PRODUCTS FOR 1927, BASED ON STATISTICS FOR FIRST SIX MONTHS OF THE YEAR

	Quantity	Unit
Crude tar received at distilling plant	215,000,000	gallons
Benzole (calculated as 65's and excluding coke-oven benzole)	3,000,000	gallons
Carbolic acid—Crude 60's	800,000	gallons
Crystals	7,500,000	lbs.
Creosote	45,500,000	gallons
Cresylic acid (water free)	2,000,000	gallons
Naphthalene, crude	6,500	tons
Pitch	300,000	tons
Pyridine	200,000	gallons
Refined tar	90,000,000	gallons
Tar acids (total extraction)	3,000,000	gallons

LABOUR ORGANIZATION

(*Continued from page 76*)

III
ANALYSIS OF TRADE UNION FORMS (*continued*)

IN the last section we began the classification of trade unions, and we saw that workers may be organized on an "employment" basis. But, obviously, this method of organization can only apply to cases where the employer, or group of employers, is clearly distinguished from employers in general. Where the employer is a department of the central government—e.g. the Admiralty, or a municipality, or a co-operative society—this is easy, but the principle of union by industry, already discussed, is obviously far more feasible in the case of the manufacturing industries, agriculture, commerce, and all the great body of employments under private enterprise.

There remains to be discussed the case of the general labour unions. Primarily, these are unions of unskilled workers, and the movement to organize them dates from the years just before the great Dock Strike of 1889. About that time there had arisen another "new unionism" to supplement the new unionism of 1850–1860, when the leading craft unions put themselves on an efficient national basis. Since then the idea of a "living wage" for all workers, whether skilled or unskilled, has taken a progressively stronger hold of the organized labour movement, and, although general economic forces have also played a part, it is undoubtedly true that the organization of the unskilled or "semi-skilled" workers has helped to reduce the gulf in standard of living between craftsman and labourer.

But general labour unions do not confine themselves to the less skilled workers. One of them at least (the Workers' Union) is prepared to enrol anyone! Most of them will enrol, not only the labourers attached to skilled trades like engineering and textiles, but agricultural workers, and skilled craftsmen and labourers in industries such as the chemical industry and transport, where other organization is inadequate or local. At the end of 1924 there were twenty general labour unions in Great Britain and Northern Ireland, with a membership of 500,000. This showed a rapid decline from the boom years 1919-20 when the membership rose to 1,260,000. But general labour unions are, by their very nature, more unstable and less cohesive than unions of other types, and are the first to suffer in a time of industrial depression.

Trade unions confined to women as such are decreasing in numbers, and except in certain special cases will probably soon disappear. Craft unions are now more willing to admit women members, though it is probable that a majority are still confined to men. Further, the wave of feminism, which was partly responsible, in the generation before the Great War, for the formation of unions of women workers, has greatly spent itself. Probably only in such occupations as teaching and the Civil Service will women's unions be a permanent feature.

It is possible that the analysis of trade union forms which has been given may create the impression that there is chaos and confusion in the movement as a whole. The existence of rival forms of organization, of overlapping unions, of actual jealousy and active competition between bodies catering for the same craftsmen or class of workers is a fact. But this does not imply that the friction which exists is allowed directly to interfere in any substantial degree with the practical effectiveness of trade union action. As a matter of fact, the degree of local and national co-operation between trade unions is sufficient nowadays to overshadow most rivalries, and, in most cases, to ensure a practical compromise between competing policies.

HOW TRADE UNIONS CO-OPERATE

We shall now consider the ways in which trade unions co-operate. Our account of trade union structure is incomplete without reference to *Federations*, *Trades Councils*, and a fuller description of the *Trade Union Congress*. The typical union to-day is the national union, with its head office in London or some large provincial city, branches all over the country, or at least all over the area in which the industry is localized, and, often, a series of "district" offices co-ordinating the activities of branches in some area—e.g. "Yorkshire" or "Midland District." Every large new amalgamation, such as the Transport and General Workers' Union (formed 1923) is of necessity compelled to adopt some such form of organization from the outset. There still remain, however, many small local unions, often consisting of only one branch. These are mainly confined to skilled trades, and to workers in industries, such as cotton, which are localized. Most of these small unions are individually unimportant, and, except when federated with others into large local organizations such as the Weavers' Amalgamation, exert little influence on the general trade union movement. There are several exceptions to this —the London Society of Compositors, for instance, is a body of 14,500 members, and though it has but one branch is an important union, whose secretary is a man of standing in the movement.

Do local unions and the local branches of different national unions co-operate? They do so

more and more, and in various ways. In the first place, in the sphere which is, locally, most important, they combine for purposes of collective bargaining with employers. The essential thing from their point of view is to have a common policy, and since the beginning of the present century trade unions have become increasingly careful and scrupulous about keeping in close touch, not only in large national disputes, but also in local disputes.

FEDERATIONS

We may say, therefore, that in spite of the conflict between "craft" and "industrial" principles of organization, in spite of the sometimes rather unscrupulous "poaching" of "general labour" unions, the practice is to combine more and more effectively for purposes of industrial negotiation. Locally, this co-operation may be informal or through some loose association, but a district or national *federation* often exists with permanent machinery. Such federations now cover our main industries—for example, in the woollen and worsted industry there is the "National Association of Unions in the Textile Trades"—with headquarters at Bradford. In cotton there is the "United Textile Factory Workers' Association" with offices at Accrington; there is the "National Federation of Building Trades Operatives," already mentioned, and the "Federation of Engineering and Shipbuilding Trades," the two latter, like most of the important federations, with headquarters in London.

But "federations" are not all of the same type, and the word implies many different degrees of combination from groups so loosely allied as to be quite ineffectual in common action, to bodies so closely knit as to form virtually one trade union. Of the latter type is (or *was* until 1926!) the Miners' Federation of Great Britain. The Ministry of Labour publication, *Directory of Employers' Associations, Trade Unions, etc.* (1925), is, for this reason, likely to be misleading to the student of trade union structure who has no working knowledge of the movement. Under "Federations of Trade Unions" it includes besides the Miners' Federation and other bodies, like the Iron and Steel Trades Confederation, which is also for practical purposes one union, a large number of associations which have little capacity for common action—and do little beyond holding periodical conferences. The study of the different forms of federation in trade unionism is fascinating because it reveals so many problems in democratic self-government, some of them domestic problems of trade unionism, others of great public importance. The course of some of the great strikes in this country in recent years might have been different had federated unions been more capable of a common policy. Or, if a common policy exists, as it has done among the miners for many years, then the conduct of a strike will depend on the degree of effective centralization of the union's activities. What might have been the difference in 1926 if the Miners' Federation had possessed an organization and staff at headquarters comparable to that of the National Union of Railwaymen? This, of course, is a problem in trade union *government*, which subject will be discussed later. It is obvious that in a close federation like that of the miners or the operative cotton spinners, weavers, and other cotton-trade "amalgamations," the problem is: "How far shall the constituent local or district unions be autonomous?" As the division of sphere is a clear one—by area—the problem is not serious. It is, however, a serious problem in industries like engineering and shipbuilding, where the unions comprising the federation overlap and have not settled their differences. In the case of engineering, as recent disputes have shown, industrial negotiation is hampered by "demarcation" and other disputes between rival unions. Intermediate between these two types of federation is a body like the National Federation of Building Trades Operatives which combines neither localized unions on the one hand, nor competing unions on the other hand, but unions catering in the main for different sections of building workers. Such a federation (as in this particular case) can be very effective as a negotiating body. It can also do effective propaganda work. In the Civil Service there are a number of federations, both general and departmental—e.g. the Federation of Women Civil Servants. Few of these are strong in common action.

WHAT ARE TRADES COUNCILS?

We now come to *Trades Councils*. Probably the man in the street often confuses trades councils with the negotiating federations just described, but they are bodies of quite a different type—and typically British in character, in that their aims and objects are difficult to define, while yet, in times of crisis and dispute, they manage to render some effective practical service to the movement to which they belong. Trades councils are local bodies—federations, not of allied crafts or of unions in the same industry, but of all *bona fide* unions in the area who will affiliate. They discuss political as well as industrial questions, and until recent years many performed the functions of a local Labour party.

METHODS OF REMUNERATION

(*Continued from page 78*)

III

COMMON BASIS

In the standard rate there is implied another general idea which appears to be so contradictory in itself and so much at variance with the terms commonly used that its truth and importance are apt to be lost sight of. This idea, put in one way, is that the basis of all forms of payment is output or results. But the term payment by results, as commonly used, though it embraces many forms of piece-work (or piece-work combined with time rates) does not include pure time-work. The statement made above therefore is, in effect, that, however the terms may be used, time-work is at bottom a form of payment according to results. All, however, that this means is that a time rate is not paid for time but for work—that during the time to which the wage is related a certain amount of work is expected. This is obvious, but it should not be put aside as too obvious if we desire fully to understand many problems of wage payment to the solution of which the idea is essential. Results are expected for the time wages, though the latter may not be measured in detail against production; time is used as a measure for want of, or in the absence of agreement upon, another form of measure. Put in another way, the idea is that all wages are time wages: the worker always aims at so much remuneration against the time taken up by work, i.e. there is a time basis to payment by output or results.

The fact that there is this common basis —which may be regarded from an output or from a time standpoint—to all forms of wages does not do away with the important differences between time-work and piece-work.

There are important differences, but these differences can be reconciled with these further facts: that time-work commonly has reference to a basis of output or effort; and that a time basis—the earning of a definite sum in a certain period of time—commonly underlies payment by the piece. The point of the common basis may be emphasized by reference to what is known as task-work, though task-work is not now an important form of payment. (The term is still used in some trades for a method of payment that is now either piece-work or piece-work with a time rate guarantee.) Task-work is a form of payment in which a definite minimum measure of work is set for a period—a day or a week, say—and a specified sum is paid if the work is performed in the period. If less work is performed in the time a proportionate deduction is made from the wages; if more work is performed only the specified sum is paid. The worker sells the work performed within a given period, but under an agreement to perform not less than a minimum amount. On the other hand, the sales in the more usual forms of payment (considered in a purely formal way, apart from qualifications or practical consequences) are: the timeworker sells the work performed within a given period, without regard to the amount of work; the piece-worker sells a given amount of work without regard to the period of time.

TIME-WORK

It would be difficult to arrange for a night watchman being paid otherwise than by time rates. If a method of overcoming the difficulty were found, the alternative, one may hazard the opinion, would be impracticable. This emphasizes the argument already put forward that for many kinds of work the time method of payment is necessitated by the circumstances of the work. Among the circumstances which tend to the adoption of time rates is a large degree of change in the day-to-day— or hour-to-hour—conditions of work; the fixing of piece prices becomes impossible or impracticable. In addition, however, in some trades for which time-work is not obviously the only practicable method, the workmen object to piece-work or any other form of payment by results, and in some of these trades time-work is the usual form. This reason for time-work—that other methods are objected to by the workers—has been referred to shortly under the standard rate. In considering reasons, the reader should bear in mind certain, perhaps obvious, considerations; firstly, that there are two parties to a wage bargain, and, secondly, that the grounds on which either party professes to act may or may not be well-established grounds. The same method—time or piece—may be chosen by both parties. Where the parties differ on the subject of method, the decision will depend upon their relative bargaining strengths.

There are reasons other than those already indicated for the choice of time-work. Piece-work encourages speed in working, which may be at the expense of care or skill. If the loss of care or skill is reflected in the inferior product, in damage to machinery, or in other ways, so as to discount the apparently greater production on piece-work, the employer will prefer time-work; the same considerations apply when time-work, with an apparently smaller production, is cheaper than piece-work involving inspections not necessary in the other method. Again, in some occupations the speed, invoked by piece-work, may so increase the risks of injury or accident that the time-work method of payment is generally agreed upon as

the only desirable method. Considerations of safety, not confined to the worker, help to determine the method of payment in some of the industries—e.g. railways in the transport group—which we saw are time-working.

Work of a standardized repetitive character is commonly paid by the piece, but, even in trades where for this reason the bulk of the operations is done on piece rates, certain kinds of work may be performed on time rates. This may occur when there are special orders for work of an exceptional character or of an unusual design. The fact here referred to is related also to a common practice in many piece-working trades—the payment of time rates, during a trial period, on new forms of work. The question whether the time rates are the normal method, or only a preliminary to setting piece rates, will depend upon the circumstances—as to whether the work is special and not likely to be repeated, or merely novel at the time.

LIEU RATES

The time rates paid, as a preliminary to setting piece prices, to workers normally on piece may be higher than the time rates paid to workers normally employed on time. In this respect they are similar to what are called lieu rates. The lieu rate, i.e. a time rate—but higher than the time rate for time-work—paid in lieu of piece rates, is mentioned here only as another instance of time rates employed where there is difficulty in fixing piece prices. The lieu rate, it may be reiterated, is paid in lieu of piece rates; the work is regarded as piece-work, to be performed at piece-work speed. The payment may be regarded as providing another instance of the common basis of both time-work and piece-work.

There are other circumstances in which piece-workers are put upon time rates for certain periods, including what is known as "waiting time." This payment to piece-workers—for spells of waiting when work of the ordinary type, paid on piece prices, is not available—is one of the conditions used to regulate systems of piece-work and is best treated later with other similar regulations or guarantees. In its essential nature, however, the regulation is not confined to piece-work. It is essentially an introduction of time-work control into piece-work. The underlying idea is to secure a certain continuity of payment, and the extent to which this is obtained varies among trades—irrespective of their piece-work or time-work character.

HOURLY AND WEEKLY RATES

Time rates are stated usually as hourly or weekly amounts, but in time-working (as also in piece-working) trades there are differences in the periods for which work, or pay, is guaranteed. Usually in the building trades the rates are hourly and the period for notice of dismissal is one hour or two hours; for some time, however, certain sections of the building trades, including the bricklayers, have been advocating the adoption of some form of payment for "wet time" (i.e. time lost because of wet weather, etc.), and certain experiments in this application of the waiting time principle have been tried. In some trades (e.g. the baking trade) the rates are weekly; and a week's work or pay may be guaranteed, for example, in the baking trade or on railway work. In agriculture in some districts half-yearly hirings are still common, though of recent years there has been a tendency towards shorter engagements, and farm workers are now weekly servants in many cases. Salaries, which are a form of time wage—with, commonly, the difference that the actual working time within the period of engagement is not specified in the same detail as for a worker on weekly or hourly rates—are usually so arranged that continuity of employment is secured for a month or longer period. We are not here concerned with questions of legal contract, but merely to indicate that, in fact, time rates vary to some extent in respect of the periods to which they apply and also that in some trades guarantees of work, or pay in lieu of work, for a period—which may be a half-day, a day, or a week—are provided; in some trades, again, there may be separate guarantees for different classes of workers—e.g. a week for a regular worker, and a day or half a day for a casual worker, in the baking trade in certain districts.

It should also be noted that the fact of stating a rate as a weekly rate may not prevent it being in practice an hourly rate. On the other hand, it should also be noted that sometimes, when the period necessary to terminate employment is an hour or less (in some trades, including certain sections of engineering, instant notice to leave is the rule), and the rates are hourly rates, there may be a quite definite meaning attaching to the *weekly* payment. For example, in a trade in which the normal weekly hours of work are by collective bargain fixed at 48, and the rate at 1s. 6d. per hour, if a particular establishment adopts a normal week of 44 hours the hourly rate may be fixed at 1s. 7½d. or 1s. 7¾d. (so as to give the same sum for the shorter as for the longer normal week); here the hourly method of payment takes account of the week. (On the other hand, this does not mean a guaranteed week—even a regular hourly rate worker, if the establishment were on short time, working, say, 30 hours per week, would be paid only for the 30 hours at 1s. 6d., or at 1s. 7½d., or 1s. 7¾d. in the singular establishment, per hour.)

UNEMPLOYMENT

(*Continued from page* 80)

III

CYCLICAL FLUCTUATIONS: THEIR CHARACTER

NATURE OF THE FLUCTUATIONS

THESE fluctuations are of regular occurrence. They result from the ordinary working of the industrial system and from failures to adjust the supply of labour to the demand. Thus they differ from financial crises due to over-extension or misuse of credit, which are spasmodic in their appearances and of short duration. Whilst, however, there is a regular cyclical movement in employment, there are appreciable variations in detail between one period and another. These are partly due to the presence of disturbing causes at different times, and partly to important underlying influences which are at work over periods longer than the ordinary cycle. Of the former, the Lancashire Cotton Famine (1861-63) is an example; and the financial crises of 1857 and 1866, the Glasgow bank failures of 1878, and the American crisis of 1907 aggravated the subsequent depressions. The more permanent causes may be found in the general trend of industry over long periods, such as the influence of railways and steamships after 1850, or the circumstances which caused the " great depression " after 1873.

THEIR GENERAL COURSE

The general course of an employment cycle may be briefly indicated. After a trade depression stocks become exhausted, traders need to replenish them, and markets at home and abroad set up a demand. To meet this, production begins to be more active, confidence is created and increases as new openings present themselves, and this gradually extends over a widening circle of trades. Businesses are expanded, machinery purchased and new buildings erected, increased foreign trade creates more employment for shipping, and rising wages increase the demand for consumable commodities. Thus demand increases all round, there is general confidence, and the psychological influence steps in. Credit is extended, prices rise, production booms. But after a time doubts creep in. Manufacturers and merchants begin to fear a fall in prices or mistrust their ability to market their products. Banks get apprehensive and curtail credit, and reduced purchasing power causes prices to drop. Manufacturers consequently have to sell at a loss and demand falls off. Stocks accumulate, operations are widely restricted, and trade becomes seriously depressed. Stagnation and severe unemployment follow till the causes already enumerated start another revival.

THE CYCLES SINCE 1850

The course of employment may be briefly sketched from 1850, when the trade union unemployment percentage[1] first becomes available, till 1914. There was a boom in 1852-54, which was apparently terminated by the Crimean War, though trade was not definitely bad till 1857-58. Another boom was cut short by the Cotton Famine (1861-63), and the next was succeeded by the Overends crisis (1866) and the depression of 1867-69. Then followed an employment boom of exceptional extent and duration from 1871-75, the trade union percentage being below 2 per cent in four years and below 1 per cent in 1872, a state of affairs not equalled till the Great War. A correspondingly marked reaction followed, first the very sharp depression of 1878-79, and then, after another boom in 1882-83, the four years of heavy depression from 1884 to 1887. The boom of 1889-90 inaugurated a period of better trade. The depression of the 'nineties was far less severe than that of the 'eighties. The boom that followed (1896-1900) was the longest since 1871-75, and was extended by the activity caused by the Boer War. Again there was reaction, a longish shallow depression (1903-5), a short boom when, in spite of very big exports, the unemployment percentage did not fall below 3·6 per cent, and the very sharp depression of 1908-9; 1912 and 1913 saw a pronounced boom and the first half of 1914 a falling off.

STATISTICS OF THE CYCLES

The table given below shows for each boom and depression the years of best and worst trade and the trade union percentage of unemployment.

Worst Year		Best year	
Date	Per cent unemployed	Date	Per cent unemployed
1852	6·0	1853	1·7
1858	11·9	1860	1·9
1862	8·4	1865	2·1
1868	7·9	1872	0·9
1879	11·4 (11·7)	1882	2·3 (2·3)
1886	10·2 (10·5)	1889	2·1 (2·0)
1893	7·5 (7·9)	1899	2·0 (2·1)
1904	6·0 (7·4)	1906	3·6 (4·3)
1908	7·8 (10·9)	1913	2·1

Till the passing of the National Insurance Act, 1911, the only general return of unemployment

[1] The earlier figures must be used with caution, as they are based on small numbers.

was the trade union percentage, made by unions which paid regular unemployment benefit. This included a fair variety of trades, but over-represented certain fluctuating ones, like engineering and shipbuilding. In early years the numbers covered were small, but they increased latterly, covering 992,000 workpeople in July, 1914. They thus gave a much better idea of general conditions, at least in skilled employment, in the later than in the early years. On the other hand, the figures tended to over-estimate the improvement in recent periods of depression. The fluctuating engineering and allied trades were over-represented throughout, but to a much smaller extent in the later years. The figures in brackets, from the *Third Fiscal Blue Book* (Cd. 4954, page 223), are for sixteen unions which made continuous returns from 1872 to 1908. Here this source of error is reduced.

LEADING FEATURES OF FLUCTUATIONS

Certain leading tendencies may be noted. First, there is action and reaction. Any specially marked wave is followed by a corresponding move in the opposite direction, the exceptional boom of 1871-75 by the "great depression," and so on. Secondly, there is the variation in the length of the cycles. The average appears to be about seven years, but the actual length varies. Of the periods between the minimum figures in the table (crests of booms), five are of seven years, two of ten and one of five; and between the maxima (troughs of depressions) there are two periods each of 11, 7, 6, and 4 years. The length of good and bad periods also varied considerably, the good from five years (1871-75) to two (several times). The bad periods have been more regular in length, but that of 1884-87 lasted for four years, that of 1908-9 for rather over two. Thirdly, the minimum of unemployment has varied comparatively little, the maximum a good deal. The former has usually been somewhere about 2·0 per cent, except in 1872 (0·9) and 1906 (3·6). The variations in the maxima are marked. For all unions, the figures for 1904 were little more than half those of 1858 and 1879, and even for the sixteen unions differences were considerable. Finally, when all allowances are made, the severity of fluctuations seems to have been reduced.

FLUCTUATIONS IN DIFFERENT INDUSTRIES

In respect of trade fluctuations, industries fall roughly into three groups. First, there are those which normally have little unemployment and provide regular work year by year. They include domestic service, railway work, and much commercial and clerical employment; whilst in normal circumstances agriculture does not seem to be much affected by the ordinary cyclical movement. Secondly, there are trades which are influenced to some, but not to a very marked, extent by the cyclical movements in employment. Thus, in the printing trades the regular demand is large relatively to the fluctuating demand; and between 1899 and 1913 their annual percentages of unemployment only varied between 3·7 and 5·4, compared with 2·0 and 7·8 for all trades. Again, many trades producing immediately consumable commodities appear to experience cyclical fluctuations that are moderate in extent and duration, though these, as with some of the textile trades, may be considerably increased when there is much export work. Finally, there are the definitely fluctuating trades, which are mainly either the industries engaged in the production of the more durable forms of wealth (engineering, shipbuilding, building), or industries dependent upon them (iron and steel, building materials, furniture).

The following yearly figures for the period 1899-1913 are worth quoting—

	Lowest	Highest	Average
Engineering . . .	1·9	11·6	4·9
Shipbuilding . .	2·3	23·2	9·4
Building . . .	1·3	11·7	6·1
Furniture . . .	2·2	10·9	5·8
All unions making returns	2·0	7·8	4·2

THE FLUCTUATING TRADES

With durable goods the supply is relatively fixed for considerable periods, since they take time either to produce or to wear out. Hence, the greater fluctuations in these trades seem to be due mainly to this and to the fact that calculations must be made for a longer time ahead. Thus there is greater liability to miscalculation, especially when, as in exporting trades, future world demands must be calculated. But, before the war, building and furniture, sheltered industries, had marked fluctuations.

The fluctuations in building are instructive. Buildings are more durable than machinery or even ships, and the building industry shows signs of a longer cycle underlying the normal movement. Thus, after a very big boom in the 'seventies, the industry remained more or less depressed throughout the 'eighties. It was correspondingly busy through the 'nineties, exceptionally so just before the Boer War, and in the depression of 1893-95 unemployment at its worst was no more than that of an average year. Then, from about 1902, there was a prolonged depression, with little or no recovery during the boom of 1906-7, and even in 1913 the level of employment in the industry was still only moderate. Moreover, this evidence of a sort of double cycle is emphasized by subsequent events, for the recent housing shortage is partly the result of pre-war conditions.

BOY LABOUR AND APPRENTICESHIP

(*Continued from page 82*)

III

METHODS OF TRAINING (SKILLED AND SEMI-SKILLED WORK)

(*a*) THEIR CHARACTER

It is now necessary to distinguish more fully between the skilled, semi-skilled and low-skilled (unskilled) grades of labour. The first will comprise those classes of workers whose work involves either definite manual skill or other qualities which give the workman a skilled rank; and they, therefore, require and receive a long period of training or preparation for it. The semi-skilled workers possess a lesser degree of skill, which is provided by shorter and less definite training. Thirdly, for the low-skilled worker a better phrase than unskilled--very little actual training is needed, and the problem consists in so preparing the boys that as men they shall do their jobs well and not badly, and not grow up, as they too often do, casual, irregular and lacking adaptability. This and the succeeding section will deal with the training of skilled and semi-skilled workers.

APPRENTICESHIP AND PROGRESSION

Under modern conditions methods of training the skilled workman fall into two main groups. First, there are those methods to which the term apprenticeship can still be applied, in the sense that they involve a definite period of direct training during boyhood on the actual work which the boy will perform as a man, though modern methods are often much less definite than the old formal apprenticeships. Following this training, and perhaps a further period as "improver" or "young journeyman" to perfect skill and widen experience, the ex-apprentice takes rank as a competent workman.

Some trades, however, adopt a different method, under which approach to the higher grades of work is made by gradual promotion through a series of less skilled jobs. "There are some trades," write Mr. and Mrs. Sidney Webb,[1] "which are not recruited from boys at all, but from adult men who leave their previous work and 'progress' to higher duties." To this method of recruiting they give the appropriate title of "progression within a trade." The workmen begin at the bottom on some easy job and wait opportunity for promotion to the next above it, and so gradually rise till they reach the more skilled posts. The worker, in short, fits himself at each stage, through the knowledge and experience he acquires in it, for advancement to the next whenever the opportunity occurs. Progression, however, does not seem to be limited to trades recruited from adults, but in some cases starts with the boys' jobs.

Thus, the special characteristic of progression seems to lie in the definite separation of the various stages, so that the worker fits himself at each stage for promotion to the one which follows it. Progression, indeed, has, in some ways, a wider range than apprenticeship; for it is widely used in connection with semi-skilled work, and in skilled work is particularly associated with certain types.

MEANING OF SKILL

For in talking of skilled workmen or work, the term "skill" is used broadly, and must not be confined to actual manual dexterity. Other qualities, which are difficult to secure, and which can be obtained only by long preparation or experience, will constitute a trade and its workmen skilled. Thus, in steel smelting, successful work, especially in the higher grades, may need a high degree of judgment, experience and technical knowledge, which will be slowly acquired. Other classes of work, especially in dangerous trades, require considerable nerve and coolness, and in others, as in coal mining, part at least of the skill arises out of physical strength and the aptitudes which accompany it. But these qualities come not so much from actual teaching, as faculties from innate qualities and partly from experience and general knowledge gradually acquired. Thus, trades of this type are not so much to be learnt by boys as to be gradually approached after years of other experience. Consequently, whilst apprenticeship and progression sometimes overlap and even combine, yet to a great extent they divide the field. Apprenticeship, in some form, generally prevails in trades where manual dexterity is the main consideration, and progression where these other qualities are most important.

FORMS OF APPRENTICESHIP

It is now desirable to examine in some detail the various methods of training for skilled trades. Apprenticeship, in the sense described above, is characterized, largely owing to its historical development, by diversity of methods and the growth of irregular practices. Nevertheless, four chief methods may be distinguished. First, there is the old binding indenture for a term of years, which is still predominant in the printing trades and in some other highly skilled processes. Secondly, there is the written agreement, similar to the indenture, but sometimes terminable at short notice by either side and liable to suspension for agreed causes, like trade slackness. This type of agreement is largely favoured in the engineering and shipbuilding industries, where fluctuations

[1] *Industrial Democracy*, p. 489.

render it highly convenient. Thirdly, there is the purely verbal understanding that the apprentice shall stay and receive training for the customary term, provided he gives and receives satisfaction. Each side is free to terminate the engagement and sometimes does so, though it is usually well observed. Frequently there is an understood scale of learners' wages, and there may be some idea of the time to be spent at different stages. This method is not uncommon in some of the smaller metal trades. Sometimes, indeed, a boy may take work, without any understanding at all, in a shop which gives a chance of training if he has the wits. Here he stays and learns, being paid his value as a worker, but taking opportunities to learn as they present themselves.

MOVEMENT FROM FIRM TO FIRM

Under all these methods the boy gets all or most of his training with one firm. But under a fourth he moves from firm to firm, learning a little in each till he has acquired his trade. This method is most common where the output of individual firms is specialized on a few articles, as in cabinet-making. For when such conditions prevail, a boy, to learn his trade adequately, must work for several firms. Such a boy is engaged and paid for his work and teaches himself as best he can. The number who learn thus is increased by cases in which informal understandings have terminated before training is complete, because the boy has not given satisfaction or because he wants wider experience. Sometimes shorter apprenticeships are arranged, to enable boys to get such experience by completing their training in other firms.

PROMOTION OF LABOURERS

Somewhat similar is the method by which helpers of skilled men sometimes acquire their trades, in cases where the men work in pairs or squads and the helpers are thus very closely associated with the "tradesmen." The helper's job is sometimes semi-skilled, as with a plumber's mate or smith's striker, the two cases most typical of this method. Thus, the helper requires some skill and knowledge to begin with, and is in such close contact with the skilled work that he gets good opportunities to learn something of it. Such men are more closely associated with the skilled men than labourers in other trades, though the bricklayer's labourer's position is somewhat similar. In plumbing this process has been summed up as "bad mate, good mate, bad plumber, good plumber." The youth gets work at low wages and makes himself a competent mate. He then gets a start as improver and works his way up to full wages. Sometimes, as in machine-splitting of leather, the assistant is a boy or youth, but similar opportunities present themselves. In fact, trades like plumbing are recruited partly in this way and partly by more regular apprenticeships, in which the apprentice likewise spends part of his time as mate.

PROGRESSION—ITS FORMS

The characteristics of progression have already been described, but reference may be made to some typical forms of it. The method seems general in mining, conversion of metals and most textile trades. Its essence consists in progress from stage to stage, as vacancies occur, at the employer's choice; but in some cases, like those of the steel smelters and glass blowers quoted by Mr. and Mrs. Webb,[1] certain rules regulating its course are laid down by agreements between the trade unions and the employers. The steel smelters are typical. The recruiting is entirely from adult men—from labourers to wheel-chargemen, and from them to the lowest grade in the actual smelting operations, and so to the higher grades. In cotton spinning there are usually three grades, little piecer, big piecer, spinner, corresponding to boys', youths' (or low-skilled adults') and skilled work. The trade is largely a blind alley, as all the boys cannot be absorbed as men. In coal mining the stages are more numerous, beginning with boys' and youths' jobs, with progression to drawers and finally hewers. In much clerical work also the training and promotion show a big element of progression. In certain cases, indeed, apprenticeship and progression are combined, as in glass blowing, with the stages apprentice, "footmaker," "servitor," "workman." Again, in boiler making, training during boyhood is largely given by more or less regular apprenticeship, though rivet boys sometimes "pick-up" the trade; but promotion between the skilled trades is by progression—holder-on, riveter, plater, angle-smith.

SEMI-SKILLED WORK

In regard to semi-skilled work, problems of training and boy labouring overlap. The semi-skilled workers are largely recruited from the more capable boy labourers, but the methods sometimes resemble those adopted in skilled work, with shorter periods and with "picking-up" taking the place of definite training. A few employments utilize a shorter apprenticeship (three years instead of five or seven). Otherwise the work may be "picked-up" by boys working for wages, as with the plumbers' mates; and a shorter and simpler progression is common, notably in engineering machine shops, where boys on semi-automatic machines or "labourers off the floor" are promoted to simple machines and then to better ones. Some of them, indeed, may come to do work of high quality on single machines, though lacking the range of skill and experience of the skilled men.

[1] *Industrial Democracy*, p. 490.

LEADERSHIP IN INDUSTRY

(*Continued from page 84*)

III

INSTRUCTIONS AND DISCIPLINE

In a certain sense it is true that there is no subject in the whole realm of knowledge which does not bear upon this art of industrial leadership. The old-fashioned type of education, as we may call it, with its kinship to a fundamental knowledge of humanity—it is called the "humanities" at Oxford—might be regarded as the soundest foundation of all. To know the beginnings of history, and especially the beginnings of Roman history with its analysis of orderly grouping and orderly direction of mankind, must be a valuable basis. Similarly, a knowledge of the beginnings of literature, of man's earlier thought about himself, must be a help beyond measure. So it is through the Middle Ages, when men went forth to fight for all sorts of causes, when there was leadership of the highest kind, judged from the angle of getting men to follow. We can see the change creeping over the world in that period which an historian has called "the age of the enlightened despot." Nations were being born out of the break-up of the Empire, new leaders were seizing power and authority. But the age of the enlightened despot came to its end towards the end of the eighteenth century. Men began to look for some constitutionalism which should provide what has been called "government by consent." There were mighty movements throughout civilization. In those movements came the Industrial Revolution. It can only be understood in its relationship to the other vast movements. Men seemed to surrender their industrial liberty when they were making bold claims for political liberty. The picture is not so black as it has been painted. If anyone wishes to see a comparison of an industrial town before and after the apex of the industrial movement he cannot do better than read Mr. Sidney Webb's picture of Bolton in the twelfth volume of the *Cambridge Modern History*. There were blacknesses, indeed, but it is unjust to describe the economic position as one of "wage slavery." For the reward of industry by wages points to a forward movement from even greater slaveries which we are apt to forget. There may be further developments, the result of which will be to modify the wage aspect, but at its beginning individual wages offered something which was regarded as preferable.

To this end there is a duty on each aspirant to industrial leadership to master the outlines of the history of trade unionism, and to strive to understand the present attitude—a changing attitude, I venture to think—of trade unionism towards industrial structure. Having obtained this foundation, he can then best occupy himself in a close observation of current controversies. He may take it, as I understand the position, that if socialism once meant the nationalization of the means of production, there are no socialists to-day, and that if socialism means only an emphasis upon general welfare in the consideration of the application and the direction of human labour, then we are all socialists. Behind this difference lies a world of meaning. Within the scope of the unit industry there is place for all sorts of experiments, and it is no criticism to say, on the one hand, that it leads to the socialistic state, or to regret, on the other hand, that it does not so lead. The industrial leader of the future will find that he is shaping human organizations for his day-by-day work, and he will not expect any organization to be static or fixed or perfect. The full meaning of this lesson of development of industrial structure has yet to be learned. It is the lesson of the immediate future. Just as scientific research is a part of the industrial process, so we shall find that tireless experiments in industrial structure and in methods of management and of organization are essential, and that in the conduct and direction of these experiments and in learning from them the industrial leader of the future will win his spurs.

This only serves to illustrate the point that if we are to aim at industrial leadership (within the unit industry) as a worthy aim, we must remember that it has its points of contact with every other aspect of human effort. The danger is lest in remembering this we should remember it out of proportion. Take psychology as an example. In all these relationships in industry there is a place for psychology. In fact, there has come to be a science which men call industrial psychology. It is a valuable science, and already it has thrown a light on many aspects of industrial association. But the would-be industrial leader who studies this science in order that he may be equipped is running the risk of a blunder, just as much as if he studied the history of the Crusades in order that he might, by that means, be equipped. His real equipment is the art of human sympathy. Psychology and history and classics and literature generally may aid that sympathy, may enlighten it, and widen its scope. But that is all. They will prevent the sympathy from narrowness; they are no substitute for it. Into the framework of the day-by-day act of leadership there must be fitted all sorts of contributions from human lore, but they are contributions only. Hence the student of industrial leadership will seek from his own insight and

experience what I choose to call the outlines of his method, and he will colour those outlines from the pigments of human culture—history and literature and science.

REASONED INSTRUCTIONS

Leadership must mean the giving of instruction. With all the sympathy in the world there must be command and responsibility for command. The point is that we must take care that the command is enlightened and that it has taken every factor into account –and especially the human factor. A philosophy is arising in the United States which seems to express this thought in a fresh way It is said that it is the circumstances which are to make the decision and not an individual. That is perfectly true if it is understood as meaning that behind each decision there is a rational process which would appeal to everyone if it were known. But there must be someone whose function it is to articulate authoritatively this rationalizing process. What we call organization is intended to facilitate the process, to gather the factors, to make the rational process operate of itself, so to speak, and call as little as possible for the individual authority. It is designed, just like a rational constitution is designed, to provide for discussion, then for legislation, then for administrative act. By this means authority can be delegated, but also it can be more sensitive to information which may reach it. By this means also the whole organism becomes a living organism, and not a mere addition of units, and each of the parts has its own life. The worth of the organism is to be tested by these criteria. Does it fulfil its central task? Does it give ample scope to each of its parts to fulfil its own task?

Thus we realize that "instructions," as we have understood them, are not likely to be so numerous as we have supposed. The head of the organism is not always giving instructions. That is why many modern houses have adopted the phrase "standard practice" instead of "orders" or "instructions." It is assumed that there will be a "general" or "continuous" practice which can be formulated as part of the routine, and that individual or special instructions will be abnormal by nature, and that every effort will be made to keep them emphasized as abnormal More than that, it is clear that with "standard practice" as a normal procedure it will pass day by day under scrutiny, and the "instructions" will be of the nature of touching up the standard practice here and there, of correcting it and assisting, as we may say, its evolution. Thus, a very important by-product results. The standard practice is no dead formula put into the hands of living persons to use according to their discretion. Rather it is the outer evidence of a living organism, and, just as the skin of a living animal itself is living and casts its waste products and gathers new, so does the outer evidence—the standard practice of an industrial organism, and only when it possesses this characteristic is it safe to regard it as the directing authority.

STANDARD PRACTICE AND DISCIPLINE

If we have our standard practice thus living and adapting and developing we can afford to have discipline. It is sadly true that there is little evidence of true discipline in industry to-day. There are many reasons, and they are very complex and involved reasons, for this sad state of affairs, but one of them is to be found in the fact that too little care has been taken to devise a real standard practice. The old political thinkers, to whom obedience was the first canon of citizenship, used to emphasize the folly of obsolete laws. Perhaps to-day we can afford some obsolete laws, such as those dealing with the Sabbath, but it is largely because the spirit which lay behind those laws is allowed full play in other directions – the protection of labour, for example. But in the details of industrial practice it is altogether evil to have instructions which are "honoured in the breach." The true spirit of discipline would wish to learn from practice, inasmuch as the worker in his day-by-day experience has light to throw upon standard practice, and healthy discipline will be as anxious to gather that light as to insist upon obedience. It is only when a sensitive attitude is taken towards such contributions that there can be real discipline. Thus we may see that we have approached Miss Follett's position from another angle. She would say that instructions and regulations come from the assembly of wills in carrying out standard practice and that it is the position and not the person which gives the decision.

We may put the same essential thing a little differently. The person gives the decision after careful correlation and continuous correlation of every contribution which can be made from practice. It is the discipline of learning and teaching and teaching and learning. It is the discipline of "discipleship" that emphasizes the very note we are anxious to emphasize. It is a responsible thought for the head of an industry to reflect whether or not his methods are cultivating discipleship. The word may be obeyed; the rebuke may be effective. But both may raise resentment and a sense of injustice. Not that it is easy to attract that psychological response which is ready to profit by rebuke. Nor, indeed, if a direct effort is made, will that effort be likely to succeed. It is the paradox of discipleship that it is attracted without knowing why. Nevertheless, here lies the humbling test for all of us. Our methods of discipline and of direction must be building up something of discipleship or we have failed in leadership.

PUBLIC FINANCE

(*Continued from page 86*)

III

CANONS AND CLASSIFICATION

ATTENTION may now be devoted to the canons and classification of public expenditure. The canons are usually described as those of benefit, economy, sanction, and surplus. In the case of benefit, the ideal in view is that of greatest social advantage. Subject to certain conditions such expenditure should assist in reducing the inequality of incomes. Most writers regard the rule as well established that no public expenditure should be allowed which is merely for the benefit of a particular person or section of the community. But that rule is subject to certain modifications, especially where the amount of outlay involved is small, where probably a claim for the amount could be enforced in a court of law, and where the expenditure is in keeping with a recognized policy or custom. The canon of economy urges that the interests of the taxpayer should be protected, not merely in the pursuit of economy in expenditure, but also in the development of revenue, as in public works, where the controlling authorities are expected to see that the expenditure incurred is necessary and the rates equitable in character. The canon of sanction insists that no public expenditure should be made without proper authority. Review on that point is particularly the duty of the Public Accounts Committees of the various Parliaments. The problem is, however, somewhat wider, for it includes rules which provide that no expenditure should be sanctioned by an authority which at a later date is likely to involve outlay beyond its own powers of sanction, and that loans should be spent only on those objects for which the money might be so borrowed; the last point involves arrangement for sinking fund or other device for the liquidation or repayment of the debt. And the canon of surplus means the avoidance of deficits in public expenditure. With equal force this principle applies to central or federal governments, to provincial or State governments, to local authorities and other public boards. Some writers have urged that financial arrangements on the basis of moderate deficit should be encouraged, on the ground that they lead to economy. But the great body of sound opinion emphasizes rather the duty of public authorities to earn their living, pay their way like ordinary citizens, and balance their budgets. For these reasons deficits and surpluses are to be avoided; every effort must be made to achieve accuracy in balancing revenue and expenditure. In popular language, it is bad to budget for either a surplus or a deficit; in public finance such small surpluses as are normally shown are generally regarded as cover for unforeseen items of expenditure within the financial year.

CLASSIFICATION

Classification of expenditure is a separate issue. Professor Bastable thought that the classification most familiar to English writers was that of John Stuart Mill, who distinguished between the necessary and the optional functions of government. But he pointed out that that was impaired by Mill's subsequent admission that probably no employment of State agency could ever be purely optional, and to that admission further concessions were made in his analysis of *laissez faire*. Roscher's arrangement is usually described as more in keeping with the case of private outlay. He classified expenditure as necessary, useful, and superfluous or ornamental. In this matter much depends on the line taken by the inquiry. Many try to determine the proper sphere of the State's action; they would then fix the outlay which is justifiable within that sphere. Others look generally to the development of public tasks, they analyse their direction in the past, and on that basis they seek to estimate their present position and their probable future. These methods may best be regarded as complementary to and corrective of one another; both should be employed. The duties of States or sovereigns in different parts of the world vary very greatly. It is clearly difficult to compare those of a sovereign in comparatively primitive Central Africa with those of the ruling authority in a highly industrialized European State. But in both there are abiding general principles to which public finance must conform. The types of public expenditure have grown steadily in the course of human progress. They are often described as the outcome of social conditions and sentiments; in turn they are regarded as influencing society. Professor Bastable urged that it was not in the character of public needs but in the modes of supplying them that the most remarkable changes had occurred. It is generally argued that there is universal recognition of the superior claims of defence and of justice as being the primary duties of the State; dispute is held to begin when outlay relates to economic and social administration. Even there, however, much of the argument hardly concerns pure finance; it belongs perhaps to the wide field of economic policy. Practically all modern societies show growing budgets. The tendency is certainly to enlarge the sphere of public effort. The problem is whether the development of this policy will lead to financial embarrassment in administration or in the general burden for the community. Attention is constantly directed to

the fact that all economic life depends on the due supply of two distinct classes of objects—commodities and services, or, in other words, material objects and human labour; and the public power is just like the ordinary individual—it cannot dispense with either of those forms of supply.

THE ELEMENT OF COMMON BENEFIT

In his review of classification of expenditure, Mr. Findlay Shirras remarked that the nineteenth century writers usually classified outlay from the point of view of benefit conferred or from the revenue received in return for services rendered; others classified expenditure in accordance with Government functions, whether they were protective, commercial, or developmental. The classification of Professor Plehn was briefly (*a*) expenditure which conferred a common benefit on all, such as defence; (*b*) expenditure which conferred special benefit on certain people but which should be regarded as common benefit because of the incapacity of those classes, such as poor relief; (*c*) expenditure which conferred a special benefit on certain persons and at the same time a common benefit on the remainder, such as the administration of justice; and (*d*) expenditure which conferred only a special benefit on individuals, such as outlay on State industries. But it is very difficult to draw a hard and fast line. Even in the first class it is by no means easy to eliminate the element of special advantage. Professor Nicholson remarked that as their essential justification all these forms of public expenditure must be held to confer a common benefit or to satisfy a public want, although probably all of them, incidentally, conferred special benefits on individuals or classes or localities. Take the case of Poor Law relief. It is ostensibly intended for the benefit of particular individuals in distress. But public policy will probably plead that it confers common benefits in the prevention of crime; and it also tends to satisfy the sense of justice or charity. Professor Plehn might regard the common benefit as so great as to place this expenditure in the first class. In the case of the fourth class, that of special benefit only for individuals, it is usually agreed that progress in public finance is marked by the abolition of this element. At different times in many countries it has formed the greatest part of public expenditure; now it is generally least in importance.

PRIMARY AND SECONDARY FUNCTIONS

Many authorities have adopted a classification which rests on the amount of revenue obtained by the State in return for services rendered; it is regarded as superior to the classification offered by Professor Plehn. In substance it looks first of all to expenditure which is without direct return of revenue, for example Poor Law relief; secondly, expenditure which is without direct return but with indirect benefit to public revenue, as in the case of education; thirdly, expenditure which has partial direct return, as with education for which fees are charged; and, fourthly, expenditure in respect of which there is full return or even profit, as in publicly owned commercial undertakings, such as the post office, electricity, gas, tramways and similar concerns. This classification, like others, is criticized on the ground that it fails to distinguish the main differences in the various forms of public expenditure; but, as has already been observed, it is virtually impossible to get clear-cut arrangement. Certain schools in political science would classify expenditure according to the functions of government. These functions are generally described as protective, such as military, police and court, social diseases, prisons, pauperism and others; commercial, as in the cases cited above; and developmental, which would include education, public recreation, the pursuit of private business, public investigation such as the collection of statistics, and the development of the physical basis of the State, as in public works, docks, harbours and similar enterprise. In all these cases it is again difficult to draw the line; for example, what is the strict demarcation of protective and developmental functions? In the last resort most of the present-day authorities have decided in favour of a classification which emphasizes the primary and the secondary functions in public expenditure. The primary include all the duties which governments are obliged to undertake in the provision of defence, the maintenance of law and order, and the payment of debts. The secondary refer to social expenditure, the outlay on public undertakings and the provision for certain miscellaneous services. That classification in turn is open to criticism, but the further analysis of the primary and the secondary functions, to which reference will now be made, will tend to establish its claims in competition with those of other arrangement. Effective classification is of much more than academic interest. In the analysis of public expenditure it may have large public importance, especially in many of the distinctions between outlay involving definite burden and outlay which is reproductive or remunerative in character. And its importance is increased when the aggregate burden is swollen, as it is now, by heavy obligations arising from war conditions.

THE ECONOMIC FUNCTIONS OF THE STATE

(*Continued from page* 88)

III

ECONOMICS AND POLITICS (1)

WHAT IS "ECONOMIC" ACTIVITY?

We are now able to concentrate our attention on one category of State action, namely, the action of the State in the economic life of the community. By economic we mean that which is related to the production or distribution of wealth—trade, industry, agriculture—and to the doings of the citizen in his economic capacity, i.e. as a producer or consumer of wealth. Before going any farther, it may be as well to note that we propose confining ourselves to the direct and deliberate economic action of the State. It is obvious that many of the ordinary activities of the State have an economic aspect, or may have economic consequences, or may be otherwise closely connected with economic policy. The punishment of "crime," to take one instance, may seem to bear little relation to economic questions, but that would be a short-sighted view. Why is it that offences against persons—short of murder—are apt to be dealt with far more leniently than offences against property? Wife beating and cruelty to children will be punished by a few months' imprisonment, theft or arson by long periods of hard labour. This is doubtless partly due to a lesser necessity for deterence in the one more than in the other; few of us are really inclined to be cruel, but many of us might be tempted to steal if it involved no risks. But we must also recognize in that difference of treatment a survival of less civilized centuries, when life was cheap and property so sacred that the theft of any article worth five shillings or more was punishable by hanging, and when coiners were liable to be boiled alive. Again, an apparently non-economic problem, such as prison reform, is in reality complicated by economic considerations; one of the great difficulties, as most people know, is that of suitable occupations for the prisoners—to perform useless tasks is deadening and degrading; but to produce economically useful articles involves competition with normal manufactures.

The most apparently beneficial of reforms may have, in fact, serious economic consequences. Disarmament, for example, raises serious economic problems: you cannot close an arsenal without throwing thousands out of work, with no kind of certainty that the money saved on munitions will soon create a demand for work of a more constructive character, and we all remember how the Labour cabinet were torn between their reluctance to build more ships and their desire to provide work for the Government dockyards. In fact, if we consider with care the consequences and implications of the varied activities of the modern State, we shall see at once that very few, if any, of them may be said to be free from all connections with economic questions—just as few individual actions have no reaction on our economic circumstances.

ARE ALL ACTIVITIES REALLY ECONOMIC?

We shall be, at this point, abruptly interrupted by the enthusiastic Marxist: "Stop," he says, "you are here making an impossible distinction. All your attempts at separating economics from politics, religion, or any other department of life are perfectly futile. All human activity is at bottom economic, the struggle for physical existence conditions all else; economics, and economics only, explain historical development or present-day political action. Why then erect your elaborate division of categories? All the functions of government are economic, directly or indirectly; at present, government exists only to secure power in the hands of the actual property-owning classes. Further, economic determinism holds you in its grasp; it is vain to try and 'control' the economic life of a nation; it is that economic life which controls you."

If the Marxist be right, our whole method of approach is mistaken; this may as well be admitted at the start. It is evident that this is not the place for a discussion of Marxist economics or history; we can only proceed on the assumption that a valid distinction can and must be drawn between the economic and the other functions of the State, between the economic life of the individual and the other forms taken by his various activities. But the Marxist interruption will have had one useful result—it will have served as a warning not to underestimate the importance of economic factors even in phenomena which may at first appear to have little connection with economic life.

We come back, therefore, to our starting point, that we are going to limit ourselves to the deliberate action of the State in what is normally taken to be the economic sphere of life, as opposed to the political, moral and religious, and remembering always that this economic function will have to be perpetually related to the deeper problem of the nature and proper end of the State, and to the fundamental principles involved therein. In other words, behind what appear to be economic questions constantly lie political, moral and religious issues. We shall perpetually be faced with the question: "Granted that this line of action is the most economically profitable, must another policy be adopted because of political or moral

necessity?" Free imports may mean a lower cost of living and more general prosperity—but this may be purchased at too high a cost of dependence on foreign supplies; the currency deflation of the last few years was certainly dictated as much by considerations of politics and prestige as by purely economic advantage. No economic policy is determined by economic considerations alone.

INTERNAL AND EXTERNAL STATE ACTIVITIES

Having thus defined our task, we may now proceed to divide it as logically as possible. We can see at the very outset one main line of division.

The economic function of the State, as indeed all its functions, can be looked at from two aspects —what concerns the State itself within its borders and what concerns it in its relations to other States. We shall, therefore, first study internal economic functions, and then the question of international economic relations, remembering always that here, as elsewhere, hard and fast distinctions are impossible to draw.

From the standpoint which occupies us, the State can be regarded as a kind of framework within which take place the various economic activities of the community. The form of this framework will vary according to the essential nature of the State, and this is, perhaps, the place to remind ourselves that, as often as not, economic circumstances rather than political are the real factors in that nature. Before going any farther, it is essential to realize the part that economic factors may play in determining the real form and structure—and often whole policy—of the State.

THE ECONOMIC FOUNDATIONS OF SOCIETY

It is important that a student of politics or economics should learn to look beyond the surface and to realize the real foundations on which societies rest. We are apt to classify States as "Republics" or "Monarchies," but these terms have lost any real meaning. An infinitely more important difference is that between centralized and decentralized States—i.e. States in which the organs of local government are fairly free, as in England, and those where they are rigidly controlled by the central government, as in France. It is equally important to differentiate between highly industrialized countries, such as England, in which the agricultural interest plays virtually no part, or a country like Bulgaria, in which 80 per cent of the people are peasants, or like France, in which the agricultural and industrial interests are about equal and are waging a desperate battle for the controlling of the economic policy of the country. As we shall see at a later stage, foreign policy is nowadays largely controlled by economic considerations and economic circumstances will, therefore, play a great part in determining a people's outlook. A self-contained country can ignore international trade, and can, therefore, risk a war far better than a country dependent on a peaceful world. On the other hand, the peasant is less excitable, less easily moved than the town-dweller, and, while prepared to defend his bit of land, has no sympathy with schemes of expansion. There is the further question, that different importance will be laid in various countries on economic issues. Some people will think certain political gains, e.g. more territory, security against invasion, etc., worth heavy economic loss, while others are by their position unable to take any such risk. France and England are obvious instances in point, the one being prepared to endure heavy economic disadvantages to get her "natural boundaries," while the other cannot dare to jeopardize her trade.

We must, therefore, make a brief survey of the way in which the economic background of the State has directly reacted on its political organization, leaving aside, as much too large to be treated here, the general influence of economic circumstances over general policy. Now, if we begin this inquiry, we shall find a curious contrast between State action in the economic sphere and the importance of economic factors. While conscious State interference in economic matters was very slight in primitive societies and tended to get stronger as political and economic development became more complex, on the other hand, the part played by economic circumstances in the shaping of the form of the State gets steadily lesser and lesser; the political and economic aspects of State organization become increasingly separate; and it would seem that the increase in State action is partly due to this dissociation: the State having to regain by law and direct intervention some of the control over the economic life of the society which it formerly exercised more indirectly, when the very structure of society seemed to reflect economic conditions in a way that indissolubly linked up politics and economics, and formed a guarantee against any economic development or policy liable to run counter to the general welfare.

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

(*Continued from page 90*)

III

INTERNATIONAL ECONOMIC CONTROL TO 1919 (2)

By D. H. Blelloch

PRE-WAR INTERNATIONAL ECONOMIC CONTROL (*continued*)

In the preceding section an account was given of the manner in which certain obstacles in the way of international economic intercourse were removed, and of the consequent development of economic activity on international lines. It was also shown that in the face of material progress the policy of *laissez-faire* was abandoned, and that internationally, as well as nationally, more positive official action was taken in the first place for humanitarian purposes.

The movement away from *laissez-faire* became still more noteworthy when in the early years of the twentieth century the Governments embarked on cautious attempts at international action for the encouragement and assistance of particular industries. In 1905, as a result of the initiative of an American citizen, Mr. David Lubin, the International Institute of Agriculture was founded at a conference held at Rome and attended by the representatives of 38 Governments. The activities of the Institute will be described more fully in a later section. It is sufficient to note that its objects were to collect, study, and distribute statistical, technical and economic information about agriculture, prices, wages, diseases, co-operation, insurance, and credit, and that it was given power " to submit to the approval of the Governments, if there is occasion for it, measures for the protection of the economic interests of farmers and for improvement of their conditions."

Again, in 1902, a Convention was concluded with a view to ending the situation which had been created in the international sugar trade by the granting of Government bounties. It was agreed that sugar bounties should be abolished and import duties limited. A permanent Commission was set up, the main duties of which were to decide whether or no bounties were in effect being granted in the contracting States, and, if so, to fix the rate of countervailing duty to be levied on the importation of bounty-fed sugar into other countries. The signatory States were bound by the Convention to levy the duties required by a majority decision of the Commission. " The Sugar Commission is the only international organ which has a right, through its determinations and decisions, to cause a direct modification of the laws existing in the individual treaty States within the dispositions of the Convention. Though not given direct legislative power, it makes determinations of fact upon which changes in the laws of the individual States become obligatory under the treaty."[1]

Four main stages may thus be traced in the development of international economic control before the war. In the first place, Governments agreed reciprocally to guarantee security; secondly, they collaborated in improving communications and establishing other facilities—e.g. common standards; thirdly, they set up joint bureaux for the collection and distribution of information, the necessary basis for all constructive action; and, finally, in the Permanent Sugar Commission, they created an authority with supernational powers.

To achieve this progress, the collaboration of Governments, private bodies, and individuals was essential. It is not the least of the merits of the more conspicuous organizations which now, within the framework of the League of Nations, are endeavouring to build up the international economic structure, that their constitution and practice provide for the fullest possible continuance of such collaboration, without which no form of control, national or international, is likely in modern times to be effective.

INTER-ALLIED ECONOMIC CONTROL, 1914-1919

The war of 1914-18, being ultimately almost world-wide in scope, and being, moreover, waged not merely by armed forces but by whole populations, created economic problems in face of which ordinary peace-time organization was quite inadequate. From the international or inter-allied point of view, the main problems may be grouped as follows -

1. *Finance.* Those allies whose financial position was strongest had an obvious interest in not allowing the efforts of poorer States to be hampered by lack of purchasing power.

2. *Transportation.* From the opening of the intensified submarine campaign, there was a definite and increasingly serious shortage of shipping. Of the sea-going vessels belonging to allied countries at the outbreak of the war, some four-fifths flew the British flag. Co-ordination was, therefore, necessary in order to ensure the most adequate supply possible of tonnage (i.e.

[1] Reinsch, *Public International Unions*, p. 51. The efforts of the cotton spinning industry, hard hit by the crisis which occurred at the beginning of the twentieth century, to secure international Government action failed, but a private international federation was founded at Zurich in 1904 which, in spite of its non-governmental character, has succeeded in effecting a form of international regulation of the industry.

mainly British tonnage) for the needs of each ally.

3. *Supplies.* The war created such special needs for certain commodities—e.g. oils for glycerine—that a real shortage arose, to cope with which, as with the shipping shortage, joint action was necessary. It enormously stimulated demand for other commodities, e.g. cereals, so that a common purchasing policy was required, both in order to prevent competition from inflating prices and, where it was a case of one ally buying supplies in the country of another, to ensure reasonable priority for home needs. Further, as a large proportion of the allies' supplies had to be imported by sea, the whole problem of supply was complicated, and finally dominated, by the tonnage situation.

Inter-allied co-operation in regard to finance did not involve any pooling of financial resources. It took the form rather of the granting of credits on a large scale, at first by Great Britain to the remaining allies, and later by the U.S.A. Purchasing by means of such credits was arranged through the *Commission Internationale de Ravitaillement* and the Inter-Ally Council for War Purchase and Finance (see below).

The first attempts at inter-allied economic organization were concerned with supplies. As early as 18th August, 1914, the *Commission Internationale de Ravitaillement* was set up in London by the French and British Governments, for the purpose of regulating competition in purchasing between the two Governments in British territory, so as to prevent confusion and to keep prices down. Representatives of other allies subsequently joined the Commission. Its administrative and secretarial work was done by British Board of Trade officials, and before orders could be placed by the allies the consent of the War Office and Admiralty had to be obtained. The purchases, moreover, were made principally with British credits. Similarly, after the U.S.A. had joined the allies, an Inter-Ally Council for War Purchase and Finance was formed for the purpose of arranging the allocation of American credits for allied purchases in America.

As the war proceeded, it was found essential to co-ordinate the purchasing policy of the bodies which controlled some of the most essential imported commodities in the different allied countries. The first inter-allied body set up to deal with a particular commodity was the Wheat Executive, established in November, 1916, by the Governments of France, Italy, and Great Britain, for the purpose of co-ordinating, from London, the purchasing, importation, distribution, and shipping of all cereals. The establishment of this body enabled considerable economies to be effected. In particular (*a*) combined purchase prevented the raising of prices, and (*b*) combined distribution enabled economies in transport to be effected, each country being supplied from the most convenient source. "The advantages of co-operation were . . . so great that by the end of the war the Wheat Executive was arranging the supplies not only of the allies but of a large proportion of neutral countries."[1]

The Wheat Executive was so successful that it served as a model for the bodies formed subsequently to deal with other commodities. It was still some time, however, before the shipping situation necessitated the formation of a general scheme of co-ordination of all supplies. The factors of shortage and consequent high prices were not in themselves sufficient to compel the Governments to co-operate in respect of more than a very few articles of prime necessity, such as meat, fats, and oils. An Oilseeds Executive and a Meat and Fats Executive, modelled on the Wheat Executive, were set up in the autumn of 1917; an Inter-Allied Petroleum Council was formed in the same year; but at the end of 1917 "the Wheat Executive was the only one of these Committees which was in full and effective working."[2]

Similarly, in the case of munitions, an effective stimulus to inter-allied co-operation was lacking until the entry of America into the war and the submarine warfare raised problems of special difficulty. At a conference held in November, 1915, between the French and British Munitions Ministers, and also attended by Italian and Russian delegates, the formation of an inter-allied bureau for studying and co-ordinating respective requirements was agreed upon, but the plan was never carried into effect, as none of the allies was yet in a position to give an accurate account of its needs. In the middle of 1916 a bureau for co-ordinating orders in America was formed, but it never became effective. In November, 1916, it was decided to form an inter-allied organization in Paris for the purpose of obtaining and distributing information on munitions requirements, and this organization remained in existence until the formation of the Inter-Allied Munitions Council (see below). The information which it obtained was adequate only for Great Britain and France.

[1] Salter, *Allied Shipping Control*, pp. 91–92.
[2] Salter, *op. cit.*, p. 93.

(To be concluded)

STATISTICS

(*Continued from page 92*)

III

THE MEANING OF STATISTICS

So far we have referred to statistics in the quite general sense of quantitative measurement. We must now try to define our terms more precisely and to delimit our sphere of inquiry.

The word " statistics " has an uncertain etymology. Historically, it was first used in comparatively recent times to apply to collections of numerical data about the population and the financial and military strength of States. The thing existed before the name, and numberings of the people and numerical estimates of their wealth in terms of sheep and cattle or other property were familiar to the Jews. But the earliest important instance of their use as the basis of economic or social policy in this country dates from the seventeenth century, when the Mercantilists made the first careful study of the commercial strength of the nation. From then onwards statistics have been employed and studied mainly in relation to " sociological " facts and problems ; but they have come to be so widely used that the word itself has slipped into ordinary speech, where it has come to denote simply any collection of figures or numerical data. The term, however, should not be used in this loose sense, for a mere collection of figures is not statistics any more than a heap of stones is a building. At the least, the figures must have been collected for some purpose, to throw light on some sphere of inquiry, and they must be placed in some defined relation to one another. In this more definite sense the use of the word may be permitted.

STATISTICAL METHODS

The term statistics, however, may be used in a higher sense, to include not only the collections of figures but our dealings with them. The figures, for instance, have to be collected. Further, the collection, when completed, may contain very numerous items which, because of their number and variety, it is difficult to comprehend, so that for their proper understanding they must be summarized and classified on some intelligible principle. Again, as a mere collection of individual instances, they may be incapable of revealing their relations or conveying any information to the observer, and for that reason they have to be tabulated and compared. The devices by which statistical material may thus be clarified and forced to yield its implications are known as statistical methods. In the widest use of the term, then, statistics include not only numerical facts, but the work of collecting them and the methods of interpreting them.

NUMBER

Number, nevertheless, is their raw material. At whatever stage in his mental evolution man first grasped the idea of number, he took a definite step forward. It involved the realization that, however much one day may differ from another day, each is *one* day. Further progress was made when it was seen that *one* day and *one* day make two days—that is, that their numerical aspect can be attended to and the two units combined into a single result. From then, through multiplication and division and other more advanced mathematical methods, man's power of dealing with the numerical aspect of things progressed, but not without bringing its attendant disadvantages. For number is abstract ; in numbering and manipulating numbers we ignore the other qualities of things. One sheep and one sheep are two sheep, but they may differ in size and colour and quality of wool. Two sheep and three cows are five, but neither five cows nor five sheep, but five animals. To get the mathematical result we have to ignore the special qualities of sheep and cows and attend to what is common to them. The process is one of abstraction. Statistics, then, which are based on number, are abstract from their very origin ; and this must be carefully borne in mind if we are not to be misled and to draw quite unwarrantable conclusions from our numerical data.

SOCIAL STATISTICS

Social statistics deal with the numerical aspects of the social life of groups of people. They thus include the facts of population, its absolute size at any time ; its growth within a period of time ; its classification as to age, occupation, nationality, place of birth, sex, religion, etc. ; the wealth of the population as a whole, and the distribution of the wealth among individuals ; the different types of income of the people, such as wages, rent and profits ; the trade of the people, its absolute amount, its increase or decrease and its varieties ; the prices of goods and the volume of production of different kinds of goods. As to most of such facts, statistical observations may take two forms. They may aim at giving a static view of the conditions at any point of time, which was, for instance, the object of the Census of Production taken in the year 1907 ; or they may be continuous observations and aim at giving a dynamic view. Such are the statistics of births and deaths collected by the public registrars. The particular aim will affect both the work of collecting the facts and the methods of classifying and interpreting them.

These three parts of the subject may now be

subjected to a general survey : their detailed treatment will occupy the majority of the articles to follow. In the first place, then, statistical work includes the observation and recording of the numerical aspects of social phenomena. That may sound easy or difficult. In fact, it may be very difficult, and the difficulties are not only the practical ones, of which it may be possible to say something hereafter, but they may lie in the very essence of the material with which we work. For one thing, not all social and economic phenomena lend themselves to statistical treatment ; they may not be measurable at all ; or, if they are measurable, the results yielded may be incommensurate with the effort involved. It is only by the method of trial and error that one may discover what material is conformable to the statistical method. That involves loss of time, but to drop the instrument when it proves unsuitable is an excellent test of will-power ; and the experience is not altogether without value, for a mistake, once discovered, is not likely to be repeated. Difficulties again occur in the necessary work of classifying the phenomena observed. All statistical observation involves the grouping together of large numbers of cases on account of similarity in some important characteristic. Such classification is sometimes simple ; workers, for instance, can easily be classified according to height or weight, or place of residence, or according to whether they are trade union members or not. Classification according to wages or occupation is difficult, and, according to political views, is unreliable. These difficulties are due sometimes to the vagueness or indefiniteness of the characteristic looked for, sometimes to the ignorance of the facts on the part of the person testifying, and sometimes to the deliberate attempt of the witness to mislead the investigator. It is often possible, by careful planning of the questionnaire and by making it as simple as possible, to overcome some of these difficulties, and to check the answer to one question by the answer to another. Even where there is a deliberate attempt to mislead (as is alleged in the case of ladies' statements concerning their age), it may be known that the misstatement is consistently in the same direction and the error be estimated and allowed for. But caution and alertness are always required.

TABULATION

The necessary figures having been collected, the next stage is their treatment in such a way as to make them yield the information they contain. The first obvious device is to arrange the inchoate mass of figures on some intelligible principle. We have secured, let us say, either by our own investigation or from facts recorded for us, the wages of some hundreds of workers in a given occupation. To make them comprehensible we may simply write them down in order of magnitude. That gets some order into our facts. To tabulate them, grouping together all those instances within certain wage limits, carries us a stage further and shows their *frequency distribution*. We thus find that of the total number of workers observed, so many earned wages lying within the 50/- group (i.e. 50/- and less than 60/-), so many in the 60/- group, so many in the 70/- group, and so on. Such a table would be informative in itself ; it would reveal the spread or distribution of the workers in the several wage-groups ; it would show what group contained the greatest number of workers, and it would be easy to work out what percentage that group constituted of the whole of the workers observed. For some purposes, however, we might have to go back to our disorderly facts and deal with them in some other way. We might find from them the mean or average wage, which, as it were, reveals the essence of the multitudinous facts collected. The average, of course, is widely used in statistics, and is, perhaps, the most familiar of all statistical methods. Yet it cannot be used without caution ; for averages based on too few facts are unreliable, and averages of unrelated classes, such as the average wage of men, women and children, or of bricklayers, brewers, and barristers, reveal nothing intelligible. We might, finally, while still attending to one statistical group, deal with it in other less familiar ways, with the object of revealing its essential characteristics or peculiarities. For example, the measurement of the degree to which the instances in the group, with respect to some variable, are crowded together or widely scattered becomes in some cases important. But this is a matter for detailed discussion at a later stage.

COMPARISON

Thirdly, we come to the highest and most difficult section of statistics, namely, the comparison of the statistical aspect of two or more groups of economic phenomena as determined by one of the preceding methods, with the object of discovering whether there is some causal relation between them. That, as already indicated in another connection, is by no means simple, and its consideration must be postponed.

In all stages, but particularly in the second, it will be found that the facts with which we are dealing are rendered more intelligible by the use of graphical methods, which appeal to the eye and bring home to us the essence of a set of facts more readily than mere lists of figures or the best devised tables can do. To the illustration of these graphical methods we proceed in the next article.

STATISTICAL APPENDIX

(*Continued from page 96*)

HOUSING CONDITIONS

THE SUPPLY OF DWELLINGS

THE statistics in this section are intended to show something of the present housing conditions of the people of Great Britain and to make some comparisons with former years. In view of the exceptional interest and importance of the question of the supply of housing accommodation at the present time, we begin with a statement of the number of dwellings in relation to the population. It is impossible either to combine the figures for England and Wales with those of Scotland, or to make a direct comparison between the two parts of Great Britain, since, for the purposes of the Census, the terms used and the method of enumeration are not quite the same in the two countries. In England and Wales, for the Census of 1921, the term "structurally separate dwelling" was introduced as the housing unit; and it is defined as "any room or set of rooms having separate access either to the street or to a common landing or staircase"; but where a private house or other building has been subdivided into portions, each with a door opening on to a street, etc., or to a common landing or staircase, each such portion is enumerated as a "structurally separate dwelling."

In the case of Scotland the term used is "house," which is defined as a "dwelling (*a*) with a distinct outside entrance from a street, lane, road, etc.; or (*b*) with a door opening directly on to a common stair or passage; and such a dwelling must, therefore, be counted as one house, even although it is subdivided and occupied by more than one family or separate occupier." So defined, the number of dwellings and their relation to the population are shown in the following tables (XVI and XVII).

For Scotland comparative figures can be shown back to 1881, the definition of "house" for Census purposes having been practically unchanged since that date; in the case of England and Wales, it is possible to make comparisons only between 1911 and 1921.

From these tables the fact emerges that, in spite of the prevailing urgency of the housing problem, there are actually, both in England and Wales, and in Scotland, more dwellings occupied per 100 of the population than at the previous Census (in the case of Scotland, than of any previous Census back to 1881).

TABLE XVI

HOUSING: ENGLAND AND WALES, 1911, 1921

Census	Population	Structurally separate dwellings occupied		Structurally separate dwellings unoccupied	
		Number	Per 100 population	Number	Per 100 occupied houses
1911	36,070,492	7,319,120	20·3	434,048	5·9
1921	37,886,000	7,811,030	20·6	218,833	2·8

TABLE XVII

HOUSING: SCOTLAND, 1881 1921

Census	Population	Occupied houses		Unoccupied houses		Houses building	
		Number	Per 100 population	Number	Per 100 occupied houses	Number	Per 100 occupied houses
1881	3,735,573	739,005	19·8	59,607	8·08	4,990	0·68
1891	4,025,647	817,568	20·3	51,160	6·29	5,618	0·69
1901	4,472,103	920,914	20·7	59,420	6·41	9,062	0·98
1911	4,760,904	1,013,360	21·3	89,060	8·79	4,718	0·47
1921	4,882,497	1,057,600	21·7	51,835	4·90	10,628	1·00

EXPLANATIONS

There are several explanations of this seeming paradox. Part of the explanation is seen in the column showing the number of unoccupied houses per 100 occupied houses. Both in England and Wales, and in Scotland, this shows a considerable drop since last Census; there is not the same margin of unoccupied houses as formerly. Part of the explanation lies in the fact that houses no longer fit for human habitation, which in normal times would have been destroyed and replaced, have continued in occupation. For this latter fact there is no statistical proof for the country as a whole; but evidence is to be found in reports of medical officers of health in various parts of the country. A further explanation is that the average size of the family has decreased, and that, consequently, in proportion to the number of individuals in the population, there are more separate families to be provided with housing accommodation. In England and Wales the trend of the change is seen in the fact that while the proportion per cent of families with one, two, three, or four members has increased since 1911, the proportion of families with five members or more has decreased; and that between the two dates the average number of persons per private family has fallen from 4·36 to 4·14. The facts are given in Table XVIII.

TABLE XVIII

DISTRIBUTION OF PRIVATE FAMILIES ACCORDING TO THE NUMBER OF PERSONS IN FAMILY
(England and Wales)

Number of persons in family	Private families			
	Number in 1921	Increase or decrease (-) 1911–21	Distribution per cent	
			1921	1911
1	526,856	103,674	6·0	5·3
2	1,546,948	263,366	17·7	16·2
3	1,823,619	292,207	20·8	19·3
4	1,625,292	185,773	18·6	18·1
5	1,213,464	67,845	13·9	14·4
6	818,448	- 4,580	9·4	10·4
7	520,074	- 31,143	6·0	6·9
8	314,771	- 30,073	3·6	4·3
9	179,344	- 21,398	2·1	2·5
10 and over	170,381	- 29,611	1·9	2·6
Total .	8,739,197	796,060	100·0	100·0
Average number of persons per private family . . .			4·14	4·36

DENSITY OF OCCUPATION

Common observation would suggest, as a further explanation, the fact that houses are now shared by separate families to a larger extent than formerly. This would lead one to expect that the people would now be more densely housed than at the date of the last Census, but the facts admit of no such simple statement. To begin with, if we take a general average of rooms per person for the country as a whole, we find that both in England and Wales and in Scotland, there is actually a slight improvement in accommodation as compared with 1911. In England and Wales the average number of occupied rooms per person has increased from 1·05 in 1911 to 1·06 in 1921; and in Scotland from 0·69 in 1911 to 0·70 in 1921. The details for England and Wales are given in the following table (XIX) --

TABLE XIX

ROOMS PER PERSON
(England and Wales)

Number of persons in family	Average number of rooms per person		
	In all units of occupation 1921	In 1–9 rooms only	
		1921	1911
1	2·92	2·86	2·78
2	4·02	1·96	2·23
3	4·40	1·43	1·49
4	4·70	1·13	1·17
5	4·89	0·93	0·96
6	5·01	0·79	0·81
7	5·12	0·68	0·70
8	5·23	0·60	0·62
9	5·40	0·54	0·57
10 and over	6·24	0·48	0·50
	1·10	1·06	1·05

This figure, however, is not very illuminating; first, because the family, not the individual, is the unit which has to be housed; and, second, because the general average shows nothing of the distribution of different sizes of families in different types of houses. A better indication is obtained if we apply the ratio of persons to rooms, which used to be accepted as the test of overcrowding in England. In England and Wales, as appears in Table XX, the proportion per cent of the population in private families living more than two to a room has increased from 9·1 per cent in 1911 to 9·6 per cent in 1921; the proportion per cent living more than three to a room from 1·5 in 1911 to 1·8 in 1921, and that living more than four to a room from 0·7 per cent to 0·9 per cent. That is, in England and Wales, no matter which of these standards we take as the test of "overcrowding," we find that "overcrowding" has increased since the last Census. In Scotland, on the other hand, at the two per room standard, overcrowding has diminished, having been 45·1 per cent of the population in 1911 and being only 43·3 per cent in 1921. At the three per room standard again there has

been a fall from 21·9 to 21·1 per cent. But at the four per room standard, the figure has increased from 8·6 to 8·9 per cent.

CHANGES WITHIN SCALE OF DENSITY

Taking the case of England and Wales, the seeming contradiction between the improvement in average density of housing and the increase in overcrowding is explained by the following table, which indicates that a redistribution has taken place within the scale of density.

Further, if we take the family as the unit of occupancy, we find that there has been a decline in the standard. For the 1921 Census a comparison on this basis was worked out between 1911 and 1921. The method adopted was to " multiply the numbers of families of each size by the average numbers of rooms per person occupied by families of such size in England and Wales as a whole in 1911 " ; and to compare the corresponding figure for 1921 with this standard. The result shows that, compared with 1911, there is a deficiency of rooms in 1921 to the extent of 3 per cent.

SMALLER FAMILIES

Table XXI, shown on page 144, gives a closer analysis of the facts. This table shows that, except in the case of single person families, there has been a deterioration in housing accommodation. This fact is not inconsistent with the improvement, already mentioned, in the general average density from 1·05 to 1·06 rooms per person. That improvement is due to the fact that the increase in population since 1911 has been accompanied by a greater relative increase in the number of rooms occupied.

TABLE XX

POPULATION AND PROPORTION PER CENT OF POPULATION LIVING UNDER VARIOUS CONDITIONS OF ROOM ACCOMMODATION. 1921 AND 1911. ENGLAND AND WALES

Average number of occupants per room	1921 Population in private families		1911 Population in private families	
	Number	Proportion per cent	Number	Proportion per cent
½ or less	3,654,375	10·1	3,349,229	9·7
Over ½ but less than 1	8,094,314	22·4	7,629,070	22·0
1	5,817,374	16·1	5,183,449	15·0
Over 1 but not over 1½	8,295,021	22·9	8,026,230	23·2
,, 1½ ,, ,, ,, 2	5,615,693	15·5	5,501,453	15·9
,, 2 ,, ,, ,, 2½	1,734,633	4·8	1,668,580	4·8
,, 2½ ,, ,, ,, 3	1,102,521	3·0	955,167	2·8
,, 3 ,, less than 4	316,476	0·9	262,374	0·8
4 and over	320,659	0·9	253,351	0·7
Population in tenements of over 9 rooms	1,228,880	3·4	1,777,270	5·1
Total	36,179,946	100·0	34,006,173	100·0

SCOTLAND

Census	Total population	Persons living more than TWO in a room		Persons living more than THREE in a room		Persons living more than FOUR in a room	
		Number	Per cent of total population	Number	Per cent of total population	Number	Per cent of total population
1861	3,062,294	1,732,434	56·6	1,035,901	33·8	571,881	18·7
1871	3,360,018	1,810,910	53·9	1,056,372	31·4	554,438	16·5
1881	3,735,573	1,895,970	50·8	1,034,171	27·7	493,480	13·2
1891	4,025,647	1,938,995	48·2	1,019,338	25·3	455,226	11·3
1901	4,472,103	2,042,945	45·7	1,024,707	22·9	427,563	9·6
1911	4,601,070	2,077,277	45·1	1,005,991	21·9	397,262	8·6
1921	4,699,266	2,037,413	43·3	992,480	21·1	420,117	8·9

But, at the same time, the number of families has increased, and the average number of rooms per family has been reduced from 4·52 in 1911 to 4·35 in 1921. As families are now smaller, a larger proportion of the population now has the advantage of the housing conditions enjoyed by small families; but each type of family is less advantageously housed than the corresponding type was in 1911.

TABLE XXI

ROOMS PER FAMILY AND ROOMS PER PERSON, 1911 AND 1921. ENGLAND AND WALES

Persons in family	Rooms per family (private families only)		
	All families 1921	Excluding families living in 10 or more rooms	
		1921	1911
1	2·92	2·86	2·78
2	4·02	3·92	4·05
3	4·40	4·28	4·46
4	4·70	4·53	4·66
5	4·89	4·67	4·80
6	5·01	4·74	4·87
7	5·12	4·78	4·93
8	5·23	4·82	4·99
9	5·40	4·90	5·09
10	5·67	5·03	5·23
11	6·07	5·16	5·42
12	6·79	5·34	5·63
13	7·75	5·56	5·84
14	9·33	5·79	6·13
15	16·38	6·22	6·40
All families	4·55	4·35	4·52

ENGLAND AND SCOTLAND

In the course of the above discussion it has incidentally appeared that there is a considerable difference in housing conditions between England and Wales on the one hand and Scotland on the other, and other differences occur between the urban and the rural districts of both countries. Some of these differences are illustrated in Table XXII, which shows that on the whole the rural population in both countries lives in houses of larger size than the urban population, and in Table XXIII, in which the difference between English and Scottish housing accommodation is clearly indicated.

TABLE XXIII

DISTRIBUTION OF THE POPULATION (IN PRIVATE FAMILIES) IN ENGLAND AND WALES AND IN SCOTLAND AMONG HOUSES OF SPECIFIED NUMBER OF ROOMS

Number of rooms	Population in private families		Percentage in each type of house	
	England & Wales	Scotland	England & Wales	Scotland
1	623,869	306,866	1·7	8·1
2	2,834,802	1,010,082	7·8	30·3
3	5,330,506	1,036,103	14·7	21·2
4	9,052,008	491,064	25·1	10·1
5	8,217,536	270,057	22·8	5·6
6	5,037,731	184,501	13·9	3·8
7	1,081,853	118,072	5·5	2·4
8	1,213,883	92,117	3·4	1·9
9	628,275	62,088	1·7	1·3
10 and over	1,228,880	125,086	3·4	2·6

TABLE XXII RURAL AND URBAN HOUSING CONDITIONS

	England and Wales			Scotland		
	All England and Wales	Urban Districts (including London) and County Boroughs	Rural Districts	All Scotland	All Burghs	All County Districts (Burghs excluded)
Percentage of population living in houses of	% 100·0	% 100·0	% 100·0	% 100·0	% 100·0	% 100·0
1 room	1·7	2·1	0·4	8·1	9·1	6·0
2 rooms	7·8	8·8	4·3	39·3	41·8	33·9
3 ,,	14·7	15·5	11·8	21·2	21·6	20·5
4 ,,	25·1	24·9	25·6	10·1	9·4	11·5
5 ,,	22·8	22·5	23·7	5·5	4·6	7·5
6 ,,	13·9	14·0	13·5	3·8	3·0	5·4
Over 6 rooms	14·0	12·2	20·7	12·0	10·5	15·2

(*The tables in this section of the* Statistical Appendix *are compiled from figures given in the Census of* 1921, *General Reports for England and Wales and for Scotland.*)

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page 98*)

IV

ORIGINS OF BRITISH HISTORY

"We owe nothing to Roman or Celt of the fifth century."—EDWARD AUGUSTUS FREEMAN.

"More things went to the making of England than were imported in the keels of the English invaders of Britain."—FREDERIC SEEBOHM.

THE first thousand years of the Christian era witnessed the establishment and overthrow of the Roman Empire and the confused endeavours of its conquerors to arrive at a new stability. In the end they achieved the civilization which is known as mediaeval. Its economic background can be sketched in some detail. But the preceding "Dark Ages," which stretch from the fifth to the tenth century, are in no respect more obscure than they are in the economic. It is only possible to say in the broadest outline what happened in the period. Facts can be adduced which would lead one to conclude that all that the long Roman peace had secured for Western Europe was lost. Scraps of literary evidence, however, must not be taken too seriously. Nothing is easier than to exaggerate the degree of destruction involved in the invasions and settlements of the barbarians. That much was destroyed is clear enough, but it is equally clear that everything was not destroyed. What mankind had attained under the Roman Empire in agriculture, industry and commerce—as well as in other spheres—depended for its preservation on the maintenance of law and order. When the successive blows dealt by the barbarians had the cumulative effect of overthrowing the great imperial administrative system, means of communication were neglected, great cities were strangled, much land went out of cultivation, and primitive barter took the place of money.

ANCIENT BRITAIN

The problem of tracing what happened in Western Europe in general, and in this country in particular, is fraught with great difficulties. The Dark Ages are the bridge between the ancient and mediaeval. What was carried across the bridge, and by what means? To answer these questions we want to know what the Roman Empire made of what it found and how far its work was destroyed or modified by the barbarian invaders. To take our own country. About the middle of the fourth century before Christ, we catch a glimpse of inhabitants who were at least partially settled. The merchants of the Greek colony of Massilia (Marseilles) had heard rumours that the Phoenicians obtained tin from islands in the northern ocean. They fitted out an expedition and placed it in charge of an astronomer named Pytheas. He discovered this island, and his comments on what he saw, repeated by later geographers, constitute the first literary reference. Much corn, he reported, was grown in the south, but owing to the inclement weather threshing had to be done in barns. In the south wheat was common; in the northern parts they had to be content with oats. A drink was prepared from grain fermented with honey. This is a picture of settled communities, growing corn both as a bread and drink crop and able to defeat the vagaries of the weather by threshing indoors. It had also been discovered that the northern climate was not favourable for the ripening of wheat. Geography had decided that Englishmen should differ from Scotsmen centuries before invaders carried those names to the island! The later and more detailed account written by Julius Caesar, who visited Britain in two successive years (55 and 54 B.C.), confirms the impression given by his predecessor. He found it easy to provision his armies by cutting corn or demanding that the natives should supply it. The inhabitants of the south-east seemed to him to differ very little from the Gauls with whom he was familiar on the Continent. His impression was that the country was well peopled and abounded in cattle. Those who lived inland, he tells us, did not sow corn, but subsisted on flesh and milk. But here he was repeating what had been told him, and archaeological evidence goes to show that he was misinformed. The metals iron and tin were mined and articles of bronze and iron were fashioned by native smiths long before the arrival of the Romans. Caesar speaks of the use of money. This was no doubt chiefly employed in the trade with the mainland of Europe. Between Caesar's two campaigns and the beginning of the Roman conquest and settlement (A.D. 43) there is a period of nearly a century in which trade was developing. Strabo gives us a list of imports and exports—the first in our history. The Britons, according to him, sent out gold, silver, iron, skins, slaves, hunting dogs, corn, and cattle in return for ivory, bracelets, necklaces, amber, glass vessels, and such small merchandise. The duties paid in Gaul on this trade were so profitable to the Romans that he suggested it was better policy to accept them than to exact tribute by force.

CELTIC CIVILIZATION

It is clear, therefore, that the Romans found in this island a people who carried on settled agriculture, knew something of the working of metals, employed money and had surpluses which they could export for luxury goods. They

belonged to different branches of the Celtic family, and were themselves invaders who had established control over the older inhabitants. We gather from Roman writers that the largest unit was the "nation" or "tribe," i.e. a group recognizing common kinship in the widest sense. It was divided into smaller sections according to the accidents of land settlement. Certain common elements in later Celtic communities go to confirm this account. First, the force of kinship as a unifying factor is very marked In Wales, for instance, a district was occupied by a tribe (*cenedl*[1]) under a chief (*brenin*); Ireland was divided into tribal units (*tuath*), and the clan system survived in the Highlands of Scotland until the eighteenth century. Within the district cultivation was carried on by groups of blood relations. In Wales such a group (*gwely*) held together to the fourth degree of relationship, and land was periodically divisible among adult males, according to the fluctuation in the number of claimants. This divisibility survived in Ireland until the beginning of the seventeenth century, and was considered by contemporary English writers to tell against agricultural improvement. In the second place, it is fairly clear that early Celtic society was predominantly pastoral. Wealth was counted in flocks and herds. The cultivation of the soil was extensive, i e. a definite area was not reserved for constant use. When it was exhausted it was abandoned in favour of new arable. The method of cultivation was co-operative, which is the probable explanation of the strip system among the Celts According to the Welsh laws, the first strip belonged to the ploughman, the second to the one who provided the plough-share, the third to the one who provided the exterior sod ox, the fourth to the exterior sward ox, the fifth to the driver, and so on until all contributors had a share. This would mean the strips any individual had would be scattered. "Runrig," as this method of cultivation was called, revealed great powers of survival in the poorer districts of the north and west. In the third place, the free tribesmen did not comprise the whole of the Celtic population There were unfree classes. In Wales we find slaves (*caeth*), the absolute property of their masters, having neither kindred nor head-price if slain (*galanas*). There were also serfs (*taeog*) and broken men (*aillt*), who were bound to the soil, and had to make payment in kind to their lord.

THE ROMAN OCCUPATION

The Roman Empire undertook the invasion and reduction of Britain because it was realized that there was an intimate relation between the insular Celts and those of the mainland. The conquest was virtually completed between A.D. 43 and A.D. 85, when the area of permanent occupation had been subdued and garrisoned. It was the south-eastern plain that was "Romanized" in the subsequent three centuries. The most advanced civilian settlements were York (*Eboracum*) on the north and Wroxeter (*Uriconium*) and Caerwent (*Venta Silurum*) on the west. In the country beyond military influence was felt, but often only occasionally. Consequently, the results of the Roman occupation are to be sought in the south-east, and there in the districts which were well populated. The economic consequences of the Roman occupation were not uniform over Western Europe; Britain was much less "Romanized" than was Gaul. So it is dangerous to argue from analogies. There are certain obvious points The Romans in Britain, as elsewhere, founded cities Colchester (*Camulodunum*) was established soon after the conquest, Lincoln (*Lindum*) belongs to about A.D. 80; Gloucester (*Glevum*) to about A.D. 98, and York (*Eboracum*) to the end of the second century. Each of these cities enjoyed the privileges of being a "colonia." *Londinium* is mentioned by Tacitus as a town, which, though not honoured with the title of a "colonia," was very celebrated for the number of its merchants and the abundance of its resources. He also tells us that Agricola encouraged the Britons to live in towns and to adopt the amenities of civilization; to build temples, market places, and stone houses on the Roman models. The towns were connected by an excellent system of roads, which served to facilitate communication, and so to foster trade. Of these material advantages of the Roman occupation– towns and roads —evidence survives. We can safely assume that they exercised a powerful influence. But we do not know how far the Romans modified the existing system of land tenure and cultivation. Elsewhere in the Empire there was a tendency for estates in which the owner employed semi-servile labour to develop. Such an estate was called a "villa" and the labourer was a "colonus," owing labour service and payments in kind. It cannot be demonstrated that such estates did, in fact, exist in Roman Britain. Still less can it be proved that any Roman model superseded the pre-existing Celtic system. Consequently, we are not sure whether even within the sphere of Roman influence the kin-groups of the natives gave place to lordship represented by the "villa." It must not be supposed that the Britons consciously resisted "Romanization," but rather that Roman influence was diluted as a result of nearly four centuries of contact. The Britons, who resisted the barbarian invaders—Angles and Saxons—regarded themselves as the guardians of Roman civilization against the assaults of those outside the pale.

[1] All words, Celtic and Latin, are given in the singular form in brackets.

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page* 100)

IV

THE variation of food-staple from place to place is mainly due to variation of climate, and, of course, it is not in any way restricted to cereals, but extends throughout the whole of both the vegetable and the animal kingdoms. The result is that a particular region presents a series of related phenomena which mark it off from other regions, and this has led geographers to pay special attention to, and lay great stress on, what are called natural regions.

The late Professor Herbertson, our greatest geographer, suggested an elaborate scheme of such natural geographical regions, or major natural regions, on a basis mainly of a certain unity of temperature and seasonal rainfall, associated with configuration and vegetation; and thus he stimulated much useful work. But the scheme was much too rigid for a single small world; and, though his great reputation led to its being widely adopted, even in school work, it caused a good deal of misconception. Thus, all eastern margins in warm-temperate latitudes were made to bear the label "China type"; and so children came to believe, for example, that Natal and New South Wales had "Chinese" winters, with frozen rivers and other phenomena typical of the lower basin of the Yangtse in winter.

The general idea was not new, only its application. Supan had suggested a scheme on a purely climatic basis, and Köppen one on a botanical basis, and many suggestions had been made of broad classifications, especially on a climatic basis. All these suggestions had been useful and stimulating, but in economic geography results are more important than primary causes, and the most useful thing is to study the whole region as a complex, with its complicated collection of phenomena of all sorts, all in some way akin, and in some way differing from phenomena in neighbouring regions.

NATURAL REGIONS

A natural region is simply a division of the earth's surface which is naturally different from other neighbouring divisions; it has a certain unity inside it, and certain differences from the outside areas. The deciding factor may be relief or climate or a particular product, but it is seldom possible to isolate a special factor; and, in any case, the ultimate result, e.g. desert, or grassland, or forest, is the important thing, for it suggests a natural division of labour. Each area ought to produce the particular things which it is best suited to produce; then the particular product should be abundant, of fine quality, and cheap.

The greatest drawback to practical work on a basis of natural regions is that it is so difficult to delimit them. There are rare cases in which, e.g. at the foot of the Andes or on the seashore, there is an abrupt change from one type to another; but in the vast number of cases there is no sudden change, only a very gradual transition. The change, indeed, can be noticed at first, as a rule, only in a slight change in the typical vegetation, e.g. the appearance of plants which are equally suited to summer drought and summer rain. And the transition areas are of special interest and value just because we can study in them the ways in which plants *begin* to adapt themselves to new conditions. Obviously, when natives of summer drought are first transferred to areas of summer rain, they are likely to suffer from mildew and rust.

POLITICAL REGIONS

On the contrary, the limits of political units are definitely known and, as a rule, carefully marked; and statistics of production, etc., are published mainly by the individual units, though wide surveys may be published by such bodies as the International Institute of Agriculture or the British Cotton-growing Association. And most of our ideas are connected with political units, e.g. France or China. The result is that in actual practice we have to make much use of the political unit, and the one necessary precaution is to begin by learning to visualize the particular unit as a collection of– possibly *minor*– natural regions inside a probably much larger region.

TUNDRA

Again, for practical purposes, we may, and even must, pay far more attention to some natural regions than to others, e.g. mountain and polar regions. The Tundra, or cold desert, of polar regions is of very little use to us at present, and we can easily concentrate our attention on any particular aspect of it which suggests development. For instance, the tusks of mammoths that ages ago were frozen up on the banks of the Lena, are an important source of fossil ivory; but, of course, the supply is rapidly being exhausted. In most parts of the Tundra, again, man is still engaged in *destroying* the resources of Nature by fishing and hunting; but over the Old World Tundra, and in the Alaskan part of the New World, he is *creating* wealth by pastoral pursuits. We are now actually beginning to import reindeer "beef," and meat has always been the foundation of life on the Tundra, as we may infer from the name Eskimo, "eater of raw meat." Of course, there are no trees there, and oils and fats are needed

for warming—as distinct from cooking purposes, so that the meat had to be eaten raw.

The presence of swamp (breeding myriads of mosquitoes in summer) and the absence of trees are two marked features of the Tundra; but, on hillocks here and there, especially towards the warmer edge of the belt, you may see tiny willows and birches—perhaps twenty years old and two feet high—and these suggest that the next natural region will be one of trees—a belt of temperate forest.

FOREST

This forest is for several reasons one of the most important natural regions of the world, including originally far more than half of Europe; and it is well to remember, from the point of view of both history and economics, that the civilization of most of the world has spread from this forest belt. Man is, indeed, an arboreal primate, and, to start with, he was not only a forest-dweller, but actually lived up in the trees, as he still does in some parts of the tropics, e.g. in Borneo. Probably the finest type of man in the world has come from this temperate forest belt, and his forest environment has left its mark on him; and the lowest type has come from Equatorial jungle.

"FOREST" CLIMATE

What, then, are the conditions which have favoured the growth of the most useful kinds of timber in the world and the development of the finest type of man? The temperature for at least one month in the year must average about 50° F., i.e. correspond with the temperature of an average April day in England, and the rainfall must be at least half as much as we have in the driest part of England. This, of course, is really very little, but this forest belt was once glaciated, and the surface soil is still very wet; and even in the drier areas there is hard frost in winter, and this means a spring thaw, which materially increases the supply of moisture for the trees.

The one great enemy is wind, which is not only actually destructive, but also carries away moisture at times when, because the soil is frozen, the tree cannot replace it; and this means that it dies of *thirst*. At the same time, most of the soil is poor in quality, at all events throughout the coniferous part of the belt; and, again, as the tree can take food only in liquid form, it cannot get food in winter, and so may die of *starvation*. Against both dangers, then, it must be protected. The tree is mainly trunk—in which it "stores" its starch food; its cone-shape protects it from heavy winds, its tiny and leathery leaves transpire very little moisture.

The proper work of this coniferous forest is to produce "wood," and, therefore, to clear it and use the ground for some other purpose is, obviously, foolish; and, with a world shortage of timber, it is almost criminal, especially as the desirable qualities in the timber are, essentially, a response to the extreme climate. For the conifer grows so slowly that it is tough and strong, while "soft" to work; trees which produce "hard" wood, are the products of mild climates.

On the warmer edge of the Conifer Belt we find in most places broad-leafed trees, which shed their leaves in the cold or the dry season, to avoid excessive transpiration at a time when they cannot replace the lost moisture. Of course, just because they have broad leaves, they need far more water, as food and drink, than the conifers, and so they are likely to be found only where there is a good rainfall at all seasons, i.e. relatively near the ocean, that is the source of all rain. But this deciduous forest has been destroyed even more widely than the coniferous, for it was more accessible, and the soil had been enriched for centuries by the annual fall of leaves; and the only obvious reason for saving it was to maintain the supply of nuts and fruits, e.g. from oak and beech, walnut and chestnut, apple and pear. Throughout the *natural* Deciduous Belt, then, there is not now much continuous forest; and where it has been cleared from hill country, much harm has been done, for the roots both store the rainfall, and so lessen the danger from floods, and prevent the scouring away of soil from the slopes. Generally, however, the cutting of deciduous forest in temperate latitudes is far better justified than that of coniferous forest, because the surface soil in the former is so much more valuable, and because the typical climatic conditions are so favourable to man.

FOREST RESOURCES

We may pay further attention to the economic geography of forests. In very early times, at least in England, forests were essentially restricted to purposes of sport, incidentally yielding a good deal of animal food—hart and hind, hare and boar, from the large "forests," and buck and doe, pheasant and partridge, from the "chases" or small forests; and practically all forests belonged to the king, and down to the time of Magna Charta he could extend them wherever he liked.

The food aspect is now practically gone, the animal products of forest being almost entirely in the form of furs and skins, and this "fur trade" is of quite insignificant importance in the economic development of forest. The main and proper use of forest is for the production of timber and other "wood" products, the timber itself becoming relatively—but not actually—less important than various "pulp" products for the making of paper, etc. Much less important than this, but far more vital to the well-being of countries than people believe, is the value of forest in its climatic aspects, especially as exercising a certain climatic influence, and as protecting against injurious climatic "accidents."

PRODUCTION

(*Continued from page 102*)

IV

(12) OCCUPATIONAL DISTRIBUTION THE ANATOMY OF A NATION

OUT of our forty-five million, how many, normally, are actively engaged in production? Roughly—we have only rough figures to guide us—some 19,500,000. The remainder includes wives and daughters engaged in household duties—not less producers, many of them, than the husbands and fathers who technically "support" them, but an analysis on these lines would cut across accepted distinctions between production and consumption It includes, further, children of school age, and young persons continuing their education, old people who have retired from active employment, and those two much-criticized (and mutually critical) classes—the idle rich and the idle poor. The remainder are all recognized as contributing something to the total requirements of the community, i.e. they are participants, not only in the complex of distribution, but in the complex of production also.

Of our 19,500,000 producers, about 13,500,000 are men, and about 6,000,000 women. The former can be assigned to groups of occupations as follows—

		Millions
1.	Engaged in agricultural occupations	1·1
2.	,, ,, coal mining	1·2
3.	,, ,, manufacturing industries—	
	Metals	·4
	Engineering	·8
	Chemicals, etc.	·2
	Motors, etc.	·2
	Shipbuilding	·2
	Textiles	·4
	Clothing trades	·2
	Food, drink, and tobacco	·3
	Printing, etc.	·2
	Building, etc.	1·0
	Other manufactures	1·0
	Total	5·5
4.	Supply of gas, water and electricity	·2
5.	Transport and communications	1·3
6.	Commerce and finance	1·7
7.	Public administration and defence	1·0
8.	Professions (i.e. teaching, medicine, the law, the churches, etc)	·3
9.	Entertainments and sport	·1
10.	Personal services	·6
11.	Other	·5
		13·5

And here is an analysis of our six million occupied women—

		Millions
1.	Engaged in manufactures—	
	Textiles	·7
	Clothing trades	·3
	Other	1·3
	Total	2·3
2.	Commerce and finance	·9
3.	Public administration	·4
4.	Professions	·3
5.	Personal services	1·8
6.	Otherwise engaged	·3
		6·0

The above is a rough first sketch of the anatomy of a nation. It enables us to realize, as words alone cannot do, how largely our lives are dominated by the business of "getting a living," and what kind and degree of occupational specialization are implicit in our organization at the present stage of its development. The facts here indicated must be considered in conjunction with others which will emerge when we study in greater detail the technique of production, before the physiology of industry, as distinct from its anatomy, can be adequately appreciated.

(13) SPECIALIZATION. THE ADVENTURES OF A PAIR OF SHOES

The facts as to occupational grouping, which we have just been considering, convey no idea of the lengths to which specialization of processes has been carried. Yet it is this extreme specialization, in conjunction with capital accumulation and an ever-increasing reliance upon mechanism, that has enabled the production of certain forms of wealth to be multiplied many hundredfold. We shall ascertain later on what are the limiting factors to its indefinite multiplication.

Adam Smith, in a classic passage, illustrates the division of labour from the manufacture of pins. But such articles as pins would hardly afford to-day the best instances of what specialization involves; we need to turn to some product which is of more importance in the scheme of things and which presents greater technical difficulties from the manufacturer's point of view. As an example of such production under modern methods—as contrasted, say, with those of Adam Smith's day—let us consider, then, the manufacture of a pair of men's shoes. It is still possible, of course, for such a pair of shoes to be made by hand, by a single workman handling a few simple tools. But see how a pair of shoes is constructed in a factory (in this particular instance an American factory) equipped with up-to-date machinery—

(*a*) The leather passes first through a cutting

department. Here it undergoes 34 processes, being put through some half a dozen different machines. The average time taken per pair in this department is just under nine minutes.

(*b*) Next, the pieces of leather which together make up the uppers are assembled in a stitching department. Here there are 25 processes, and another half-a-dozen machines or so are utilized. The average time per pair is 15½ minutes.

(*c*) There follows a series of adventures in the sole-leather department. Our pair of shoes undergoes here no fewer than 65 processes, yet on an average they are all brought to bear on it in a fraction over eight minutes.

(*d*) Next, the lasting department. Here there are only 10 processes and only four machines; the time taken per pair is 6¾ minutes.

(*e*) There follows the bottoming department, with its 35 processes, taking, on an average, just under 13½ minutes per pair.

(*f*) Finally, there is the finishing department. Here there are 18 processes, the whole of which take, per pair, a shade over six minutes.

We can conveniently summarize the above facts as follows –

Department	Number of processes	Average time per pair (mins.)
1. Cutting dept. .	34	9
2. Stitching ,, .	25	15½
3. Sole leather ,, .	65	8
4. Lasting ,, .	10	6¾
5. Bottoming ,, .	35	13½
6. Finishing ,, .	18	6
	187	58¾

The average time taken, then, is just under an hour; the average labour cost—in New England, with wages at double their British level—is half a dollar (2s. 1d.) per pair. Contrast this with the conditions, as regards time and labour cost, under which a pair of shoes would be made by hand.

Generalizations from single instances are useless, and it is not intended that sweeping conclusions should be drawn from this isolated instance of mass production methods. But it may, introduced at this stage, stimulate certain trains of thought, and provoke some relevant questions. How far is this example of industrial specialization representative? What is the nature of the "capitalistic" organization which renders its development possible? What conditions, as regards demand and markets, does it postulate? How is the wealth brought by such complex means into being distributed among those who have co-operated to produce it? What sort of reactions upon life, and upon the philosophy that sustains life, does participation in these activities produce?

We must attempt, in due course, to suggest the answers to some of the more insistent of these questions.

THE FACTORS OF PRODUCTION

1. **The Three Factors.** (*a*) **Land.** Production is usually said to result from the co-operation of three factors—land, labour, and capital. Of these, however, only two are *essential* to production, though the third—capital—is almost invariably present In one sense, capital is a secondary factor, for it is itself, as we shall see, a product of the other two. But, for most purposes, we shall need to regard it as primary. We cannot otherwise conveniently relate the principles which underlie the distribution of the product to our analysis of the processes of production.

By *land* is meant, not only the ground we stand on, or the earth as opposed to the sea and the air, but the whole of the physical universe, in so far as it can be put to economic uses. *Nature* would be a better term; the term *land* has, however, the authority of tradition and of established custom, and it would cause unnecessary confusion to use any other. Raw materials, provided they have not been worked upon by man, come under the head of land: the fish in the sea, the minerals in the earth, the products of virgin forests. Man, as has been insisted, cannot create wealth; all material wealth began, therefore, by being a part of what the economist calls "land." The chair I am sitting in, a simple enough affair, embodies little bits of "land" brought together, in the course of man's complex economic activities, from the very ends of the earth. The mahogany of which it is made grew in the forests of Guiana. The framework of the seat is of deal; that was once "land" in Norway. It contains springs of steel, and that steel derives from many sources: there is iron from Spain, carbon from the coal deposits of Yorkshire, manganese from Lorraine. It is covered with leather, which "grew," in the form of cowhide, on the prairies of the Argentine. Its varnish had its origin in Africa, and its dye in Germany.

How do I know all this to be true? I do not. But if it is not true, the truth is not dissimilar, and is not less interesting. The least active of us is in contact, hour by hour, with gifts showered upon man by Nature in every quarter of the globe. It is these gifts, in the form in which they exist before man begins to work upon them, that collectively make up "land."

BUSINESS MANAGEMENT

(*Continued from page* 104)

IV

LOCATION (2)

IN the third article of this series stress was laid upon the importance of business leadership as a factor determining the geographic distribution of industry. Both in this country and abroad there are industrial centres which may be said to be the creation of individuals in the sense that in each case the selected site was intrinsically no more suitable than many other sites which might have been selected. Nevertheless, it was pointed out that the successful business man is not one who fights against the tide merely for the sake of fighting, but one who studies the tide carefully and uses it as far as possible to help him in the venture. Following this method, Mr. Morris (if we may again quote him as an example) did not flaunt Nature and the efforts of past generations by building near Oxford factories for making the materials for motor-cars. On the contrary, he recognized the advantages of other parts of the country, made use of those advantages, and concentrated that part of the firm's activity upon Oxford for which Oxford was as well suited as other places. In the same way, Mr. Henry Ford, of America, saw that his first task was not to fight blindly against the forces of Nature, but to harness them and employ them in his service. A born leader thus reveals his gifts not by ignoring but by recognizing the importance of the factors to which reference was made in the last instalment.

A DOUBLE DISTINCTION

A two-fold distinction has already been drawn in this series of articles. In the first place, a distinction was drawn between the large region within which an industry should be located, the sub-area within the larger region to which either the industry or sections of the industry would be drawn, and, finally, the exact site of an individual establishment or a small group of establishments. In the second place, a distinction was drawn between the original or natural forces which first attracted an industry to a particular region, and the advantages which ultimately resulted from the establishment of the industry, and in turn made the district increasingly attractive, and gave it a momentum which frequently carried it forward long after the original causes had ceased to operate. The two bases of classification are very closely connected. The attractiveness of the main region is due to the existence of natural facilities. The attractiveness of sub-regions is due largely to the facilities acquired during the earlier stages of actual growth—in other words, when dealing with the first we should stress the natural attractions, while in dealing with the second we should stress the facilities created by man. Given suitable soil for providing a foundation and facilities for carrying away waste, the site of an individual establishment is determined after consideration of relative merits of town and country.

TOWN v. COUNTRY SITES

The natural advantages of a region and the acquired advantages resulting from the establishment of an industry in a given area have already been specified in general terms. Before considering illustrative cases, it is also desirable to indicate, in general terms, the advantages and disadvantages of town and country. A town is obviously a good collecting and distributing centre. Railway facilities are likely to be fairly satisfactory, while facilities for road transport are at least as good as elsewhere. A supply of labour is available, and if the labour required is of an exceptionally skilled character it is far more likely to be found in a large town than in a small town. Power may be obtained from the municipality or local supply company, so that there is no need for erecting a special plant to meet requirements which may vary widely in the course of twenty-four hours, and which, therefore, necessitate heavy overhead charges. A number of ancillary services, such as police protection and the services of the fire brigade, are available. In the event of a breakdown in the machinery or an accident to the building, repairers can quickly be called in from outside. Moreover, the establishment itself is, in many cases, convertible to other uses, and in the event of liquidation or removal it possesses a high abandonment value. For this reason it need not bear so high a depreciation cost as those erected in country districts.

A town suffers, of course, from many disadvantages. It is difficult to secure suitable sites, particularly sites which allow room for expansion. Rents are high and rates relatively heavy. In many cases smoke restrictions add to the cost of operation. Wages are relatively high, while stoppages from disputes of various kinds are usually more numerous than in country districts.

SATELLITE TOWNS

In due course a town may grow to such an extent that the disadvantages outweigh the advantages. Firms are repelled rather than attracted, and even those already located in the town tend to remove their plant beyond its boundaries. The facilities offered by the town remain attractive, with the result that many firms strive to make the best of both worlds by settling down in the country within easy reach of the town. For this reason

satellite towns tend to grow up. The central town is in due course surrounded by a ring of smaller towns which are apt to attract the heavier manufacturing trades, and to leave the central town the centre for the lighter trades, for warehousing and marketing, and, to a large extent, for retail distribution and the professions. The cost of removal is extremely heavy, and for this reason large manufacturing establishments may remain in the heart of the central city in spite of the serious and increasing disadvantages of the site.

FEATURES OF COUNTRY SITES

The advantages of a country site are the reverse of those of a town site. Land is cheap and rates are low, while, provided the site is wisely chosen, a plentiful supply of water is obtainable at low cost. Adequate provision can be made for growth and the buildings can be kept low. For this reason the fire hazard is less. The disadvantages are obvious and in some cases overwhelming. In the first place, a country site lacks the service industries, such as repair shops, fire brigades, etc., and for this reason country establishments are usually large and self-contained. At the present time the disadvantages of a town site are so obvious that there is a strong presumption in favour of the country, but in many cases, to make an establishment sufficiently self-contained would necessitate a wholly disproportionate cost. Again, the lack of an adequate supply of suitable labour may prove a serious disadvantage. Firms which have erected large establishments on country sites have found it necessary or desirable to erect dwellings and create villages for their workpeople. They have accepted social responsibilities from which the town employer is free, and have become the true successors of the English squire. In such cases, the firms, having collected the requisite supply of suitable labour, are less likely to suffer from stoppages of work than those whose establishments are in large industrial centres, where the causes of stoppages are frequently to be found outside the establishments themselves. At one time country sites suffered through lack of transport facilities, but this factor is steadily becoming less important on account of the growth of facilities for road transport. Even to-day, however, the tendency for country establishments to be erected within easy reach of railway lines is hardly less marked than in the past.

SUBURBAN SITES

Factories which are established in suburbs or on the boundaries of towns represent a sort of compromise. It is clear, for example, that an establishment in which the great majority of the workers are women and girls cannot be far removed from others in which the majority are men. Such factories are to be found, therefore, either in towns or quite near towns. If they are on the outskirts, the workers waste a great deal of time travelling to and from their work and may be compelled to pay heavy car fares. For this reason, the firm may be required to pay higher wages, and the additional labour cost has to be set against the costs due to higher rents and greater congestion.

ADVERTISING VALUE OF A SITE

In some cases, a town site may be superior to a suburban or country site, on account of its greater advertisement value. The product is such that it cannot be displayed in a showroom, for which reason the factory is itself the showroom to which potential customers are taken. In such cases, a country site would not be likely to offer adequate compensation for the loss of advertising value. This consideration seems to be of considerable importance in certain branches of the engineering and allied trades, with the result that the establishments tend to remain within easy reach of large railway stations, at which the most important long-distance trains stop.

In other cases, country sites near main railway lines possess advertising value. The name of the firm and of the product is painted in large letters on the walls or roof of the factory or on the boundary walls, and the advertisement is seen every day by thousands of passengers travelling in long-distance trains to and from London or some other large town. It would be difficult to assess the advertisement value of sites of that kind, but it must be fairly high in the case of factories which produce light goods in a form ready for consumption by the general public.

FINDING CAPITAL

(*continued from page 106*)

IV

FORM OF THE NEW BUSINESS
(*continued*)

A LIMITED partner may inspect the books, examine into the state and prospects of the business, and advise the partners thereon. A very common practice is for the sleeping partner, whether he has limited his liability under this Act or not, to insist that all financial transactions above an agreed figure be first submitted to him for his approval. The limited partner has no power to bind the firm, and he must not take part in the management. If he does, he is liable, as though he were an ordinary partner, for the firm's debts incurred while he so acts.

The Act is rather inelastic, and the limited partnership, notwithstanding its advantages as a form of business organization, has not become popular. Where a person desires to invest in a business and at the same time to set a definite limit to his liability beyond any shadow of doubt, he usually prefers to put his money into a private limited company.

ORDINARY PARTNERSHIP

Advantages of a Partnership. Fortunate is the man who finds in a congenial friend, prepared to contribute capital and share equally in the management with him, a partner for the new venture. His responsibility is halved, and the business is not dependent on a single life. It may be remarked that it is quite a common practice, and one always worth considering in many trades, to enter into partnership with someone already carrying on business in an allied but non-competitive line. The established business can provide the accommodation and office staff, the same travellers may easily serve both organizations, and there is the advantage of being able to benefit by the experience of the older firm. The arrangement is equally advantageous to the latter, for it enables office and selling expenses to be cut down, and there is, besides, the share in the prospective profits of the new business.

Importance of Partnership Agreement. In however friendly a way a partnership is commenced, it is of the greatest importance that the rights of the parties should be carefully and strictly defined in writing in a partnership agreement. The success of a partnership depends on the partners working in unison, and if questions or disputes arise it is desirable that they should be settled by reference to a document made at the time when the partnership was commenced. The agreement should make provision for the following—

1. Period of the partnership.
2. The capital or proportion of capital to be brought in by each partner.
3. The interest, if any, to be paid on capital.
4. The duties of each partner, the salaries to which they are entitled, or the amount of drawings which they may make in anticipation of profits.
5. The manner in which profits and losses are to be shared.
6. Preparation of accounts, and audit.
7. Control of the banking accounts.
8. Terms upon which the partnership may be dissolved or a new partner assumed, and the procedure to be adopted in the event of the death of a partner.
9. An arbitrator, to whom disputes may be referred.

Joint Assurance Policy. It is recommended, especially if one of the partners is elderly, that the partners should take out a joint life assurance policy for the amount of their interest in the business, and charge the premiums as a business expense. Some of the large insurance companies make a speciality of this form of policy. It will avoid the dislocation of the business in the event of the death of one of the partners and the consequent withdrawal of his capital.

THE MANNER IN WHICH CAPITAL IS PROVIDED

The manner in which capital is provided by friends for the new business varies according to circumstances. Usually, it takes the form of cash by way of loan at a fixed rate of interest or carrying a share of the profits earned, repayable at a fixed date or dates, or on certain contingencies such as the death of the lender. As we saw in Chapter II, when discussing the minimum capital required for the new business, it may also take the form of extended credits of one kind or another. If payment for plant, or rent, or goods or services is deferred for a time, this is equivalent to a loan.

Bank Guarantee. A banker makes temporary advances to augment the working capital of a business. He does not usually provide the permanent capital. When the initial amount of capital is not large, however, it is sometimes possible to arrange for a bank loan secured by the guarantee of one or two friends. In some parts of the country this is quite a usual method for the young shopkeeper, for instance, to adopt when he is setting up for himself, and it is always worth trying, especially in the type of small business that will have a fairly active current account.

In considering the application, the banker will direct attention to the character and standing of the borrower, his prospects of success, the amount of the advance, the period over which it will be

required, and, of course, the solvency of the guarantors. If the borrower has a bank account already, he will approach his own banker, tell him of his purpose, and hand him a letter from his friends consenting to give the proposed guarantee. If the banker agrees in principle to the proposition he will take up the banking reference of the guarantors, and when he has satisfied himself of their solvency, the accommodation will be granted.

When making the arrangements, particular attention should be paid to the form of the accommodation. It may be a fixed loan or a floating overdraft on current account, and there is considerable difference between the two. In the first case, which is more usual in the South of England, the loan is placed at the disposal of the borrower as and when he requires it, and it is usually repaid at regular intervals. A banker likes to see movement in an account and he insists on regular repayments of a loan. In the second case, which is more general in the North of England and in Scotland, the borrower may overdraw on his current account up to the amount secured by the guarantor. This method is more flexible, and, as a rule it is cheaper, for all amounts paid into the current account from time to time immediately reduce the overdraft. The borrower also is not tied down to making regular payments. The banker sees the movement he loves in the current account.

The nature of the accommodation determines the form of the guarantee. In the case of the fixed loan, the guarantee secures the loan, and when the loan is repaid, the guarantors are relieved of their responsibility. In the case of the floating overdraft, the guarantee secures all advances from time to time on current account up to the agreed limit, that is to say, it is a continuing guarantee.

OUTSIDERS WITH CAPITAL TO BE TAKEN INTO PARTNERSHIP

There are three ways in which capital for the new business may be obtained from strangers--

1. By advertisement in the Press.
2. Through an agency.
3. Through a solicitor or accountant.

As a general rule, the introduction of capital by any of these means is associated with the assumption of a partner.

By Advertisement. The columns of the press are always open to anyone advertising for capital, but to find a partner in a total stranger in this way is an exceedingly risky business. The fullest inquiries must be made about the prospective partner. His bank references will be taken up as a matter of course, a report, if possible, received from Bradstreets or a similar agency, and it is essential to have references from a professional man and from some personal friends of substance. The inquirer should not be content with writing to these referees; he should go and see them for himself. Even if he is satisfied, he should not, if he can possibly help it, tie himself irrevocably under a deed of partnership. A trial period should be arranged, or, if that is a counsel of perfection, provision should be made in the agreement for dissolution on either partner giving, say, three months' notice of his intention to withdraw.

It is rarely that capital for the new business is found through advertisement, but an advertisement on occasion leads to the converse case, for it may be answered by someone already engaged in the same or a similar type of business who is prepared to join forces with the advertiser. As this case is rather outside our subject, it may suffice to indicate that it is absolutely essential to have the business investigated by an independent accountant. He is accustomed to investigations, and information is given to him as a matter of course that would not be open to the advertiser. His report, if favourable, should form the basis of the partnership agreement.

Through an Agency. There are agencies that specialize in introducing prospective partners to each other and in finding capital for new businesses. In an ideal world it would be to these agencies that the man in search of a partner with means would naturally turn. As it is, the temptation on the part of such organizations to make a profit, or, rather, to earn their commission, seems to be overwhelming, and there have been so many scandals associated with them that as a class they have been brought into disrepute. There must be some of them that can be trusted, but it would require a preliminary investigation to determine the *bona fides* of the one approached.

Through a Solicitor or Accountant. If the necessary capital for the new business cannot be raised among friends, it is best to enlist the help of a solicitor or accountant. They are not open to the same objection as the agencies discussed in the previous paragraph, for the solicitor, certainly, and the accountant, if he is a member of a recognized body, is governed by the rules of professional conduct. To put it at the lowest, he cannot afford to damage his reputation through making a profit on a single transaction. As, in either of the methods outlined above, recourse must be had at some stage of the negotiation to the solicitor or accountant, it saves time to approach them in the first instance. They will investigate the proposed business thoroughly. They are brought constantly into contact with all manner of clients, and, if they are satisfied, they may be able to find a suitable partner.

MARKETING

(*Continued from page* 108)

IV

REFERENCE has already been made to spot transactions and futures; in this connection options and privileges and other operations fall to be considered. In highly organized exchanges the two chief methods of conducting business cover transactions for immediate delivery of the recognized grade of the commodity or produce; it has been inspected or sampled; these are spot transactions. The second method, dealing with futures, covers contracts for deferred delivery; immediate payment is not expected. The phrase spot transactions indicates that the commodity is in existence, or that the goods will be immediately forthcoming when the contract is made. Immediate or early delivery is also implied. In futures, on the other hand, the seller enters into a bargain to deliver goods at some date after the contract is completed. The stipulation usually refers to a certain quantity at an agreed price, and the buyer is under obligation to receive in that way. The speculative element in the arrangement consists in the fact that the seller may later be able to obtain the produce at a lower price In that way he can fulfil the contract with an unanticipated profit to himself. In common with other economists, Professor J. G. Smith suggests that transactions in commodities whose future prices are highly uncertain are only possible on a large scale when competition is keen and when the demand is extensive and fairly inelastic. Inelastic demand means that even in response to considerable changes in price there is little alteration in the quantity sold. The strict necessaries of life usually fall within inelastic demand; luxuries, when heavily taxed, or greatly increased in price, and sometimes even with small increase in price, usually show immediate reductions in sales. That is described as elastic demand, an economic tendency of importance in estimating the probable effect of price changes whether due to taxation or other cause. In marketing speculation is accordingly most pronounced in the case of wheat, cotton, and maize; in other words, where the organization of the market has attained considerable perfection.

SPECULATION

But care must be exercised in the use of the word speculation. The character of speculation just described is associated with futures. Where this class of transaction is permitted, the exchanges prescribe rules. It is clearly different from the element of speculation in the ordinary day-to-day business of a large part of the civilized world. The word futures must also be distinctly understood. For example, a cargo on its way to this country might be sold in anticipation of its arrival, but that would not be a transaction in futures. The distinction in speculation is well illustrated by the case of the builder who erects a house under contract for an agreed price, the delivery of which must, of course, be in the future; in these circumstances there is not the speculation which is true of the builder who, after careful forecast of his costs, erects houses, with no immediate purchasers in view, hoping to sell them at the best price which he can later obtain Most of the authorities on marketing regard speculation as taking place when an anticipated difference in the present and the future prices of any commodity gives a chance or opportunity of possible profit. In the non-technical sense, there is speculation in the purchase of property outright, to hold that property for a rise in price. That kind of speculation has been true throughout the whole of human experience, at all events since civilization attained a stable basis. Futures of the present type are not clearly distinguished until perhaps the early part of the seventeenth century. At that time the products of the Dutch whale fisheries were often sold long before the ships returned; speculation in bulbs and other commodities was also common. At the end of that century dealings in grain were forbidden in Antwerp Amsterdam had in the eighteenth century a speculative market in coffee, grain, and other commodities. These are merely two illustrations of a tendency which was characteristic of the growth of foreign trade; in other words, operations in futures developed, and they were later assisted very materially by the coming of the telegraph and fast mail steamers. With this assistance it was possible to estimate accurately the amounts of produce available months before it could possibly arrive. In a small way futures were the subject of trade in European markets in the 'thirties of last century. As a rule, however, it is to an early form of contract in the grain trade of the United States that the modern system owes its origin. There is also the analogous transaction common in the iron warrants in Glasgow about the same period. In the latter case, when large quantities of wheat or iron had been stored in elevators or railway yards, and receipts issued in respect of them, holders frequently tried to raise money on their stocks. Borrowing in this fashion was, of course, sometimes a necessity, as in the case of the Scottish iron masters, who were not always able to market the whole of their output.

FUTURES, PRIVILEGES, OPTIONS

The subject abounds in technical terms, some of which may now be briefly described. A "short"

sale is the phrase applied to one made by a person who, expecting prices to fall, sells for forward delivery what he has not got. His intention is to deliver goods purchased later at a lower price. In the normal exchange the procedure is somewhat complicated, and the failure of certain parties to the contract when fulfilment is required, or rather the successful combination by others with refusal to accommodate their friends, except on prohibitive terms, may lead to what is called a corner. When the range of grades is narrow, or there are only limited qualities forming good delivery of a future contract, corners are more readily possible. In futures the contracts contain time limits for fulfilment in all cases. The American practice classifies futures according to months. This arrangement means that the seller has the option of delivery on any day of the month agreed upon without due notice to the buyer, the choice of date invariably resting with the seller. So universal are these contracts that in America traders constantly employ such phrases as December wheat or September delivery when they are speaking of futures to be fulfilled in those months. European practice is perhaps hardly so definitely fixed. The Paris period for wheat may be two, four, or six months, but, apart from these differences in the length of period, delivery of goods under this system is effected in European markets on very much the same lines as in America. Compared with the actual amount of the commodity which is marketed, the volume of transactions in futures in the exchanges is very great; the system offers innumerable facilities. On some of the exchanges contracts may change hands a score of times prior to final settlement. Each time the contract is passed on there is another addition to the total number of dealings in futures. It is often contended that the larger the volume of dealings in futures in any particular market the better that market fulfils its real purpose; this usually suggests that the frequent bids and offers point to keen competition and to a highly delicate adjustment of price to genuine supply and demand. Somewhat similar to futures in their strictly technical sense are contracts which give a right to demand that a bargain of certain form shall be entered upon under circumstances which may be described, but usually are not. This kind of contract, called a privilege or an option, carries with it the right of buying from or selling to the other party a certain amount of a certain commodity at a certain price. Sometimes the word option is applied indiscriminately to both types of contract, traceable to the fact that in the strict form of futures contract the seller has the option of selecting the day of delivery within the agreed period. For example, a December option has come to mean an ordinary transaction in futures for which December is the month of completion.

PUTS AND CALLS

In the further subdivision of such contracts a call is an agreement which gives the buyer the right to call upon the other party for delivery of a certain amount of produce at a fixed price within a specified time. Calls are used by those who have sold what they do not own; they are sometimes described as "short" sellers or "bears." The broad object of a call purchase by the dealer is to limit his loss in the event of a rise in price; i.e. his loss is confined to the movement in points per unit specified in his call from which the price rises. To that, of course, must be added the sum he paid for the call. More simply stated, the transaction is of the nature of a premium for insurance against heavy loss. A put, on the other hand, is an agreement which gives the buyer the right to deliver to, or put on to the other party, a certain amount of produce at a fixed price within a specified time. This kind of contract has usually in view a fall in price. If the expectation is realized, and the price falls, the trader can purchase in the open market the quantity mentioned in the put at terms below those at which the seller of the put has undertaken to buy it. The combination of a put and a call is, on the American exchanges, termed a straddle. To the purchaser it gives the privilege of either putting or calling produce at the named price within a given period. If different prices are named for the put and for the call, the privilege becomes a "spread," but that term is also used in other connections. Double privileges of this kind are employed by dealers who wish to profit by a change either up or down in the market price.

The use of privilege is confined almost exclusively to highly speculative transactions which differ little from mere gambling. Contracts of this description are frequently bets upon anticipated changes in the price of a commodity. For the most part these contracts are never carried out; settlement is effected by payment of the difference in price to the winner of the gamble. Generally speaking, such contracts are forbidden under the rules of American produce exchanges. In these exchanges the price to be paid for a privilege or option depends upon three considerations, relating mainly to the risk to the seller. There is, first, the length of time during which the option is to run; secondly, the condition of the market; and, thirdly, the greater the difference between the price or prices named in the agreement and the price prevailing in the open market, the less is the risk of the seller being called upon to fulfil the contract, and the smaller, therefore, is the cost of the privilege.

VALUE AND DISTRIBUTION

(*Continued from page* 110)

IV

UTILITY, VALUE, PRICE

19. BEFORE we can construct a theory of exchange, we shall need to formulate, and consider in some detail, certain elementary ideas. These are the notions of utility, of value, and of price.

20. *Utility* has been defined, in a formula which we can hardly better, as "the capacity to satisfy a desire or serve a purpose." Whatever possesses utility is a *good*. And if it is an exchangeable good it forms part of the total stock of *wealth*. Sunshine possesses the "capacity to satisfy a desire or serve a purpose." But sunshine is not exchangeable, it is a *free good*. Sympathy, kindness, affection, exhibit these same capacities. These things also cannot be exchanged, in the sense in which we are using the term here, for such qualities are inseparable from the persons in whom they inhere. They are not, then, economic goods. But utility is not less a quality of the exchangeable goods which make up the stock of wealth—of land, houses, jewellery, books, stocks, shares, patent rights, and lottery tickets.

THE PRODUCTION AND CONSUMPTION OF UTILITIES

21. We have already seen, too, that when we speak of the *production* of wealth it is the production of utilities that we really have in mind. The matter of which most exchangeable goods are composed is something that man can neither create nor destroy. But he can add utility to matter, by altering its form, or altering its place, or by preserving it from change or decomposition. And, similarly, he can break down or destroy the utility which is in matter. When he "consumes" the product of his own or of another's labour this is what takes place. As I write this I am smoking a cigar. That cigar represents a product of Nature upon which a complex of human activities has been brought to bear. Tobacco leaves have been picked, dried, rolled; the finished product has been packed and shipped to England; the complex mechanism of exchange, of which we have already caught a glimpse, has delivered it to me. At each stage utility has been added to the original leaf. The cigar as it is when I come to light it can be looked upon as a storehouse of these variously-accumulated utilities. As I smoke it they are gradually "consumed"; they pass out of existence. The labour of man, though it can produce nothing material, produced these "utilities" for me; I, who can destroy nothing material, now send them up in smoke.

22. *Services*, though they are not exchangeable in the sense in which goods are, also possess utility. These utilities likewise can be "consumed"; they differ from the utilities inherent in exchangeable goods in that they pass out of existence at the very moment they come into it; they cannot, therefore, form part of the stock of wealth. Just as I am consuming the utilities stored up in my cigar, so, as I dictate to my secretary, I am consuming the utilities into which her capacity to serve me translates itself, *pari passu* with their production. If my secretary were transformed into an exchangeable Robot, that capacity to serve me would be converted into just such a stock of consumable utilities as exists in my cigar or in any other good. Hence, the same principles largely apply to the purchase of goods and to the remuneration of direct labour.

VALUE AND UTILITIES

23. *Value* differs from utility in that it is an attribute, not of all goods and services, but of exchangeable goods only; it relates itself, then, not only to utility but to *wealth*. All those goods which are exchangeable, and which collectively constitute the stock of wealth, possess value. It can shortly be defined as *power in exchange*. Value then (in this sense of exchange-value) must be expressed in terms of something else. Such-and-such a thing, we say, is worth, or is valued at, such-and-such an equivalent; that equivalent is a measure of its value. A day's labour (we may say) is worth bed and board; the Golden Fleece is worth a king's ransom; five sparrows are sold for one farthing; the price of a good woman is above rubies. These are expressions, some of them more precise than others, of *value*.

24. Now, utility and value have one important characteristic in common. Neither can be regarded as an intrinsic quality of the goods in which they inhere; neither is to be looked upon as fixed in quantity or amount. We had better make this point at once, and as plainly as we can. An object—say a postage-stamp—possesses utility; it has that "capacity to satisfy a desire or serve a purpose" which we have already discussed. This utility, however, is not—as are its shape, its size, its colours, its weight—an intrinsic attribute of the stamp. The fact that it possesses utility depends on a circumstance external to the stamp itself—that there is at least one human mind which is conscious of its existence and animated by a desire to possess it. If no one wants the stamp it can no longer "satisfy a desire or serve a purpose"; if the Post Office rejects it and the philatelists despise it its utility has disappeared. If, on the other hand, it happens to be printed upside-down or otherwise favoured by fortune, then its capacity to satisfy, etc., may be much

enhanced. Its utility, regarded quantitatively, will be increased.

25. Similarly with its value, which, if we wish, we may regard as an external measure of the postage-stamp's utility. If it has no utility, it can have no value. With every increase in utility, value will increase also. In fact, the exchange-value of the stamp can be looked upon as affording an indication of the utility which the stamp possesses. But on this point we shall have to say a good deal more.

VALUE IN TERMS OF MONEY: PRICE

26. A final word as to *price*. Price is closely connected with value; it is, in fact, a particular expression of value —value translated into terms of *money*. A suit of clothes may be valued at (or worth) a gramophone, or a pair of vases, or a year's subscription to a golf club. Here are various statements of equivalence. It may also be valued, or priced, at ten pounds. This is one form of a statement which, as we have seen, may assume an indefinite number of other forms. Nor does the statement in terms of money (as may at first sight be thought) define the value of the suit any more precisely than the other statements do. For the value of money, no less than the value of the suit, or of the gramophone, or of the vases, is itself a potentially variable thing.

THE INTERPLAY OF SELF-REGARDING MOTIVES

27. The distribution of the various products of man's economic activities implies, as has been suggested, a vast and complex mechanism which we can call the mechanism of exchange. The nature of that mechanism we must in due course explore Essentially it is, as is, it is hoped, now clear, a mechanism which operates, not, as a locomotive does, in terms of a single definite and coherent idea, but haphazardly, as the interplay of a myriad separate consciousnesses may determine. And yet this same complex and apparently haphazard interplay of will, and motive, and desire, is sufficiently consistent in its results to produce a definite pattern, the intricacies of which it is the economist's business to endeavour to make plain.

28. The animating principles of the economic order are those of *self-interest* and of *competition*. Neither of these "principles," however, operates without qualification—without, indeed, very considerable qualification. The statement that the economic activities of men and women are determined by self-interest is a rough and ready generalization. But, while obviously more true than a statement to the opposite effect would be, its application in any individual case is subject to severe limitations. To begin with, the individual is a poor judge, as a rule, of what his own best interests are. He has not the knowledge which will enable him to determine, in any given set of circumstances, how he can act with most profit to himself. The effects of ignorance are fortified by those of other human defects. Timidity, laziness, irresolution, the cramping restraints of convention, all play their part in restricting the operation of the principle of self-interest. The average housewife, for example, seldom makes the efforts which she might make, were she a purely "economic" being, to purchase her requirements as cheaply as possible. She deals with the tradesmen she is accustomed to deal with; she accepts complacently (within reasonable limits) the goods they send her; she believes the exaggerated statements as to quality, price, cost, etc., that she reads in catalogues and in newspaper advertisements; she cannot be bothered to sacrifice, beyond a certain point, leisure, or the consolations of inertia, for the sake of a small monetary gain. In a sense, of course, the fact that she so orders her ways is not incompatible with a strict interpretation of the doctrine of self-interest. "If," she may say, "I value half an hour of Edgar Wallace more highly than the gain which will accrue to me by fussing from shop to shop, inspecting and comparing the bacon or bananas exposed for sale, am I not pursuing my own self-interest in preferring to stay at home?" The logic of this is irrefutable. But the economist has to draw an arbitrary line somewhere; he is trying to evaluate the interplay of motives, the force of which is susceptible of a monetary measure. From his point of view, therefore, the self-interest of the housewife, as a determinant of the prices of bacon and bananas, is qualified in respect of the perfectly legitimate considerations which she advances in extenuation of her conduct.

29. Similar in kind, but much more important in themselves, are considerations which largely determine the supply and the direction of labour. The supply of labour, as we shall see later, depends primarily upon the capacity of man to propagate his own species. And this is not, in respect at least to the motives which determine it, an "economic" activity. "Aren't I going to be born at all?" asks Michael in the make-believe of Barrie's play. Now, whether boys and girls get "born at all" depends, in part, but only in part, upon whether their parents can "afford" to have children; it is indeed those parents who cannot "afford" to have them who are least likely to consider the point. And it hardly depends at all upon whether to bring them into the world is or is not to the economic advantage of the parent or of society as a whole. The problem, which is a complicated one, is only touched upon at this point by way of illustration.

CURRENCY AND BANKING

(*Continued from page 112*)

IV

GENERAL EFFECTS OF CHANGES IN GENERAL PRICE LEVELS

For our present purpose the term " inflation " may be taken to signify an expansion in the supply of money relatively to the work which that money has to do at the same level of prices. Conversely, deflation may be taken to denote a contraction in the supply of money relatively to the work to be done and resulting in a fall in the level of prices. Generally speaking, however, it is usual to think of inflation and deflation not in terms of countries with gold standard currencies but in terms of countries with inconvertible paper currencies. But fluctuations in general price levels were found to occur even before the war in countries with gold standard currencies The details of these different monetary systems will be considered more fully later, but it may be pointed out at this stage that the popular impression that the value of the gold sovereign was always the same is inaccurate. That, in fact, as will be seen, points to a certain defect in the gold standard as generally adopted, and several proposals have been put forward with a view to effecting an important reform in the direction of stabilizing the value of gold. Nevertheless, whatever changes did occur in the level of gold prices before the war were gradual and spread over fairly long periods of time. Hence, they tended to pass unnoticed except by the academic investigator. But the type of problem is essentially the same whether the changes in the level of prices are slow or rapid, small or great, though the practical consequences may be less serious.

PRICE MOVEMENTS IN NINETEENTH CENTURY

In the case of the United Kingdom, four distinct price movements may be distinguished in the period from the end of the Napoleonic Wars to the beginning of the late war.[1] Between the first half of the 'twenties of last century and the second half of the 'forties prices fell by 25 per cent from an index of 154 to 116. From the latter period up to the first half of the 'seventies the index rose by 20 per cent to an average of 138. The third period, which extended to 1894-98, witnessed a more rapid downward movement, and prices fell by 40 per cent to an average index of 82. The last phase extended up to 1909-13, when the average index was 108, or an increase of almost 32 per cent. By way of comparison with these gradual pre-war movements, the Sauerbeck index number increased by 195 per cent between 1913 and 1920 and fell by 50 per cent between 1920 and 1926.[1]

In examining the effects of these movements, we have to consider the rapidity or otherwise of the response of money incomes. The distinction will be drawn elsewhere between nominal or money wages and real wages, which represent the goods and services which can be purchased with the nominal or money wages.[2]

PRICES AND WAGES

For the purpose of measuring changes in real wages resulting from price movements, it is desirable to employ an index number of retail prices (as distinct from wholesale prices) or an index of the cost of living. Index numbers of nominal wages and retail prices have been constructed, and these enable comparisons to be drawn.[3] The following table summarizes the changes in the sixty years ending in 1910 --

1850 - 100

Average	Average money wages	Average retail prices	Real wages of those in full work
1850–54	105	104	101
1860–64	117	110	107
1870–74	145	117	124
1880–84	148	104	137
1890–94	162	96	166
1900–04	176	91	176
1906–10	180	96	172

The table indicates that money wages continued to increase throughout the period, but retail prices, after an initial upward movement, fell between the early 'seventies and the early 'nineties. Real wages increased up to the beginning of the present century, but were subject to a slight decline from 1907. Moreover, the rapid rise in real wages during the second phase was in large measure due to falling prices, while the check to real wages during the first decade of the present century was the result of an upward movement of prices which proceeded rather more rapidly than the increase in nominal wages.

PRICE MOVEMENTS AND INDUSTRIAL FRICTION

Moreover, during periods of rapid price changes, the number and magnitude of industrial disputes

[1] Cf. Layton : *Introduction to the Study of Prices*, page 23 ff.

[1] On the basis of yearly averages.

[2] Real wages also include payments in kind and incidental advantages connected with an occupation, but these may be set aside for our present purpose.

[3] Cf. Layton, op. cit., Appendix F, Table 1.

will tend to increase, and so generate social friction and discontent. When prices are falling, the same nominal wages will mean, in the absence of a proportionate increase in efficiency, higher real labour costs, and under competitive influences employers will press for a reduction in money wages. Such a reduction, if proportionate to the fall in prices, would leave real wages unchanged. Similarly, during a period of rising prices, demands will be made for wage increases not on the grounds of the enhanced efficiency of labour, but on the grounds of the diminished value of money. Disputes and stoppages of this kind are necessarily wasteful.

More generally, the more flexible a money income is, and the more quickly it is able to respond to price changes, the less will it be affected in real values by general price movements. In those countries of Europe which suffered from extreme monetary disorganization the "professional classes" were particularly affected by the enormous rise in prices which occurred. Similarly, those types of undertaking such as railways which have their charges fixed by law will tend to lose heavily if prices rise, since their working costs are likely to rise in proportion while their aggregate receipts will remain inflexible. This points to an important effect of price movements on industrial production. During a period of rising prices, goods will be sold on highly favourable terms to the producer, since he will have purchased his raw materials, etc., at an earlier date, when the price level was lower. On the other hand, during a period of falling prices the opposite result will obtain. Raw materials will be purchased at a level of prices which is higher than that which obtains at the time when the goods come to be sold. The effect of price changes in that connection is, therefore, to introduce a special and extraneous element into business risks, minimizing them when prices are on the upgrade, and intensifying them when prices are on the downgrade. This problem of the "time-lag" has an important reference to agriculture, where the bulk of the working costs has to be incurred several months before the products are sold. Suppose a farmer's costs begin to be incurred at the autumn sowing and end with the September harvest of the following year: the crop may not be sold till about Christmas, in which case his expenditure in respect of this crop has commenced fifteen months before sale and ended three months before sale. But, if prices are rising throughout the period, a special gain is likely to be incurred on account of the long time-lag between expenditure and receipts; while, if prices are falling, a special loss is likely to be incurred for the same reason.

A further effect of the same nature occurs, under the head of fixed money charges, in respect of rents and mortgages which are contracted for long periods, and which are not easily modified. If prices rise after such an indebtedness has been contracted the real burden upon the debtor is reduced, while the burden is increased if prices fall. In the case of agriculture this influence has been said to have a special degree of importance, but it is not a unique phenomenon. Practical concessions by landlords frequently mitigate the economic consequences of fixed rent charges during a period of falling prices.

PRICES AND PUBLIC DEBTS

This last example is an instance of the effect of price changes on long dated debts. One example may serve to illustrate the general point. Let us suppose that as between two years the value of money has so fallen that the index number of prices has risen from 100 to 130. That means that the same quantity of goods which could be purchased for £100 in the first year could only be purchased for £130 in the second. Suppose, also, that a person has contracted a loan of £100 in the first year, to be repaid in the second year, and, for the present, we may suppose that the loan is free of interest. In that case, when the loan is repaid, the sum received, though nominally £100, would only be equivalent to £77 in terms of the value of money when the loan was negotiated. The debtor therefore gains, for while he has fulfilled the letter of his bond, he has repaid the debt in money which has less value than in the first year. On the other hand, if prices fall during the period, the real burden of the debt to the debtor would be increased, and the creditor would gain by being repaid in money which had increased in value. We can now understand, therefore, that inflation robs debtors at the expense of creditors, while deflation tends to work in the opposite direction. The following is a concrete example of a typical case. In June, 1923, the Berlin Civil Court was called upon to decide the issue in respect of a loan of 50,000 marks (say £2,500) which had been made in 1907, repayable in 1917, but renewed to 1922. In 1922 the monthly average of the *Frankfurter Zeitung's* index number of wholesale prices was 205,417 as compared with 100 in 1914, so that, even assuming that prices had not changed between 1907 and 1914, the 50,000 marks originally loaned, if repaid in 1922, would only be worth about 24 marks (say 24s.) in terms of 1914 prices. It was natural, therefore, that the creditor should demand a large sum in compensation for the loss incurred through the depreciation of the mark.

In general, the anomalies which have been described reflect the social and economic consequences of an unstable standard of value, and point to the necessity of a satisfactory monetary system. Having recognized the practical importance of the problem, we are now in a position to examine the technique of different monetary organizations.

INTERNATIONAL TRADE

(*Continued from page 114*)

IV

THE DISTRIBUTION OF BRITAIN'S FOREIGN TRADE

IN the first article in the present series an attempt was made to indicate the extent to which the overseas trade of the United Kingdom had increased in the course of the last hundred years. It will now be possible to discuss in more detail the nature of that trade and its distribution as between different countries, and that will lead on to some consideration of the problems which have become important in that connection in the period of post-war dislocation.

The United Kingdom enjoyed a great relative advantage in the commercial development which occurred during last century, and it had been anticipated that as the newer countries came to be developed that relative advantage would be subject to certain checks. It has already been pointed out that since the seventies of last century the old distinction between the newer countries as sources of raw material and the older countries as manufacturing centres had become less apparent. With the development of the former, assisted largely by British capital, manufacturing industries had been securely established in countries which had formerly been almost entirely dependent upon the United Kingdom for manufactured products. The result, however, has perhaps been less conspicuous than is frequently supposed. While the special advantages which this country formerly enjoyed may have diminished, the nature of its trade has not undergone any important change. The country has become even more an industrial country. Its industries are even more fully organized in relation to markets overseas. And there is an even greater dependence than formerly upon overseas sources of supply for foodstuffs and raw materials. International trade, nevertheless, is to a greater extent the outcome of territorial specialization, and comparative productive efficiencies perhaps count for more than initial natural advantages.

COMPOSITION OF IMPORTS AND EXPORTS

For the purpose of the present study it will be sufficient if we take the period from the nineties of last century. The table given at the top of the next column affords a comparison of the values of the country's net imports and the division of these imports as between the main groups of commodities.

Manufactured articles may be said normally to represent rather less than one quarter of the net imports of the country, and articles of foodstuffs rather less than one-half of the total. There is

NET IMPORTS

	Annual averages			
	1890 94	1910-13	1924	1926
	£ millions	£ millions	£ millions	£ millions
Total net imports	357	611	1,140	1,117
1. Food, drink and tobacco	170	263	543	504
(Percentage)	(48)	(43)	(48)	(45)
2. Raw materials and unmanufactured articles	110	195	324	319
(Percentage)	(31)	(32)	(29)	(29)
3 Manufactured articles	76	150	266	290
(Percentage)	(21)	(25)	(23)	(26)

no evidence of any appreciable change in the importance of the respective groups of commodities. The apparent increase in the third group and decline in the second may be accounted for by changes in the official bases of classification.

The second table, which is constructed along similar lines, shows the classification of re-exports, i.e. goods which have been imported into the country not for domestic consumption, but for resale abroad—

RE-EXPORTS

	Annual averages			
	1890–94	1910–13	1924	1926
	£ millions	£ millions	£ millions	£ millions
Total	62	107	140	126
1 Food, drink and tobacco	12	15	30	26
(Percentage)	(20)	(14)	(21)	(21)
2. Raw materials and unmanufactured articles	35	63	76	74
(Percentage)	(57)	(59)	(54)	(59)
3 Manufactured articles	14	29	34	25
(Percentage)	(23)	(27)	(25)	(20)

Considerably more than one-half of the total re-exports of the country, therefore, represent raw materials and semi-manufactured or unmanufactured commodities.

The third table gives the corresponding analysis of exports of U.K. produce, excluding ships sold to foreign purchasers.

The effects of the last prolonged coal dispute are apparent in the figures for 1926, which reflect the slump in coal exports. Apart from that abnormal influence, however, there would appear to be some indication that manufactured goods, while still constituting more than three-fourths of the total exports of British produce, were rather diminishing in relative importance, and that exports of foodstuffs and raw materials were tending to increase slightly in importance.

EXPORTS OF U.K. PRODUCE

	Annual averages			
	1890–94	1910–13	1924	1926
	£ millions	£ millions	£ millions	£ millions
Total	234	466	790	652
1 Food, drink and tobacco	10	32	57	50
(Percentage)	(4)	(7)	(7)	(8)
2 Raw materials and unmanufactured articles	23	56	106	47
(Percentage)	(9)	(12)	(13)	(7)
3 Manufactured articles	199	360	613	538
(Percentage)	(85)	(80)	(78)	(83)

COAL, IRON, AND STEEL AND TEXTILES

We can now indicate the relative importance in the export figures of particular commodities. In the raw material group, coal represented the most important item. In 1913, for example, the value of the coal exports of the country was £51,000,000, or almost 10 per cent of the total exports of British produce in that year. In 1925, the value of the coal exports was approximately the same as in 1913, but represented rather less than 7 per cent of the total.

In the more important group of manufactured exports, the products of the textile industry are of chief significance. In 1926 the cotton industry contributed £154,000,000 and the other branches of the industry £80,000,000 to the total exports. Taking the various branches of the industry together, their total exports represented fully 36 per cent of the value of British exports in that year. In 1913 the corresponding proportion was 34 per cent. It might almost be said that the coal and textile industries together accounted for about 45 per cent of the country's exports.

Next in importance come the products of the iron and steel, engineering and allied industries. In 1913 these contributed £105,000,000, or 20 per cent of the total exports of that year. In 1925 they contributed £145,000,000, or about 19 per cent, and in 1926 £132,000,000, or fully 20 per cent of the total of British exports. The industries already mentioned, therefore, account normally for 65 per cent of the total exports of the country.

The comparisons already cited will have shown to what extent it may be said that normally our imports of foodstuffs are paid for by our exports of coal and manufactured goods. In 1926 the net imports of foodstuffs into the country amounted to £530,000,000; the exports of manufactured goods in the same year amounted to £538,000,000.

The importance of overseas markets to the staple industries of the country may be illustrated by reference to the proportions of the outputs of these industries which are exported. Before the war it was estimated that about 80 per cent of the cotton cloth produced in Lancashire found a market overseas, and though that proportion may have declined somewhat during the period of post-war depression, it is probably still in the neighbourhood of 70 per cent. In 1913 the coal output of the country was 278,000,000 tons, of which 94,000,000, or approximately one-third, was exported (including bunker coal). In 1925 the corresponding proportion was fully 27 per cent; and in 1926, as a result of the coal stoppage, the proportion fell to 22 per cent. That, however, does not represent the entire dependence of the coal industry upon markets overseas. About 40,000,000 tons of coal may be said to be consumed by the iron and steel industry, the bulk of the products of which are exported.

GEOGRAPHICAL DISTRIBUTION OF OVERSEAS TRADE

The general geographical distribution of the overseas trade of the United Kingdom may be indicated by reference to the trade with the other parts of the Empire and with foreign countries That general distribution is indicated in the following table, the later figures being exclusive of the Irish Free State—

	1870	1900	1913	1925	1926
	£ millions	£ millions	£ millions	£ millions	£ millions
Imports from					
Foreign countries	238	413	578	899	874
British Empire	65	110	191	379	328
U K exports to					
Foreign countries	148	197	330	446	341
British Empire	52	94	195	287	276
Re-exports to					
Foreign countries	41	56	96	128	107
British Empire	4	8	14	15	13

Percentages

	1870	1900	1913	1925	1926
Imports from					
Foreign countries	78	79	75	70	73
British Empire	22	21	25	30	27
U K export to					
Foreign countries	74	68	63	61	55
British Empire	26	32	37	39	45
Re-export to					
Foreign countries	92	89	88	89	89
British Empire	8	11	12	11	11

The changes which have occurred on the basis of this broad classification of countries are more conspicuous than the changes in the groups of commodities imported and exported, and already examined. The table shows that trade with the other parts of the Empire has increased in importance relatively to trade with the other countries of the world. The high proportion of British exports destined to the Empire in 1926 was, however, due to abnormal circumstances, so that the general trend, though marked in itself, should not be exaggerated by undue reference to the figures for last year.

THE TRADE CYCLE

(*Continued from page 116*)

IV

THE ESSENTIAL NATURE OF THE TRADE CYCLE

In the three preceding articles the main facts and the main consequences of the trade cycle have been briefly set out. One salient point emerging from this preliminary survey is that the trade cycle is not a "subject"—in the sense that mathematics or geography are subjects—but is something more in the nature of a "quest": probably the most important quest in the whole range of economics.

In the course of this quest we shall need to examine a number of explanations of the trade cycle, all of them well argued, most of them probably containing a considerable element of truth. If we are to examine these explanations with any critical judgment, we must start off with a fairly definite idea in our own minds as to what an adequate explanation of the trade cycle should tell us. To get such an idea we must first have some conception of the essential nature of the trade cycle.

THE ESSENTIAL FACT

The essential *fact* of the trade cycle is that the course of business in every industrial country, instead of remaining on a fairly high level of prosperity, disturbed only by such "acts of God" as earthquakes, revolutions, wars, harvest failures, and so on, is continually, and for little or no apparent reason, fluctuating. A study of 17 countries for periods ranging between 30 and 136 years[1] shows that in none of these countries has trade prosperity ever lasted for more than five or six years at a stretch. Usually, after some two or three years of good trade there comes a slump, which, as a rule, likewise lasts for some two or three years, but always eventually leads round to another period of good trade, which, in turn, gives place to yet another slump, and so on.

A COMMON ERROR

This fact makes one valuable, if negative, contribution to our inquiry. Knowing that every country without exception, from the time it adopts modern methods of production, is subject to recurrent slumps in trade, we may avoid falling into the error of supposing that the circumstances more or less peculiar to one single country are essential causes of the trade cycle.

This error is a fairly common one. In Britain, for instance, owing to our dependence on foreign trade, industrial depression is usually attributed almost exclusively to failure of foreign markets. It is true that failure of foreign markets is one factor in the problem, and in Britain a particularly large factor, but it can hardly be regarded as an essential factor. In a country like the United States, where foreign trade does not amount to more than 10 per cent of the total trade, the trade cycle is just as well known as in Britain. In countries which do not have to buy a large part of their food and raw materials abroad, the intermittent slump in trade occurs just the same. Britain's peculiar position gives its trade cycle an individual twist, but this twist is not of the essential nature of the trade cycle.

[1] *Business Annals*, Thorp and Mitchell, 1926.

DIFFERENT VIEWS

What, then, is the essential nature of the trade cycle? This question is answered by different people in different ways. To the manufacturer the essential characteristic of the trade cycle is that orders are plentiful during prosperity, but scarce to the point of non-existence during depression. To the worker the trade cycle appears as a period of fairly good employment followed by a period of unemployment. To the wholesaler the trade cycle is a period of rising prices followed by a period of rapidly falling prices, and, later, price stagnation. To the business man it is a period of great possibilities followed by a period when chances for enterprise are at a low ebb.

Plentiful markets, full employment, rising prices, business optimism, are the unfailing accompaniments of the boom in trade. Scarcity of markets, unemployment, falling prices, business pessimism, are the unfailing accompaniments of the slump. We have here a clue to two essential features of the trade cycle.

VICIOUS SPIRALS

The first of these essential features is the *cumulative* nature of prosperity and of depression. Once a movement towards prosperity or towards depression is well initiated a number of "vicious spirals," upwards or downwards as the case may be, tend to establish themselves.

For instance, during the phase of trade depression, the prevailing scarcity of markets forces the manufacturer to cut down his staff, and so gives rise to unemployment. Unemployment, by reducing the incomes of the workers thus affected, causes buying to fall off. This falling off in buying further accentuates the scarcity of markets, which, in turn, gives rise to still more unemployment, and so on.

Interaction of a similar nature takes place between markets and prices. A scarcity of markets forces producers to cut down their prices in an endeavour to dispose of their goods. Falling

prices impel manufacturers, merchants, and all holders of stocks of goods to throw these stocks on to the market, for every article held in stock while prices are falling means so much money lost. As a consequence, the market, already over-supplied, is flooded with additional goods, and the scarcity of markets is thus made more acute. This necessarily entails still further price cutting—and so the vicious spiral goes on and on, driving industry deeper and deeper into depression.

The interaction between scarcity of markets and business pessimism is likewise of this " vicious spiral " type. Scarcity of markets gives occasion for business pessimism—distrust of the future and what it may bring. As a consequence, business men and manufacturers do not buy more raw materials, semi-manufactured goods, or goods ready for sale than is absolutely necessary in order to carry out such orders as they have, while any plans for enlarging plant or extending operations are naturally shelved. This curtailment of business buying necessarily tends to make the scarcity of markets still more pronounced, and thereby induces a deeper and more confirmed pessimism, and so on.

What is true of depression is equally true of prosperity. Similar " vicious spirals," of plentiful markets and increasing employment, plentiful markets and rising prices, plentiful markets and business optimism, tend to set themselves up and continue until they have worked themselves out or are otherwise checked. In brief, under modern conditions of production, good tends to become better and bad tends to become worse.

MARKETS

The second essential feature of the trade cycle is that, as the above analysis shows, the condition of the market is at the centre of things. The difference between trade prosperity and trade depression is that in the one case markets are plentiful, and in the other case markets are scarce.

What do we really mean when we speak of markets being plentiful or scarce ? When we say that markets are plentiful, we mean that goods can be sold as rapidly as they can be produced, at a price yielding a profit which producers regard as sufficient to make production worth while. When we say that markets are scarce, we mean that goods cannot be sold as rapidly as they can be produced at a price yielding a profit sufficient to make production worth while. And by " profit " we really mean profit all round, that is to say not merely what the business man or manufacturer regards as sufficiently profitable, but also what the wage earner regards as sufficiently profitable, i.e. a wage for which he will work. At the heart of the mystery is the question why at times the demand for goods in general is sufficient to afford a satisfactory return to producers and why at other times it is not.

TWO TESTS

These two essential features of the trade cycle—(*a*) the cumulative nature of prosperity and depression, and (*b*) the fact that the condition of the market is at the centre of things—enable us to devise two tests, which we may usefully apply to the theories of the trade cycle we shall now proceed to examine.

The first question we should ask is the fundamental one: How is it possible to account for the fact that at times the demand for goods in general is sufficient to afford a satisfactory return to producers and at other times is not ?

The second question, based on our knowledge of the cumulative nature of the trade cycle, is in some ways still more searching: How is it possible to account for the fact that the strong, cumulative forces making for prosperity are invariably frustrated and trade is plunged into depression ; and, even more, how is it possible to account for the fact that the strong, cumulative forces making for depression are always eventually brought to nothing, permitting trade to revive ?

An explanation of the trade cycle that fails to return satisfactory answers to these two questions, although it may be sound in itself, cannot lay claim to being adequate.

SURVEY OF INDUSTRIES

(*Continued from page 122*)

IV

ECONOMIC FACTORS AND THEIR EFFECTS IN CHEMICAL INDUSTRY

(*continued*)

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URGENCY OF DEMAND

On the question of urgency of demand, or the time lag between producer and consumer, we can generalize fairly reliably for the whole of the industry. Chemicals are not, as a whole, "perishable goods," and provided that there is a fairly good guarantee of a subsequent compensating demand, stocks may be allowed to accumulate on this score alone. Seasonal trade in fertilizers—a large section of the heavy chemical industry—may thus be allowed for. On the other hand, the future of few chemical manufacturing processes is guaranteed against revolutionary changes in one or more factors. For example, the cost of raw materials or the supply of power (what industry is reasonably safeguarded against this ?) may vary. In the case of manufactures which reach the public more or less direct from the chemical manufacturer, fashion will have a bearing—on dyestuffs production, artificial silk manufacture, etc.

A comparatively small but important class of chemicals—chemo-therapeutic substances—are noteworthy, in that in a number of cases they are "perishable goods," which are produced, therefore, in quantities which follow closely the demand of the moment.

Lastly, we must indicate the coal tar industry as being rather individualistic, in that production of the various fractions is governed first by the quantity of tar produced by gas and coke oven works, which means that to a large extent urgency of demand is overshadowed by urgency of consumption of raw material; secondly, by the seasonal variation in the relative demand for the separate fractions, whereby to some extent process may be modified to yield more of the products most valuable at the time.

In the end, therefore, it may be said that the time lag between manufacture and consumption is to a large extent entirely governed by the chemical manufacturer. But this is not the whole of the story. Overhead charges in a chemical works are relatively high for the amount of capital laid down and the employees, though generally untrained (except, of course, the technical and laboratory staff), are generally highly skilled as a result of long practice. In addition, deterioration is on the average much more rapid when the plant is lying idle after having been in use. It becomes, therefore, a matter of first importance to preserve a uniform rate of manufacture as near to capacity as possible, while, at the same time, the industry as a whole cannot be classed as one so essential that it must be safeguarded against temporary disturbances due to interruption of work on account of strikes, etc.

VARIATIONS IN ACTIVITY

The reader will now be in a position to be able to decide for himself which sections of chemical industry are directly affected by seasonal fluctuations. Fertilizer and insecticide manufactures are governed as mentioned above; the coal tar industry in so far as, at various times of the year, various products take turn for premier importance (pitch and refined tar for roads are peculiar in this particular) undergoes seasonal variations; similar cases are beet sugar extraction, which continues active for some five months of the year and is then almost at a standstill until the next season's crop is ready, and disinfectant manufacture. But the list does not close at this stage, and account must be taken of those chemicals which are absorbed by other industries to be fabricated into marketable products. Thus, for instance, appreciable quantities of chemicals are used in the paint and varnish industry, which is, of course, very considerably seasonal in its activity.

By far the most important fluctuations in the chemical trade are those due to variations in the activity of other industries. The inter-dependence of the chemical industries has been stressed, but we can give equal significance to the absolute dependence of the whole of the chemical industry on practically every other section of a country's industrial activities. The following industries each use anything from forty to a hundred or more chemicals in greater or less degrees, and the list has been chosen at random, so that it could very easily be enlarged: agriculture, bakery and confectionery, brewing, dyeing and calico printing, glass making, ink manufacture and the printing trade, the leather tanning industry, paint and varnish manufacture, paper manufacture, photography, porcelain manufacture, rubber fabrication, the soap trade and textile manufactures. It is clear why, under such dependence, chemical industry has become an index whereby the state of general industrial conditions can be gauged, and, conversely, how the history of the activity of chemical industry is determined almost entirely by the prosperity or otherwise of other industries.

EFFECT OF TRADE CYCLES

It is not surprising, therefore, to find that the trade is subject in a very marked degree to the influences of trade cycles, which show themselves markedly throughout the past history of chemical industry. And, further, it is in this section of a country's trade where the variations within the cycle show themselves earliest, because, of course, the industry is subject to the cumulative effect of the individual variations in so many other sections of industry. For the same reason, also, the effect is particularly marked in the chemical *trade*, which embraces importation of chemicals also.

When discussing the recurrence of trade booms and slumps, strictly comparable conditions must, of course, be considered. Thus, for instance, products of chemical industry which are common to all years, or have their equivalent in all the years studied, must be chosen as a basis of comparison. At the same time, there has been at work during the past quarter of a century quite a phenomenal development in the industry which would at first sight appear to give the lie to any suggestion of trade cycles. This development is due primarily to a realization that a wide range of natural products have a limited source of supply and a limited range of utility, with the result that alternative artificial or synthetic products have been sought and found to replace those hitherto used. In a number of cases these products, such as synthetic resins, silks, colours, and fertilizers' manufacture have developed steadily up to and beyond that of the natural products, owing to the greater variety which is possible, and, in general, these new synthetic products of chemical manufacture have taken the premier place so far as production capacity is concerned

MARKETING AND COMPETITION

It was necessary at an earlier stage to touch on the type of market in which the chemical manufacturer works, and his relative position as regards competition both with home and foreign manufacturers, and there is little to add to what has already been said, apart from indicating the material difference between the position of world chemical trade before and after the war. The monopolistic character of the industry before the war has been stressed ever since 1918. This country was, of course, as important, if not more important than any other as a producer of heavy chemicals, and its trade in this section was world-wide. At the same time, there was no monopoly in this trade, as all the more important countries had a potentially self-supporting industry, and, at the same time, a growing competition was present in some items. Parallel with this was the development of monopolized industries, such as the potash industry, confined almost entirely to the German deposits.

On the other hand, an entirely different and, from the point of view of war requirements, a far more important monopoly was the dyestuffs and fine chemical industry, again potentially all in the hands of German manufacturers. During the war it became a necessity for the non-combatant as well as the combatant countries to develop these industries (then working as explosives, etc., factories) to *war requirement standards of production capacity*. The end of 1918, therefore, found almost every country in possession of chemical plant far in excess of peace-time requirements, and as a result competition for markets became intensely acute. In addition, because of the interdependence of the various sections of chemical industry, indicated earlier in the article, other sections of chemical industry were similarly handicapped. Further, both governments and manufacturers were made to realize more forcibly that, as a provision against similar future abnormalities, there must ever be a compromise between the tendency to reduce plant capacity to a value comparable with normal demand, and the necessity of being prepared for war or other emergencies. Fortunately, that compromise has been very largely achieved by the adaptation of plant to peace-time requirements, but it is a fact that there is still a considerable portion of superfluous plant in existence. The dyestuffs manufacture has, perhaps, been most affected in this way, chiefly because the plant erected during the war for other purposes was so easily adapted to present requirements, and it is estimated that at present the production capacity of the world's dyestuffs industry is double the demand for the products. Under such circumstances it is not surprising that competition for both home and foreign markets is considerable; even in the case of Germany, where in pre-war days some 80 per cent of the dyestuffs industry was located, the home market absorbs about 10 per cent of the Swiss dyestuffs manufactures, while in this and other countries steps have been taken to meet the home demand, with a consequent elaboration of marketing systems, as well as a complication of international trade practices.

SOCIAL CONSEQUENCES

The social significance of chemical industry, whether from the point of view of employment or from its essential character, is not of primary importance, for in comparison with other industries its output compared with the number of its employees is large. A comparatively large percentage of the employees are trained men, largely consisting of university graduates. The late war brought with it a revolution in the attitude of British chemical manufacturers towards scientific education. Thus the public valuation of higher education has advanced proportionally, and a large increase has resulted in the proportion of students passing on to advanced courses. As always, under similar circumstances, when the

demand for a type of labour is found to exceed the supply, this has been followed by a slump in the demand for technically qualified chemists. Incidentally, we might say that very recently there has been a falling off in the numbers of students taking up chemistry as a career.

The distribution of capital is another point which comes directly under this head, for, though its immediate significance appeals only to the actual investors, the source of supply of capital has a marked effect on the ultimate organization of the industry, and, therefore, on the consumption of its products. Generally speaking, the more important chemical producing countries are self-supporting so far as capital is concerned, but there are notable exceptions to this generalization, and, in addition, there is a marked tendency towards international distribution of "chemical capital." Among the more important exceptions we can instance the case of Norway, where the nitrogen fixation industry and the aluminium extraction industry are to a large extent foreign undertakings; in Japan until recently a similar state of affairs existed with regard to dyestuffs. Slightly different is the position, at present, in the less important countries, which since the war have made attempts to develop a home chemical industry. Poland, for instance, has obtained technical help, in building the foundations of its chemical industry, in exchange for capital, or, alternatively, has obtained that foreign help conditional on foreign capital being allowed in the various concerns. Russia has taken similar steps.

This movement of money has resulted in some cases in the introduction of legislation to counteract or, at least, control it, and where this has not been done curious anomalies have arisen. For example, the Spanish attempts to develop a potash industry, which would serve as a check on the monopolistic German industry, have been almost completely foiled by the majority interests which the Germans have managed to obtain.

It will be evident that under such circumstances an industry inevitably comes in for an appreciable amount of consideration by the State, for, though the various sections of the chemical industry are not necessarily urgent industries, they immediately become so in cases of emergency (war, etc.), and especially if supplies of raw material cease to be available. In spite of synthetic methods of production, no country is entirely independent of others for raw materials for the chemical industry. One country, the United States of America, approaches the ideal comparatively well. But, in general, because of the wide range of minerals which are required for a country's chemical manufactures there is no possibility of the inter-dependence of various countries being appreciably diminished.

There is, in addition, another factor which calls for the consideration of chemical industry by the State, and one which has been mentioned already in a different connection. A large number of fine chemicals and compounds or extracts which are generally made by fine chemical manufacturers are finished products for consumption as medicines by the public. In addition, there is the list of poisonous substances. These, as directly affecting public health, have from time to time been subject to legislation, which legislation must be periodically revised in the light of new developments. Then there is the legislation which is called for by the peculiarities of employment, which has taken the shape of the Alkali Act, sections of the Factories Bill, explosives regulations, and, finally, such Acts as the Smoke Abatement Act, again a necessity as a safeguarding of the public health.

LABOUR

A number of points which normally come under this head have been dealt with more conveniently elsewhere, and require no repetition at this stage. There are two questions which still require an answer. First, the distribution of labour as between men and women. This, again, varies from one section of the industry to another, but the following rough figures may be taken as a guide for this country, and the position is probably not materially different in other countries—

	Percentage of		Total employees app. on 22nd Aug., 1927
	Males	Females	
Chemical manufacturers	87·15	12·85	94,600
Explosives ,, .	69·9	30·1	18,700
Paint, etc ,, .	80·25	19·75	17,200
Oil, grease, etc ,, .	82·75	17·25	80,300

The second point is the question of juvenile employment, which may be briefly disposed of. Apart from the administrative side, which from the standpoint of the youth is no different from any other industry, there are two types of work for which the juvenile is eligible in the chemical industry, namely, that of laboratory assistant, and the other the "odd job" man's work on the process side of the works. With certain limitations, these are progressive situations. There is always a certain demand for skilled routine analysts, which is admirably filled by youths who have grown up in the laboratory of each particular section of the industry or in similar sections, whilst in the works themselves many opportunities exist for the man who has had long experience of a particular process —an experience which often owes half its value to heredity and the other half to the workman having specialized on the process under consideration. This is gradually giving place to a state of affairs common to industries which are more

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ESTIMATED CONSUMPTION OF HEAVY CHEMICALS

Chemical Engineering Industries	Sulphuric Acid	Muriatic Acid	Nitric Acid	Oxalic Acid	Acetic Acid	Salt	Sulphur	Alcohol
	Short tons of 50 deg. Bé.	Short tons of 20 deg. Bé.	Short tons of 36 deg. Bé.	lb.	Short tons of 28 per cent	Short tons	Long tons	Wine, gals. of denatured
Heavy chemicals	350,000	53,000	15,000	300,000	5,000	2,500,000	490,000	—
Fine chemicals	50,000	32,000	2,500	700,000	25,000	10,000	13,000	30,000,000
Electrochemicals	25,000	—	300	—	—	125,000	20,000	—
Coal by-products	700,000	—	—	—	—	—	—	—
Dyes and coal-tar products	30,000	14,000	5,000	400,000	3,000	300,000	40,000	2,000,000
Fertilizers and insecticides	2,050,000	—	900	—	—	5,000	275,000	—
Petroleum products	1,450,000	—	—	—	—	—	1,000	—
Rayon and textiles	118,000	25,000	3,000	1,200,000	28,500	40,000	1,000	2,000,000
Leather	5,000	5,000	—	200,000	4,000	100,000	—	2,000,000
Pulp and paper	500	—	—	—	—	50,000	260,000	—
Rubber	25,000	—	—	—	—	—	25,000	1,500,000
Soap	5,000	7,000	—	—	—	100,000	—	500,000
Wood chemicals	10,000	3,000	—	—	—	—	—	—
Food products	2,000	7,000	—	—	—	4,150,000	3,000	1,500,000
Paint and varnish	200,000	2,000	16,000	—	10,000	—	1,000	7,500,000
Explosives	185,000	—	107,000	—	—	—	65,000	5,000,000
Oils and fats	10,000	3,000	—	—	—	10,000	—	—
Glue and gelatin	2,000	30,000	—	—	—	—	—	—
Glass and ceramics	500	5,000	—	—	—	50,000	—	—
Percentage used— By chemical engineering industries	74·5	80·9	97·9	40·0	96·4	66·3	97·5	49·5
By all other industries	25·5	19·1	2·1	60·0	3·6	33·7	2·5	50·5
Total domestic consumption	7,000,000	230,000	153,000	7,000,000	78,500	7,300,000	1,228,000	105,000,000

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Alum	Ammonia	Arsenic	Liquid Chlorine	Soda Ash	Caustic Soda	Bichromate of Soda	Nitrate of Soda	Silicate of Soda	Sulphate of Soda	Zinc Oxide	Lime
Tons $Al_2(SO_4)_3$	Net tons of nitrogen	Short tons	Short tons	Short tons	Short tons	Short tons	Long tons	Short tons of 40 deg. Bé	Short tons	Short tons	Short tons
12,000	5,000	- -	1,000	150,000	70,000	200	100,000	2,000	97,000	3,500	250,000
500	1,000	350	10,000	30,000	10,000	—	10,000	—	1,000	500	50,000
--	—	—	--	—	- -	- -	--	—	—	---	35,000
---	---	—	- -	500	3,000	- -	—	--	-	—	30,000
1,000	1,000	150	2,000	10,000	7,000	500	—	---	20,000	—	10,000
—	54,000	14,000	—	- -	---	- -	600,000	1,000	- -	—	15,000
---	100	—	500	40,000	57,000	- -	—	—	—	—	3,000
5,000	750	- -	9,750	35,000	85,500	5,100	- -	8,000	92,000	9,000	5,000
500	- -	-	—	2,000	1,000	11,600	—	—	—	—	60,000
100,000		-	32,500	75,000	9,000	---	—	10,000	103,000	—	330,000
—	---	—	--	—	17,000	—	- -	—	—	78,000	3,000
—	250	-	-	200,000	112,000	-	- -	83,000	2,000	500	40,000
—	-	- -	—	- -	-	---	—	—	—	—	10,000
500	-	—	—	500	- -	--	5,000	- -	—	—	20,000
750	—	—	—	1,000	—	3,400	—	- -	- -	—	5,000
—	7,500	---	-	500	—	—	275,000	2,000	—	78,000	—
200	- -	-	—	—	14,500	-	—	—	—	—	6,000
---	---	—	—	—	—	- -	---	-	—	—	7,000
250	—	3,500	—	585,000	—	—	500	2,000	45,000	2,500	500,000
40·0	66·3	81·8	85·7	83·6	85·7	95·8	95·5	29·8	95·5	29·8	30·4
60·0	33·7	18·1	14·3	16·4	14·3	4·2	4·5	70·2	4·0	1·7	69·6
300,000	105,000	22,000	65,000	1,355,000	450,000	21,700	1,100,000	375,000	375,000	175,000	4,500,000

highly standardized than the present chemical industry, whereby the personal factor is being eliminated by mechanization of the process, but, in many cases, this will never be possible, and the operator skilled by heredity or training is at an increasing premium.

As regards organization of the labour, in view of the very varied classes of workers, trade unionism is not unified, though it is fairly general and comprehensive. Generally speaking, the usual labour problems have been comparatively easily dealt with in this country, and the position is not appreciably different in other chemical producing states. The peculiar nature of the work with respect to the handling of chemicals and often dangerous substances has called for special consideration of employees in a class distinct from the general workers' unions. In this necessary detachment from the usual organization of labour there appears to have arisen the inherent strength of the position which exists between the employer and the employed.

The method of remuneration is by no universal method common to all sections of the industry, or to the different types of employment within the same industry. Payment by results has its advantages and possibilities in some cases, while others—the fine chemical industry, for example—could not possibly adopt such a principle. But, in view of the varied nature of the employment, no generalization can be made, and specific mention of separate cases would be too extended and of little value to the reader.

In a similar way, the factors regulating wage levels are mainly characteristic of the section concerned, and not of the whole industry. Internal and foreign competition have determined the general principles on which the regulation of remuneration must be made, and this follows the usual lines common to most industries. As regards the effect of variations in cost of living, in the heavy chemical trade at least, prices for products so quickly reach a level directly determined by the cost of living, that whilst there is no deliberate attempt to apply a compensating factor, that factor is automatically introduced after a short time lag. Corrections may be effected by the use of a sliding-scale system of payment, which has been adopted with some success in the case of one or two manufactures, but, again, the method is not and cannot be universally adopted throughout the industry.

SOCIAL SIGNIFICANCE

Finally, so far as the social significance of a chemical industry is concerned, we might sum the position up under three heads characteristic of the present position—

1. The " dangerous " nature of the work, varying from that slight danger of, say, soda manufacture, which is no greater than in any average manufacturing process, to the other extreme of the explosives factory.

2. The " urgency " of the industry, which varies as from medicinal chemicals which are highly " urgent " to heavy chemicals and dyestuffs manufacture which are only " urgent " in the sense that they are or can be in many cases the raw materials for urgent manufactures.

3. The rapid developments which are taking place in the application of new chemical principles to old and new manufactures.

This last is, perhaps, the most important characteristic of the industry, and as it is daily becoming still more marked, it is more than simply a characteristic in that it is a fundamental factor which is changing the whole course of every country's industry and trade.

LABOUR ORGANIZATION

(*Continued from page 124*)

IV

FUNCTIONS OF TRADES COUNCILS

At the end of the last section we saw that trades councils are interested in political as well as industrial questions. Their political work is largely passing into the hands of local Labour parties (although in some districts a substantial minority of the trade unionists whose societies are affiliated to the trades council are not supporters of the Labour Party). Further, the work they do in the sphere of industrial conciliation is much less than it was, owing to the spread of national agreements covering whole industries With this narrowing of both political and industrial functions, it is thought by some that the day of these bodies will soon be done. But recent tendencies seem to point in an opposite direction At the Annual Conference of Trades Councils in 1926 (held in March, before the outbreak of the General Strike), important facts and figures emerged. First, it was reported that between February, 1924, and March, 1925, the number of trades councils in England and Wales had more than doubled (increase 178 to 392). Secondly, it was announced by the Chairman, who, significantly, was also the Chairman of the General Council of the Trade Union Congress, that the latter body was desirous of using the trades councils to create strong and concentrated trade union activity in all local centres. It was then resolved to adopt and carry out a scheme for federating trades councils by counties or larger areas. The details of this scheme show that trades councils are most numerous in Lancashire, Yorkshire, London, South Wales, and Durham—just those districts in which the political activity of Labour is strongest. The Conference then agreed to ask all trades councils to adopt model rules and a constitution similar to that of the General Council of the Trade Union Congress, and approved by the latter body. Finally, a resolution on organization was passed, the terms of which may be quoted in full to give an idea of the activities of these bodies on the side of industrial propaganda—

That this Conference calls upon trades councils throughout the country forthwith to engage in organizing campaigns in their respective districts, and for the purposes of these campaigns recommends—

(*a*) That the services be sought of district and national organizers of unions catering for workers in the district.

(*b*) That a system of personal canvass similar to that employed during elections be adopted.

(*c*) That steps be taken, by means of paragraph (*b*) and by delegates raising the question at branch meetings, to urge upon trade unionists the importance of exerting influence upon their children to become associates or juvenile members of a trade union as soon as they start work, and to apply for full membership upon reaching the age of 16 years.

(*d*) That existing trade unionists be urged to develop and strengthen organization inside the workshops.

(*e*) That the General Council be requested to provide necessary and suitable literature for assistance in these campaigns.

(*f*) That the General Council be requested to recommend trade unions which do not provide for juvenile associates to consider the matter with a view to making provision for young workers under the age of 16.

The increase in the number of trades councils still proceeds rapidly—there are now over 500 in Great Britain and Northern Ireland. Some of these are organized as "industrial sections" of local Labour parties; a few exist for purely political purposes, and are not included by the Ministry of Labour in its statistics.

A district Federation of Trades Councils, if it is strong—as in Yorkshire or Lancashire—is now a very important body in the organized Labour movement, and to those who aspire to office its chairmanship is a distinction, one of the public honours sought for by many of that "other nation" of which the middle class in this country knows so little. In 1894 trades councils were excluded from representation as such at the Trade Union Congress, and though they have repeatedly sought readmission since, have always been refused. The proceedings at the 1926 Conference of English Trades Councils referred to above show, however, that there is a *rapprochement* between the two groups. This is partly to be explained by clearer recognition of the advantages of co-operation, but is also partly due to a desire on the part of the majority in the Trade Union Congress to prevent the trades councils falling into the hands of Communists. In 1924, therefore, a Joint Advisory Committee of the two bodies was established in order to provide machinery for local trade union campaigns and demonstrations. At the Trade Union Congress of 1926 the action of the General Council in informing the trades councils that it disapproved of affiliations to the National Minority Movement (a "left-wing" organization) was approved, showing continued determination to discountenance "unconstitutional" methods in either industry or politics

TRADES COUNCILS AS "COUNCILS OF ACTION"

Trades councils played a large part in the General Strike of May, 1926. On 1st May, two days before the General Strike began, the General Council of the T.U.C. issued the following instructions to trades councils –

The work of the trades councils, in conjunction with the local officers of the trade unions actually participating in the dispute, shall be to assist in carrying out the foregoing provisions [i.e. stoppage of work in various trades and undertakings], and they shall be charged with the responsibility

of organizing the trade unionists in dispute in the most effective manner for the preservation of peace and order.

In accordance with these instructions many trades councils set up "Councils of Action," composed of their own executives and representatives of local strike committees. Reports made by various trades councils show that these "Councils of Action" acted as directing bodies during the strike, and met daily—with greater or less effectiveness. Members of the Executive were, in most cases, in continuous attendance to advise trade union branches and members.

This form of action was not new, for councils of action were formed in 1920, when a general strike over the Russian question seemed possible. And, if we go farther back in the history of trade unionism, we find many cases of trades councils acting as or *originating in* strike committees Later, particularly after 1860, they tended to become more concerned with political questions—Parliamentary reform, Labour representation in local and national politics, and municipal problems. But, while some have become merely the industrial section of local Labour parties, the big trades councils have always reverted in times of industrial dispute to participation in industrial or "direct" action. For a fuller account of trades councils in action during the General Strike, students are referred to the *Monthly Circular* of the Labour Research Department for June and July, 1926. These two numbers contain many reports from trades councils, besides comment (which should be read critically, being not perfectly dispassionate). The following typical report, from Coventry, shows an important council functioning in a time of emergency.

COVENTRY

Organization.—On April 22, in anticipation of a crisis in engineering, a specially convened meeting agreed to form a council of action consisting of the Trades Council Executive and co-opted representatives of trade unions. As soon as the call came from the General Council this body, including about 30 co-opted trade union representatives, was set up. Sub-committees were appointed to deal with (*a*) publications and publicity, including the issue of bulletins and distribution of the *British Worker*; (*b*) transport, with nine cars and 60 motor-cycles at its disposal; (*c*) distress, special attention being given to raising funds for Warwickshire miners; (*d*) meetings; (*e*) socials; (*f*) permits, controlling the work of trade unionists involved in the movement of supplies.

Publicity.—Strike bulletins were issued either morning or evening, according to the arrival of supplies of the *British Worker*. About 2,000 copies of each edition of the local bulletin were produced.

Co-operative Society.—At a meeting of tradesmen and trades council representatives, summoned by the local Food Controller on 3rd May, the Chairman of the Co-op. stated that for the first fourteen days at least there was no need for any increase in prices and that the Co-op. would make no increase. The result was a definite check on the raising of prices by private traders. The same applied to coal, of which the Co-op. obtained supplies through the Warwickshire Miners' Association.

Our description of trades council activities provides the clue to their functions. These are not precisely definable, and no one has attempted an exact definition, but we may say they represent wage-earning workers as workers. They are the local parliaments of the working class, and express what is called the spirit of solidarity or class loyalty, as it exists among working men. In times of crisis they invariably act as the local executive of organized Labour, and, inevitably, both in the political and the industrial field.

THE TRADE UNION CONGRESS

We have made many references to the Trade Union Congress, which we began by describing as the "Annual Parliament" of organized Labour. From what has been said, it will be clear that it is the body which seeks to unify the trade union movement. Not many important unions remain outside. The Congress of 1926 was the fifty-eighth annual meeting, and 696 delegates represented about 80 per cent of the organized workers of the country and all the important industries. Every year more societies representing non-manual and professional workers come in. For many years the only approach to appointing an executive which the Congress made was the election of a "Parliamentary Committee," but in 1921 the present "General Council" was created, with greater authority.

It has become a body of considerable prestige in the Labour movement, but its powers are limited, and large unions, like the miners and transport workers, lead the resistance to all attempts to make it a *controlling* as distinct from a *co-ordinating* authority within the trade union movement. It is only natural that unions should regard themselves as knowing the affairs of their own industry better than any general council. While the latter has, on occasion, mediated in industrial disputes, and was the body which called the General Strike of 1926, it has never been given the authority to conduct negotiations in disputes between one of its constituent unions and an employers' organization. It has, however, practised "conciliation" in disputes between trade unions.

METHODS OF REMUNERATION

(*Continued from page 126*)

IV

THERE are various other features incidental to time-work. One important feature of some trades, the system of grading workers on time rates —according to skill or according to speed—is, in some of its forms, recognized as a system of payment by results; it will be more fully considered after payment by results. Here, however, it should be noted that there are grading systems which are not clearly distinguishable in principle from ordinary time-work. In various trades with standard time rates, e.g. the various crafts in the building trades, fitters in engineering, etc., the payment of "extras" on certain jobs, or in special circumstances, is usual. These extras—which take the form of a specified addition to the ordinary standard rate—are paid in respect of the extra exertion or inconvenience not experienced on the ordinary work; "dirty money" when the circumstances of the work are unpleasant or cause damage to clothing (sometimes the provision of special clothing is part of the bargain); "height money" when work is performed above a certain distance from the ground level; extras when the temperature in which work has to be performed is above a certain degree, etc., etc. There are corresponding "extras" in piece-working trades, and the regulation, in both instances, may be considered as an application of the standard rate idea, and as an indication of the common basis of piece-work and time-work already referred to. The same principle put into application in the payment of, say, an engineman in charge of stationary engines may result in the payment of one or other of two or three standard time rates; the rate of the engineman being increased from, say, £3 per week to £3 10s. per week when he is put in charge of an engine above a specified horse power. There is no sharp dividing line between payment on this system of grading and that contained in the elaborate arrangements made for railway signalmen, which are referred to later along with grading systems of a somewhat different character.

PIECE-WORK AND PAYMENT BY RESULTS

Piece-work takes many forms and a variety of names. The term "payment by results"—sometimes used as an alternative to piece-work and sometimes as a more comprehensive title—is even more indefinite. For convenience payment by results may be taken to refer to all forms of payment in which part at least ~~of the payment~~ is definitely assessed on output. Used in this way, it will include piece-work in its purest forms (e.g. where a home-working needlewoman is paid specified piece prices, on the work given out to her to be returned in a finished condition, and in reference to whom no question of payment for "waiting time" arises). It will also include forms of payment in which a time rate is guaranteed irrespective of output, and in which extra wages are assessed on output. There is a great variety of such forms, and they differ in, among other ways, the proportions of the earnings which are made up of time wages and piece wages respectively. This general definition of payment by results, therefore, covers not only pure piece-work, but also methods in which either a large part or an almost negligible part of the earnings is definitely assessed on output. It follows that a worker employed on one form of payment by results will regard himself as a "piece-worker," while another employed on some other form will consider himself a "time-worker." Various practical problems arise from this difficulty of drawing clear distinguishing lines. Here it is sufficient to note that the distinction between a "piece-worker" and a "time-worker" is not always easily made when both are paid wages partly consisting of time rates, and that the determination of the distinguishing line may become practically important. For example, when the piece-worker—or whoever regards himself as a piece-worker—expects to earn a certain percentage over time rates, or when the increases granted to "time-workers" differ from those given to "piece-workers."

The many forms of payment by results might be classified in numerous ways. Perhaps the most convenient way is that which adopts well-recognized terms; the many variations of form can be fitted into or added to the classification based on these terms. The discussion which follows is based on the following classification: (*a*) straight piece-work; (*b*) straight piece-work with a time guarantee; (*c*) output or premium bonus. Reference is also made to "waiting time" payment. The explanation is given in reference to rates applicable to the individual worker; collective systems of payment take the same forms but they raise particular questions of interest, and are, therefore, treated separately.

STRAIGHT PIECE-WORK

A rate is paid for the performance of a specified piece of work. The *rate* is the same, however few or however many pieces are performed. There is no payment made expressly in respect of any part of the time spent on the work. If the reader desires a phrase which will describe the method more exactly he may add the term "pure." By saying that the piece-work is "straight" may be understood that the rate per piece does not vary.

" Pure " would indicate that there is no element of time rate in the wages.

To say that there is no element of time rate does not mean that the piece rates are fixed without regard to the wages per hour which they will yield. The yield of the piece rates is a most important feature of the wage bargain, whether or not expressly stated in the bargain. This is clearly indicated in many cases, e.g. where a time rate is fixed for time-workers and it is agreed that piece prices should yield the average worker time and a quarter, time and a third, or time and a half, as the case may be; the time and a third indicates that, if the time-worker's hourly rate is 1s., the piece prices should enable the average worker to earn 1s. 4d. per hour. The same principle underlies piece prices paid in trades where no time rates are fixed for time-workers; it is not necessary to have the rate of 1s. referred to above in order to agree that 1s. 4d. should be the standard for piece earnings. This standard or basis for piece rates is sometimes called a *piece-work basis rate* or *piece-work time rate*. In the Trade Boards Acts the same idea is conveyed by the longer phrase *piece-work basis time rate*, which indicates both that it is measured in time and forms a basis for piece-work; this is a rate per hour which an *ordinary* worker should be able to earn when employed on piece rates.

STRAIGHT PIECE-WORK WITH A TIME GUARANTEE

This method of payment differs from that just described in that a time rate is guaranteed to the worker. Thus, there is a lower limit to the time earnings of a worker, whereas under straight piece-work (in the pure form) there is no such lower limit. The *guaranteed time rate* is quite distinct from what, in the previous section, was called the piece-work basis rate. In many trades, including engineering, when piece-work is applied this is done with the operation of both a guaranteed time rate and piece-work basis rate. The time rate, which is guaranteed (irrespective of earnings on piece), is, in many trades, the time rate commonly paid to a time worker (the standard time rate of the collectively made bargains)—for example, the 1s. per hour referred to in the preceding section. There are cases in which the time rate guaranteed to a piece-worker is less than that paid to a time-worker, 10d., say, corresponding to the time-worker's 1s.; and, in some instances, a rate higher than that paid to a time-worker has been guaranteed to the piece-worker. Whereas, under straight piece-work (without a time guarantee) earnings per hour for the members of a group may range from 10d. to 1s. 10d. per hour, say, if a time rate of 1s. per hour is guaranteed, then the workers whose earnings on piece amount to only 10d. per hour, or any other figure under 1s., would be paid at the rate of 1s. per hour; the piece-work basis rate on both methods may be imagined to be, say, 1s. 4d. per hour.

" WAITING TIME " PAYMENT

A matter which is of importance in many cases of piece-work or payment by results is the rate of payment during periods of waiting between jobs. The actual arrangements vary considerably from trade to trade. In some trades " waiting time " is not paid for. It will be realized that to the worker the provision of " waiting time " payment is a more important consideration when a time rate is not guaranteed, that is, when what has been called pure piece-work is in operation. " Waiting time " payment may be considered to render the method different from what has been called pure piece-work. The method may, however, remain pure piece-work except when a supply of work is not available. When there is a payment for " waiting time " the rate is often a uniform time rate for the class of workers concerned. In some cases a rate based upon the average piece-work earnings of the individual concerned is paid. Again, the principle may be applied when a piece-worker is only partially employed—for example, when a worker whose normal complement of machines is three has to wait for work for one of the three machines. In such circumstances the worker would receive his piece-work earnings on the two machines in operation, and, in addition, an amount representing the " waiting time " in respect of the third machine. The extension of the principle of " waiting time " payment is a feature of comparatively recent changes in the wages arrangements of a number of trades. For trades whose wages are regulated by trade boards, the principle is laid down in the Trade Boards Act, 1918.

UNEMPLOYMENT

(*Continued from page 128*)

IV

CYCLICAL FLUCTUATIONS: THEIR CAUSES

MANY explanations have been given of cyclical fluctuations in employment and nearly all have elements of value. Probably, however, no single explanation will account adequately for the phenomenon. The chief theories fall into two groups, according as they regard the main influences as coming from outside industry or from within it.

CLIMATIC THEORIES

The first group contains various theories. Explanations based on climatic causes or the course of agricultural production include theories of sunspots (Jevons), variations of rainfall (Mr. H. L. Moore), and of barometric pressure (Sir William Beveridge). These are founded on the fact that all production is largely a division of labour between industry and agriculture. The industrial countries of the world are much engaged in providing for the agricultural communities. The demand for their products varies with what the latter have to spend in purchasing manufactures after their own immediate wants have been satisfied. This surplus in turn depends on climatic conditions. If these are good, harvests are abundant, the agricultural communities have much to spend, and industry will boom. If harvests are short, they have little to spend and industry is depressed. These influences, indeed, may be modified by adjustments in price (e.g. low prices after abundant harvests) and dealings in "futures."

Nevertheless, variations in harvests can be seen to exert definite influence on industry, and from this Jevons developed the theory of a climatic cycle, based on the phenomenon known as "sunspots," as the underlying cause of the cyclical movement in industry. The theory maintained that the climatic cycle has a definite period of eleven years; and this is its weak point as an explanation of the employment cycle. For the latter is usually shorter and its length also varies considerably. Thus, "though their coming appears to be inevitable, the date is within broad limits quite uncertain."[1] Moreover, the great agricultural areas are scattered over the world; it is not certain that climatic influences are the same in all of them; and fluctuations in different areas may counterbalance each other. Thus "sunspots" or other climatic influences do not appear to explain fully the employment cycle, though variations in agricultural demand are certainly a contributory influence, and there appears to be evidence of connection between barometric pressures and the export trade.

[1] Beveridge, *Unemployment*, page 57.

MONETARY INFLUENCES

A second theory is that the trade cycle is due primarily to monetary causes. Changes in price levels and purchasing power lead to general changes in production and demand. Rising prices bring hopes of profit, encourage manufacturers, and create a boom. Falling prices reduce hopes of profit, or, when the fall comes between production and sale, may involve actual loss. Moreover, it is argued that the value of money itself fluctuates and causes uncertainties in industry which tend to increase fluctuations. Earlier forms of the theory maintained that industrial fluctuations were brought about by changes in gold output, which altered the amount of currency or the size of the gold basis of credit. But, with the large stock of gold in existence, such changes have only a gradual effect, compared with the rapid changes of the trade cycle; and their influence seems to have been exerted less on the ordinary trade cycle than in creating general conditions which hold good over much longer periods. The influence of the Californian gold discoveries and the later shortage of currency was important in this way. Other forms of the theory are based on fluctuations in credit rather than in metallic money. Changes in credit can certainly affect the price level within a limited period. But the theory seems largely to treat an effect as a cause. The start of a trade boom appears to spring from industrial demand and the hopes which this creates, and itself causes these increases in credit and purchasing power, which help to expand the boom. When the tide turns, indeed, the first move may come from restrictions of credit by the banks to protect their reserves, which bring down prices. But even here their action may be the result, rather than the cause, of industrial movements.

THE PSYCHOLOGICAL THEORY

Thirdly, the psychological theory argues that the working of men's hopes and fears in the business world is the mainspring of expansions and contractions of trade. At one moment confidence prevails, at another depression. The former causes production to expand, the latter makes men over-cautious. Undoubtedly, during the trade cycle these influences operate to reinforce prevailing tendencies. Increasing demands or new markets give hopes of gain and initiate an era of confidence. Similarly, restriction of demand acts psychologically and magnifies a depression. But the theory hardly seems to explain of itself why these influences are set in motion when they are

SAVING AND SPENDING

Among the industrial explanations, Mr. J. A. Hobson's "Over-saving" or "Under-consumption" theory attributes fluctuations to the fact that distribution provides inadequately for the many and gives excess to the few. The latter consequently cannot consume their whole incomes, and invest their surplus in increasing the means of production. Sooner or later, therefore, owing to the poverty of the many, production exceeds what the market can absorb and trade depression follows, till surplus stocks and machinery are exhausted or worn out, when the process repeats itself. Thus, according to the theory, the remedy is to remove the surplus of "involuntary saving" by higher taxation, increased wages and reduced hours. The theory is open to many objections. First, it seems to exaggerate the extent of "involuntary" saving and overlooks the position of the large middle classes, whose incomes do not exceed their spending powers, whose consumption does much to maintain adequate demand, and who would be seriously crippled by heavy taxation. Secondly, increased means of production cannot be effective without somehow increasing demand by those engaged in production, or creating it by lowering prices. Thirdly, saving is necessary for the expansion of industry, and progress is impossible without a surplus of production over consumption. The trouble springs from excessive saving. Without saving there can be no progress, but, if saving is excessive, dislocations follow. But the theory is valuable in drawing attention to one cause of dislocation.

More adequate is Mr. D. H. Robertson's theory based on the idea of a balance between saving and spending. The cycle in employment is caused by the conflict between man as producer and man as consumer, so that he tends unduly now towards enjoyment, now towards thrift—here psychological influences are at work—and fluctuates between spending and saving. This fluctuation upsets the balance between them and causes the cyclical movement.

MISCALCULATIONS

A third theory finds the cause in miscalculations or in misdirection of effort. Over-investment in the more durable means of production (e.g. the railway mania) may lock up too much capital, and leave insufficient for other purposes. Again, miscalculation of demand may take place, particularly in the production of durable goods. When these take time to produce, or future demands of a world market must be estimated, the time element increases the danger of miscalculation. The influence of these things in the engineering, shipbuilding, and building industries has already been considered. Further, in a world market, miscalculations may take place with less durable products, like textiles. A slump in a few big industries may extend to others, and psychological influences aggravate the miscalculation. Miscalculation may not explain the whole movement, but seems clearly to accentuate it.

THE COMPETITION THEORY

Finally, Sir William Beveridge has argued that the cyclical movement is largely the result of the normal workings of competition, without either over-speculation or miscalculation. In a rising market each producer may correctly anticipate the total demand, but each strives for as large a share in supplying it as possible. A boom in production results, eventually supply exceeds demand, and a slump follows. This may happen without any miscalculations, but, for the reasons given, an element of miscalculation often accentuates the slump.

COMBINED INFLUENCES

Probably, therefore, no one theory is adequate to explain cyclical fluctuations, but the influences at work are briefly as follows. Steady progress requires a balance of saving and spending. A sufficient excess of production over consumption is necessary for development; too large an excess unduly restricts immediate demand. Steady trade requires the balance of saving and spending to remain constant, whereas, in fact, it is upset from time to time. Moreover, from the side of the producers, there is a recurring tendency to over-production in the ordinary working of competition. These, perhaps, are the main influences towards trade fluctuations; but they are reinforced by others—the working of men's hopes and fears (psychological), miscalculations of the market, movements of credit, and climatic influences.

THE RESULTING PROBLEM

Thus, the marked cyclical movements in demand for labour are probably, apart from exceptional events like the Great War, the greatest cause of unemployment. "Cyclical fluctuation means discontinuity in the growth of the demand for labour."[1] On the other hand, "trade fluctuation is at times obviously and directly the means by which the standard of production and comfort is driven upwards."[2] For, prior to the war, almost every fluctuation left production larger and real wages higher than before.

The problem, then, is to remove the influences that lead to dislocation, without stunting the instincts and actions which make for progress or destroying the savings necessary to it. It is desirable, therefore, not only to remove influences such as miscalculations, which unnecessarily aggravate fluctuations, but to find means of mitigating less avoidable tendencies by seeking other ways of equalizing demand for labour.

[1] Beveridge, page 65.
[2] *Ibid.*, page 64.

BOY LABOUR AND APPRENTICESHIP

(*Continued from page 130*)

IV

METHODS OF TRAINING (SKILLED AND SEMI-SKILLED WORK)

(*b*) THEIR MERITS AND DEFECTS

A DISCUSSION of training must consider, first, the merits and defects of individual methods; secondly, their characteristics as a whole, that is as constituting a general system of training; and, thirdly, the results arising out of this variety in method. For this variety may have results, quite apart from the merits or faults of individual methods, which may make the general system better or worse than it might otherwise be. Where, indeed, difference in methods springs from difference in conditions, as in the main division between apprenticeship and progression, the two are really separate systems. But where alternative methods are available in the same trades, their competition may have important consequences, and may seriously affect the general working of the system.

ESSENTIALS OF GOOD TRAINING

This will be made clearer by briefly recapitulating the objects to be attained by a good system. It should, as already described, provide adequate preparation for manhood for the whole juvenile population. To do so it must establish suitable standards of training, the existence of which implies reasonable unity of method. For training to be successfully given and its conditions adequately enforced, there must be known and definite rules. The conditions must be clear and unambiguous, so that parties may know their rights and duties, and failure to carry them out may be obvious. One great merit of the Elizabethan system was that it did secure this. But unity should not be carried too far to permit reasonable elasticity, to adjust the system to changes in conditions and to the circumstances of different trades. Under modern conditions the needs of trades and even of parts of trades vary, and thus reasonable elasticity is essential. The problem, therefore, is to combine such elasticity of detail with sound standards and conditions. Thus unity with elasticity is the first essential.

Secondly, the methods adopted must provide adequately for the object in view, which is to train the boys for the work of their trades. They are there to learn. The boy in industry is a learner rather than a worker, or at any rate is a learner as well as a worker. Training must not be subordinated to work and wages, and provision must be made to enable the employers and the boys to give and receive it under reasonable conditions. Thirdly, adequate control is needed to ensure proper care of the boys, prevent abuses and neglect of training, and procure adequate co-ordination between the different agencies by which training is given.

QUALITIES OF MODERN APPRENTICESHIP

Thus, present methods must be judged by their power to satisfy these conditions, and the various forms of modern apprenticeship may first be examined. These methods have all their merits and defects, the merits being most marked with the more regular and the defects with the less regular. The advantages of the indenture lie in its recognition of the apprentice as a learner entitled to be thoroughly trained. But a boy bound to an unsuitable trade or to a bad employer cannot easily leave his indenture, and an employer cannot easily get rid of an idle or unsuitable apprentice. Further, the knowledge that he is bound for a long term sometimes makes a lad slack in the earlier years, whilst, if he sees others getting higher wages under less strict conditions, he may become discontented. Again, the terminable agreement and verbal understanding make the boy feel that his wages and training depend on himself, while the employer knows that to retain the boy he must treat him reasonably. But it is easier for either side to break the agreement, which is thus more liable to abuse, and, with lesser emphasis placed upon it, learning is apt to be sacrificed, by the employer to production and by the boy to wages. This is more marked where the latter moves from firm to firm, for he is then avowedly engaged as worker and wage-earner. Such a method of acquiring skill produces many failures, though it gives opportunities to boys who are too poor to work for apprentices' wages, and provides means, not perhaps the best possible, of overcoming the difficulties of specialized output. Finally, the method by which the helper acquires a skilled trade has similar merits and defects, but it leaves too much to chance so that capable boys, fit for something better, remain assistants, and less capable ones become inferior tradesmen. Sometimes this method ensures at least a semi-skilled job, but where boy assistants are employed it may prove a blind alley.

WAGES, PRODUCTION AND TRAINING

Consideration, not of individual methods, but of the whole system, emphasizes several features—want of order and control, inadequate emphasis on training, and lack of definite standards arising out of diversity of method. As compared with the past, the whole system seems based less on definite training than on providing opportunities

to learn and leaving the individual to make the best of them. In certain respects modern conditions render systematized training more difficult, and are in part responsible for the change. A prominent firm of contractors, for instance, in explaining their abandonment of premiumed apprenticeships, said: "We are prepared to take a boy and do what we can to teach him, but, owing to changed conditions, we always refuse to take a man's money for doing so." Actual training becomes less prominent, and things are left more to the individual.

From this it follows that wages and production often take a more important place than training in the eyes both of boys and employers. "Earning," wrote a London County Council Committee in 1906, "looms larger in his (the boy's) imagination than the more laborious and less remunerative learning." Probably this has always been so, but modern conditions have accentuated it. Similarly, these conditions cause employers to look more to the productive side of the learners' work than in the past. Thus, the contract for training becomes more than before a contract for work and wages, and the idea of training as the primary object tends to be lost. To some extent, modern conditions, notably machine production, make it easier for the boy to teach himself, and at times shorten the period of training. But, at present, the whole position is further complicated by the difficulties arising out of diversities of method.

DISADVANTAGES OF MODERN CONDITIONS

Thus, whilst present methods have certain advantages, particularly so far as they call forth individual energy and self-reliance, they leave too much to the individual and to chance. Apprenticeship to-day is less an organized system than a collection of individual methods, in which training is often sacrificed to wages and production, and the lack of definite standards has offered fertile ground for the growth of defects.

First, some training is definitely bad. Where boys move from firm to firm, and have to teach themselves, even the best may fail for lack of guidance or of opportunity. In the less regular forms of apprenticeship, absence of definite contracts enables bad employers to use boys as cheap labour, and leads to undercutting, which may hinder better employers in properly training their apprentices. Secondly, different methods often compete in the same industry. Some boys are taken at low wages for definite training, others at their full value as workers to learn what they can; and thus no definite standard is established. This not only facilitates abuse, but prevents the best being made of any method. The indenture, for instance, gives least satisfaction where it is one method amongst several, and is most successful when, as in printing, it is predominant. Thirdly, such elements of value as the different methods possess individually are not made the most of, and so no one of them achieves the results possible in a carefully organized scheme. Finally, the idea of training is often lost sight of for the reasons already given, that employers regard the boys primarily as producers, and the boys regard themselves as wage earners.

The resulting sacrifice of ultimate efficiency has far-reaching effects. It increases the numbers who never try to learn a trade, or drop out before mastering their work, and depresses the standard of those who do become skilled tradesmen. Thus, the level of skill and training is lowered. Though exceptions are becoming more numerous, there is too often no organized plan of teaching in the workshops. In spite of recent improvements, too many boys have still to pick things up for themselves, and co-ordination between workshop and technical school is neither complete nor sufficiently general.

QUALITIES OF PROGRESSION

These characteristics of modern apprenticeship apply to some extent to all industrial training, and other methods need only a brief reference. Under progression, apparently, there is not the same difficulty arising from diversity of methods. For, speaking generally, the trades concerned have each fairly uniform methods, suited to their conditions and usually well adapted to their purposes.

But preparation and recruiting are apt to be on somewhat haphazard lines; each individual is left to do his best for himself, and trade union regulations seem chiefly concerned with guarding the livelihood of the skilled men. Thus, it is doubtful if the best choice is always made for promotion. Some of the trades give security for at least a permanent job of some sort, but in others, like cotton spinning, numbers of boys have to be discharged on reaching manhood. This, however, is due rather to the general organization of the industries than to the method of training as such.

SEMI-SKILLED TRAINING

With semi-skilled work the actual training required generally takes a form similar to the less regular methods already considered, and has similar defects, though the lesser skill required may render irregularities in some ways of less moment. But there is still the danger that the general capacities of the workers may not be sufficiently developed, or that the best possible use may not be made of the material available. Semi-skilled jobs provide largely for the more capable boy labourers, and preparation for them is among the important problems of boy labour, which will now be considered.

LEADERSHIP IN INDUSTRY

(*Continued from page 132*)

IV

PROMOTION AND ADVANCEMENT

We may readily subscribe to a doctrine that, irrespective of any other considerations whatever, the best person should be appointed to each post in an organization. It is a sound doctrine but exceedingly difficult to apply. All sorts of considerations cut across and cannot readily be laid aside. To begin with, there is the question of reward. Promotion cannot altogether be severed from the idea of reward. Men are not chosen purely because they give evidence that they will fill an assigned post more satisfactorily than other men. The satisfaction with which they have performed their duties in the past is bound to arise for consideration. We might, indeed, conceive of an extreme case in which the occupant of a post had been thoroughly inefficient for a sequence of years in his conduct of the work but that he had shown the possession of qualities which would make him an ideal candidate for another type of post, possibly a superior post. Looking at such an extreme case as that, we could not say that we should choose a man for the higher post purely in consideration of his merits for that post and on no other ground. In practice the pendulum probably sweeps to the other extreme, and undue weight is given to reward, or to the recognition of ability which has been evidenced in the occupancy of a post. Then, again, it is probable that there are qualifications of what we may call "mere ability" which are of great importance. A man may be too conscious of ability; he may be too conscious of other people's lack of ability; he may be so conscious of ability as not to remember that there are tendernesses and softnesses of presenting ability which make it both more influential and more attractive. In all this we have regarded the word "ability" with a certain narrowness of conception. We have not included within it all the *savoir-faire* of human relationships by which it may be softened and adapted to circumstances.

THE BRILLIANT STARS

Thus, we might be disposed to doubt what the historian said of Pitt: "No sooner was he in power than the incompetent were dismissed." Yet, though we doubt the sentence as stated thus sweepingly, we may well admit that the process of human organization must set out to seek its most capable men and find places for them where they can function and at the same time places in which they may encourage others of varied capacity also to function to the best of their power. Here we may find a formula for adoption. It will expect a certain possibility of romantic advance. There will be Richard Whittingtons and Samuel Budgetts. But they will be brilliant stars against a much less brilliant background. In the main the organization cannot be romantic. The very size of it is its dull danger. It will provide for all sorts of ability but it will have to remember that in the main this ability is on a certain modest level. It will not do to say that it would be above that level if the opportunity were provided. To provide an opportunity is to provide a general chance of failure. The possession of the requisite ability will find the opportunity, even in the comparative hum-drum, and if it does not find it there is no power which can make it. Thus, organization has to take it for granted that it is not making a world where every potential ability can be discovered and developed. It is striving to make a world in which there will be a gradual process of evolving ability, sufficient to be encouraging in its day-by-day growth, but not sufficient to be the daily witness of heroic leaps from mountain-top to mountain-top. Thus, the ability which is to benefit by the romantic advance will be exceptional ability and will be more exceptional, so to speak, as time goes on.

THE CULTIVATION OF GIFTS

Also, it will be more amenable to training and culture. We have abused the word "gifts." We have taken it for granted that certain talents are conferred upon us and we forget that the training and cultivation of those talents is really the matter of importance. For example, it was said in the public Press the other day that a certain well-known business house took particular pains not to waste the "talent for planning big campaigns" in the daily work of executive direction. There is very little evidence that there is such a wide distinction between the two types of ability in their earlier stages as to justify so clear a demarcation. Rather it is probable that there is a certain receptivity and adaptability, a certain measure of promptness of decision, and a certain measure of what we may call personality which can be moulded by circumstance into one or the other type of ability. There is no ground for an assumption that Nature provides us with gifts in precisely the appropriate proportion for distribution to the best purpose within our present organization. On the contrary, it seems to be much more likely that gifts and talents are malleable and adaptable to varied circumstances, and that what we call "gifts and talents" should be regarded as potential gifts and talents available for us to develop them. There is a good deal in the theory of self-realization as the duty of

all men, that is when we view man's duty from the angle of his place in an organized scheme. There seems to be a potential man within us who can be discovered and trained and the particular type of actual man which he may prove to be is dependent upon the process of discovery and of training just as much as upon what we have regarded as the original gifts.

THE MUTUAL POSSESSION

There is another point which calls for emphasis. Abilities, when regarded from the angle of an organization, must not be regarded as valuable in respect of the separate individual possession, or indeed of the separate individual cultivation, but in their mutuality of possession. The day of the individual giant is over. Business is much too complex to-day to permit any possession of individual talents to outweigh the value of corporate effort. The man who is able to get on well with others, who is able to let others have their share in work and responsibility and honour, who is able to delegate or to accept delegation, who is able to preserve his individuality without harshness of distinction from others such as is bound to lead to friction—this man is the really able man for the conditions which are fashioning themselves in the immediate future. Here, again, when we speak of cultivable gifts we must do it with a certain reserve. The nineteenth century was marked by the lonely student who burned the solitary midnight oil. We have done much to give students better opportunities than formerly of acquiring knowledge corporately and in fellowship. Sometimes it may seem that we have gone too far, or, at least, that we have not safeguarded the balance, and that there is something for praise in the stern indomitable courage of the isolated student. But when we admit this we shall do well to remember that the very merits of the individual method had the peril that it did not lead to mutuality. The individual student who reads these pages will be well advised to reflect that while he has the merits and the advantages of stern self-direction, the self-direction is not for a finally self-directed purpose. To whatever position he may aspire he will need the corporate sense. It may be his to be a leader, but he can only lead if he has the trust and the confidence of men, in the sense that they will expand and develop under his leadership. He may find that in social contacts, in ways which he would never expect, he will learn that sense of cohesion with others which he will need, if he is to be fully equipped for leadership. Here, again, it is not possible to teach the art. Certainly it is not possible to teach it by means of the written page. But it is possible to indicate its contents and its margins, and the thoughtful student will exercise himself thereon.

It may be added that these considerations, if carried to their conclusion, lead to the reflection that leadership no longer is leadership. A Napoleon would probably make a poor success of a modern industry, for it is by no means the case that a stern and strong individual will is the first and only requisite. Indeed, it is more likely to bring reactions. There is a new indomitability of will which is exercised through reasoning and through its own attractiveness, and brings to the issue an accord of many wills. Nor is it a matter of logic only. As Cardinal Newman argued in another connection in *A Grammar of Assent*, there is something which accompanies stern logic by means of which we are instinctively carried to conviction. Hence, the study of industrial leadership in the future will take into account that particular psychology of leadership which regards itself as *primus inter pares* rather than a Colossus striding the world. It will seek to inspire rather than to dominate. It will examine the history of the world and the evidences of human association in our own time to seek the conditions which may govern this inspiration. Above all, it will realize quite frankly that for this new leadership it is as necessary that men should be as ready to co-operate and, therefore, to follow as to lead. The sense of cohesion which is to be learned has these two sides to it, and one of the subtlest dangers is for us to forget that in the offering of the cohesion there may be as high honour as in the offering of what is regarded as leadership.

PUBLIC FINANCE

(*Continued from page 134*)

IV

EXPENDITURE on the primary functions of government is outlay on defence, the maintenance of law and order, civil administration, and service of debt. Writing considerably in advance of the publication of *The Wealth of Nations*, Montesquieu deplored extravagance in armaments; he thought that half of the income of European States was utilized in military expenditure. Certainly the States whose neighbours threatened attack spent very large sums. Two-thirds of the expenditure of some of them was so employed, and in the case of Prussia it was probably three-quarters. Adam Smith drew attention to the variety in this problem in different states of society, and suggested that as societies advanced in civilization this provision tended to become more and more expensive.

In an analysis of the operating forces, Professor Bastable pointed to two general tendencies. The first was the increased division of labour which necessarily accompanied the advance of society, and the second was the development of those inventions which are such a striking characteristic of modern civilization. In his view, the former made it necessary to set apart a specially trained section of the community for military service, and the second referred to the progress in scientific discovery which brought increased cost of warlike material and equipment. An international financial conference in 1920 showed that an average of 20 per cent of the expenditure of nations was still devoted to armaments and preparation for war; it urged the adoption of an open policy of mutual co-operation among the nations if they were to regain their former prosperity. The international conference of the following year brought substantial agreement for "naval holiday" by Great Britain, France, America, Japan, and Italy; the decision has since been extended to other naval powers, and within recent years disarmament has received prolonged consideration by the League of Nations. The relation of the cost of defence to the increase in wholesale prices, and many other forms of comparison, have emphasized the importance of retrenchment, but the underlying economic principles are always in mind.

COST OF PREPARATION FOR WAR

Reference has already been made to the point suggested by Adam Smith in the cost of preparation for war as it appears in successive stages of society. In early or barbarous communities the cost is insignificant. The introduction of agriculture had a modifying effect in tending to retard the mobility of labour and of commodities; the appearance of manufactures and the growth of urban life tended to check the ruder forms of warfare. In his *Spirit of Laws*, Montesquieu wrote of the new disease which was spreading through Europe, which had seized sovereigns and made them desire to maintain an inordinate number of troops. The subsequent course of events has, in many respects, justified his apparently extreme contention. The tendency is plain in the wars which followed the French Revolution; it is often urged that in the third quarter of last century, especially around the Austro-Prussian War of 1866, and the Franco-German War of 1870 71, there was much increase of the popularity of national army systems. In these circumstances it is hardly surprising that economic and financial considerations tended to disappear, or, at all events, to receive quite insufficient attention. The expenses of defence and aggression are usually divided into two parts, the normal and regular, or peace-time establishment, and the other devoted to actual warfare, which is irregular and so far described as abnormal. In analysis of financial burden one of the tests of the military system is efficiency; that can be measured up to the point of net cost. On the other hand, an ineffective and badly organized army may be dear at any price. But comparisons of the cost of military preparation in different countries are made only with difficulty. More than forty years ago it was suggested that an army over twice the size of that of Britain was maintained by Germany at an increased outlay of only 10 per cent, but the calculation omitted material facts such as the wages and the salaries of the two countries not being on the same level. Each country has its special circumstances. Britain, for example, has to provide garrisons for stations in remote parts of the world. To some extent the outlay is modified without compulsory service by the presence of volunteer or territorial systems. But, against that, and such devices as the amalgamation of control, the co-ordination of contracts and supply, transport, educational, medical, and other services, usually introduced in the combined interests of economy and efficiency, there is the rapidity of present-day invention which soon consigns to the obsolete the most costly appliances. And, since it is impossible to delay their purchase till war begins, the outlay is still very heavy, involving considerable sacrifice of labour power and commodities. In this matter the tests are usually those of the relation of State outlay to national revenue, the risks to which an unsuccessful war would expose the country, and the comparative urgency of other claims of the State.

MAINTENANCE OF LAW AND ORDER

The second primary duty is the maintenance of law and order. It also is of the greatest importance, but, for obvious reasons, it costs very much less than defence. The necessity of such a service is generally recognized ; the ultimate aim is usually described as the promotion of social progress by the establishment of security. In financial review all the elements of justice, administration, and police are taken into account. Even in a strict economic analysis judges and other judicial officers are regarded as discharging most useful service ; their work is in the interests of society as a whole. Comparison is often made between the outlay on the maintenance of law and order and that devoted to defence ; in India in 1922, for example, law absorbed 8·6 of the total public expenditure as against 32·6 on defence ; there are, however, very definite limits to the value of such comparisons. Professor Bastable remarked that while in Great Britain the jury system did not enter into the national accounts, it is, nevertheless, a heavy tax on those who are subject to it, and he thought it should be considered in estimating national burdens under this head. Continental and other legal systems have tried to effect economy in different directions, as in a lower scale of judicial salaries. But under any method the aggregate cost of the legal system cannot be light, and it also tends to increase with the growth of population and industrial intercourse.

POLICE

To this outlay must be added the now substantial cost of police The social causes are commonly summarized as the increase of population, with a greater density in certain areas, and increased facilities for the escape of offenders ; the alteration in custom which has abolished the carrying of arms ; the modern industrial system with the accumulation of valuable commodities, many of them not readily capable of identification ; and the development of locomotion with opportunities for escape on the one hand, and on the other for the easier pursuit by an organized force. But, whatever the causes the increase of outlay under this head has been heavy. In Great Britain the charge is distributed between the national exchequer and the local authorities, the latter paying one-half of the cost, and receiving the remainder of the approved outlay in the form of a percentage grant of similar amount from public funds. The metropolitan police force is directly under the Government of the day, with a special financial system which is fed partly from State resources and partly from contributions from a considerable number of local authorities within the metropolitan area.

As with the military forces, it is often suggested that the amalgamation of certain forms of police service would lead to economy ; and the tendency is certainly in the direction of grouping the smaller local authorities for police purposes.

OTHER PRIMARY FUNCTIONS

In the third primary function of the State, that of civil administration, the chief explanation of the increased expenditure of recent years is the rise in the cost of living, with the consequent adjustment of salaries and wages, the greater activity of governments in social services and in commercial and quasi-commercial undertakings, with natural increase in the outlay on administration, and the larger expenditure which is traceable to changes in the form of government which have taken place. That is specially true of India and other countries in which there are enlarged legislatures and secretariat. Part of the increase is also due to revision of the system of accounts. Civil administration includes the cost of collecting both the direct and the indirect taxes, i.e. direct taxes such as income tax, and indirect such as the duties on tea, coffee, sugar, and other commodities Generally speaking, financial principle is against any reduction in the cost of collection which would impair its efficiency. A slight increase in the cost of collection may be a very sound investment for the State ; observe in this connection the efforts of the Board of Inland Revenue in Great Britain in making additional provision for dealing with cases of fraud and tax evasion.

The fourth primary function, that of debt service, raises important principles which will be discussed at greater length under the heading o national and local debt. At this point it should be observed that in practically all countries the European War led to great increase in the outlay on debt service ; in most cases these unproductive debt charges, especially in Europe, will be a grave burden for many years. Contrasted with unproductive debt, there is debt usually classed as productive, which is associated with the development of railways, irrigation works, telegraphs and telephones, and other forms of public enterprise. In such work arrangements are usually made for the systematic repayment of the capital amounts which are borrowed. In some countries this reproductive debt is related, for the purposes of financial analysis, to so many years' purchase of the total revenue of the central government ; occasionally a similar step is taken in the case of unproductive debt for the purpose of making a comparison with the position of other countries in the world At all times economists have urged the importance of meeting war and exceptional expenditure as far as possible from current revenue raised by taxation ; the aim is to keep borrowing within the narrowest possible limits, or, in other words, to avoid undue mortgage of the future. With States, as with individuals, borrowing affords no short cut to prosperity ; everywhere in public finance the tendency to fall into debt must be stoutly resisted.

THE ECONOMIC FUNCTIONS OF THE STATE

(*Continued from page 136*)

IV

ECONOMICS AND POLITICS (2)

"FROM STATUS TO CONTRACT"

EARLY societies, then, tend to be directly based on economic factors, their political structure being but the formal expression of these. The clearest way to see this at work is to see how the individual was looked upon in those societies more in his economic than in his political or human capacity—how his economic position determined all his rights and duties, and how this position was largely outside his control.

A great student of politics, Sir Henry Maine, wrote in his book on "Ancient Law" that the movement of society had been "from status to contract." He meant by this that in primitive societies men and women were born in a particular position which they retained to their death, never being able to move into another. Gradually, freedom was obtained to decide by free contract what your work and position would be.

The classical instance of this is, of course, the transformation of societies based on slavery to societies made up of free workers. But other instances abound. Among the Jews, a member of the tribe of Levi was bound to the priestly office; in fact, any hereditary class, whether of priests, or warriors, or legislators, is one in which status replaces contract. But in a modern society such classes are few.

SLAVERY AND THE ANCIENT CITY STATES

It is evident that there is a close connection between such classes and economic life. Most of those classes are, in fact, economic. There is nothing more "economic" than a slave, and all societies based on slavery are societies in which the closest connection exists between the form of the State and economic organization. We are fond of speaking of the great days of the Athenian democracy, but must never forget that the intimate part taken by each citizen in the political life of the city was only made possible by the fact that most of the real work of the State was done by thousands of slaves, who literally kept the place going. Athenian leisure was secured by the slaves.

We have just referred to Athens; it would be easy to show how the political structure of most ancient city states (Athens, Sparta, Rome) was determined by economic conditions. Their early history is one of constant revolutions, every one of them the result, in a very direct way, of some great economic change. As trade grew, increasing inequalities of wealth appeared, created new classes which claimed their share of power and tended to thrust into the background the small farmer class who had hitherto formed the bulk of the citizens. Then came the appearance of a proletariat—of poor town dwellers or landless agricultural labourers, free men, jealous of the power of the monied classes, who made a fresh revolution by which to re-establish the political equality broken by economic change. Thus, political unrest and change from "democracy" to "oligarchy," from "aristocracy" to "monarchy," and back to "democracy" (remembering always what different things these meant then from what we now mean by them), is in those societies directly due to economic change, so that one can say that their political constitution is but the expression of their economic structure.

FEUDALISM

The same is true of the mediaeval "feudal" state. Feudalism has been used to mean many things, but its essential signification is a state of society in which the political place of the individual was determined by his relation to land. The king ruled because he was held to be the overlord of the whole territory, from whom all landlords held their land; the "landless man" had virtually no rights, and the serf was bound to the land, which he could not leave, although he could not be removed from it. It is unnecessary to enter into the whys and wherefores of the development and decay of the system; it is enough to state that, confining ourselves to Europe, this intimate connection between political power and land tenure was the natural result of the invasions and conquests of land which marked the collapse of the Roman Imperial organization after the fifth century A.D. and itself disappeared before the growing complexity of mediaeval economic life in the twelfth and thirteenth centuries.

The fact was that there was no place in the feudal system for merchants and other town-dwellers; and as soon as the invasions and consequent upheavals had given place to something like political stability, trade expanded once more and burst the rigid barriers of the feudal system. We referred earlier to the State as a sort of framework within which the economic activities of the community take place; the collapse of feudalism shows the necessity of the framework being elastic enough to adapt itself to the expansion of economic life.

THE MEDIAEVAL CITY

Feudalism did not altogether disappear; the organization of land tenure, and the social and

political status of those who were in any way connected with land remained for many long years determined by feudal traditions and principles. But with the growth of towns it was no longer the sole foundation of the social order; side by side with the rural feudal system we now find an urban industrial organization, which tends to grow steadily more powerful with the increasing complexity of the social organism. But what matters for us to note is that in mediaeval towns economic status was more important than political; they were "essentially industrial communities, of which the ruling members—those in whose hands municipal government was placed—were engaged in trade or manufacture and were influential through their industrial occupations and connections; but, further, their industrial structure, the manner in which their economic structure influenced their form of government and the manner in which their government was carried very similar. . . . The typical citizen was a person engaged in trade or manufacture, and when the city was fully developed, the civic body was framed on the principle that the right of citizenship and the right to carry on an independent trade or industry were inseparably connected. Then the mediaeval civic body became a kind of federation of industrial groups, while, later on, the mercantile element, as distinct from the industrial, took the lead, and for a time practically monopolized the government of the city." (Sidgwick, *European Polity*.)

MODERN FREEDOM OF CONTRACT

Then came a later stage, when the fresh development of trade, commerce and industry again burst the bonds of mediaeval restrictions, when neither State nor gild was any longer able to keep individuals within that class of society in which they had been born, and when increasing complexity made it no longer possible to use the economic organization of society as the framework for the political order. We have reached the stage of the complete separation of the political from the economic; freedom of contract now reigns supreme, at least in law, for there are, of course, many forces still at work restricting individual liberty of economic action.

There remained, however, many connections between political and economic power. In many countries the governing classes were for many years entirely recruited from the aristocracy either of birth or of wealth; and representative institutions only gradually shook off the idea that the franchise must be restricted to those whose economic condition was secure—this being usually attained by the franchise depending on the payment of a certain amount of taxation (France) or of rent (England). It took a long time to divorce economic status from political power and to arrive at the present state of things by which all are equal in political rights and duties, entirely independently of their personal wealth, their occupation, their relation to land, etc.

SEPARATION OF POLITICAL FROM ECONOMIC STATUS

We are, of course, dealing exclusively with the legal aspect of the matter. It cannot be denied that in point of fact economic power and political power are closely intertwined. Wealth *is* power, and no democratic device will ever prevent the holder of wealth from using his economic position to further his political views. In the same way, it is impossible to make any absolute distinction between an industrial and a political crisis: the association of workers in some widespread industry will inevitably have a power that must tell in the political life of the country. But this contrast between law and fact must not confuse the issue; societies of to-day have abandoned any idea of basing a man's share of political power on his economic status. In fact, the modern State does not recognize the existence of differences of economic status; economic relations are determined by contracts, and in law the political and economic organizations are distinct.

It must be admitted, however, that, according to some students of politics, we are at the eve of a restoration, at least in some degree, of the old connection between political and economic status. The present system, according to them, rests on a fiction, not only, as we said a moment ago, that economic power and political power are closely intertwined, that no absolute distinction can be drawn between a political and an economic crisis—but that economics are really becoming the real business of politics and government. As a result of this tendency, people are getting increasingly interested in any big issue as it arises, not so much from their status as so-called free and independent citizens as from the point of view of their position in the economic world (in which all are not in any sense free and independent). From this it is only a step to suggest the formal recognition of the situation, not necessarily (as some demand) by the scrapping of political institutions and their supersession by bodies representing purely economic interests, but by the admission of economic function as the sole adequate and true basis for the classification of citizens and the organization of the body politic. We shall have something more to say on this matter towards the end of this study. Suffice it to say now that while it is true that no one suggests a return "from contract to status," it must not be thought that the present political order is the sole possible expression of "contract" as the basis for social organization.

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

(*Continued from page 138*)

IV
INTERNATIONAL ECONOMIC CONTROL TO 1919 (3)

By D. H. Blelloch

INTER-ALLIED ECONOMIC CONTROL, 1914-19
(*concluded*)

Although by the end of the war maritime transport was the dominant economic factor, for the first two years inter-allied co-ordination in regard to it scarcely existed. The other allies were naturally obliged to rely on British tonnage to a very large extent, but it was possible to make the necessary arrangements by sporadic negotiations as occasion arose. This system, or lack of system, became increasingly unsatisfactory, and on 3rd December, 1916, an agreement was concluded between the French and British Governments under which a specific amount of British tonnage was allotted to cover certain French supply services, while the Governments undertook in future to exchange monthly statements as to the employment of their ships. At the same time an inter-allied body was constituted in London to co-ordinate the chartering of neutral ships.

In January, 1917, a further step was taken, in the appointment of an Inter-Allied Shipping Committee, consisting of representatives of France, Great Britain, and Italy, to survey the shipping situation, and form a general plan for the allocation of tonnage. This Committee secured no effective results, because it was based on insufficient knowledge and possessed insufficient authority.

By the autumn of 1917 the situation had become much more serious, owing mainly to the success of the German submarine campaign. On 3rd November, 1917, the French, British, and Italian Governments concluded an agreement, the general effect of which was that tonnage was insufficient, that the most important necessity was food, that the amount of food required was known, that the burden of providing tonnage for carrying it should be a common charge upon all the allies, proportionally to their respective means of transport, and that the three Governments would proceed forthwith to examine "the other hardly less important needs of the allies."

On 29th November, 1917, an Inter-Allied Conference opened in Paris, which devoted special attention to the problem of "Maritime Transport and General Imports." The Conference decided that as "the problem of the allocation of tonnage is largely a problem of securing that the different requirements which make demands upon tonnage should be adjusted in the fairest and best way, and these requirements can only be so restricted by the experts in each class of commodities," allied bodies should be formed to deal with foodstuffs, munitions, and raw materials, on the model of the Wheat Executive, and a permanent organization, controlled by a Council of Ministers, should be constituted to make inter-allied co-operation effective.

The proposal to form an International Board with complete executive power over a common pool of tonnage was rejected because Great Britain was unwilling to delegate absolute power to dispose of its tonnage to a representative in an International Board on which he might be outvoted. As a result of the Conference's decisions, however, the following organization was created:

1. An *Allied Maritime Transport Council* was set up, consisting of two Ministers each from France, Great Britain, and Italy, together with two American representatives, which met at long intervals, whenever circumstances rendered fully authoritative decisions necessary.

2. Administrative and co-ordinating work was carried out by the *Allied Maritime Transport Executive*, consisting of four highly placed officials from the principal allied countries.

3. The executive was assisted by a *secretariat* and an *intelligence section*, by three *sub-committees* —tonnage, imports, statistics—and by the *chartering executive* (for the chartering of neutral shipping).

4. "*Programme Committees*" were formed for various commodities. By the end of the war, and including the bodies, such as the Wheat Executive, which were already in existence when the A.M.T.C. was founded, committees were in existence covering—

(*a*) *Raw Materials.*
- (1) Wool.
- (2) Cotton
- (3) Flax, hemp, and jute.
- (4) Hides and leather.
- (5) Tobacco.
- (6) Paper.
- (7) Timber
- (8) Petroleum.
- (9) Coal and coke

(*b*) *Foodstuffs.*
- (10) Cereals
- (11) Oil seeds.
- (12) Sugar
- (13) Meats and fats

(*c*) *Munitions*
- (14) Nitrates.
- (15) Aircraft.
- (16) Chemicals.
- (17) Explosives.
- (18) Non-ferrous metals.
- (19) Mechanical transport.
- (20) Steel.

During 1918 a munitions council and a food council were formed, to co-ordinate the activities of the programme committees under those two heads. A raw materials council was projected, but never formed.

The constitution and activities of these committees varied greatly. They consisted generally

of expert officials. Some had, others had not, executive powers of purchase, etc.[1] They were not nominally subordinate to the A.M.T.C., though in practice the Council controlled the whole system. Their purchases were mainly made through the Council of War Purchase and Finance.

5. Subsequently, joint *Freight Committees*, consisting of representatives of the several Programme Committees together with shipping representatives, were formed.

The following are salient features of the system thus finally evolved --

1. Shipping had become the predominant factor owing to the German submarine campaign and the entry into the war of the U.S.A.

2. There was co-operation, but no pooling, in regard to tonnage and finance.

3. Co-operation in purchasing was carried to considerable lengths, largely on the basis of credit and tonnage co-operation.

4. Co-operation was less complete in regard to raw materials for civilian consumption than to munitions and foodstuffs.

5. Administrative effectiveness was only secured by conferences of Ministers possessing authority, and by permanent contact between officials and experts from the various countries.

6. International control was throughout based on national control.

After the armistice, the British Government proposed that the A.M.T.C. should be transformed into a General Economic Council, with a view especially to dealing with the following questions—

1. The nature and amount of the assistance to be given by the allies for the reconstruction of devastated territories.

2. Exchanges and other reciprocal concessions between the allies in foodstuffs and other essential commodities.

3. Concerted action in acquiring and distributing essential commodities of which the supply was insufficient.

This plan had to be abandoned, in face of American opposition, and the A.M.T.C. was dissolved soon after the Supreme Economic Council was formed.

The Supreme Economic Council was, to a large extent, based on the same personnel as the A.M.T.C. It was appointed on 8th February, 1919, to advise the Peace Conference on such temporary economic measures as might be necessary pending the completion of the peace negotiations. It performed necessary work in regard to the relief of the population in the blockaded and devastated areas. Its task was practically ended when peace was signed in June, 1919, and its last meeting was held on 21st November, 1919. From the point of view of normal economic control it was of no significance.

Thus, the system of inter-allied economic control, created in response to the pressure of war conditions, ceased to exist as soon as the war ended; the debts alone remained. The experiment, successful though it was, cannot be said to have proved anything, except that where strict national control exists in several countries international control can, in a sufficiently grave emergency, be introduced and maintained. The officials concerned acquired valuable administrative experience; three out of the four members of the Transport Executive subsequently joined the Secretariat of the League of Nations, to help in laying the foundations for co-operation on wider and more constructive lines.

[1] A valuable table, showing the nature and purchasing methods of the various committees, is given on pages 327-8 of Sir A. Salter's *Allied Shipping Control*, and reproduced in the same author's article on "Control, Inter-Allied," in the *Encyclopaedia Britannica*, thirteenth edition.

Bibliographical Note

(*a*) *Pre-war Control.*

Public International Unions (second edition, Boston, 1916), by Professor Paul S. Reinsch, *International Government* (London, 1916), by L. S. Woolf, and *Experiments in International Administration* (New York and London, 1919), by F. B. Sayre, all contain much concise and well-arranged information, with suggestive comments.

The above works deal with the subject primarily from the point of view of international law and administration. *Internationale Wirtschaftspolitik*, by R. Kobatsch (Vienna, 1907—French edition, *La Politique Economique Internationale*, Paris, 1913), is a useful survey from a more economic standpoint.

More detailed accounts of international organization will be found in the *Annuaire de la Vie Internationale*, published for 1908–9 by the *Bureau Central des Institutions Internationales*, and for 1910–11 by the *Office Central des Associations Internationales* at Brussels; also in *La Vie Internationale* (monthly, Brussels, 1912 to date).

The publications of the League of Nations and the International Labour Office supply information on various aspects of the subject—particularly the reports prepared for the International Economic Conference, 1927.

Useful articles on international economic questions have also been published in the *Revue Economique Internationale* (Brussels, 1904 to date).

(*b*) *Inter-Allied Control.*

The literature of the Inter-Allied Control is not extensive. *The Economic and Social History of the World War*, which is being issued under the auspices of the Carnegie Endowment for International Peace, will probably in due course cover the whole ground. At present the most valuable source of information is represented by Sir A. Salter's volume in the above series on "Allied Shipping Control." Articles in the *Encyclopaedia Britannica* may also be consulted.

STATISTICS

(*Continued from page 140*)

IV

VISUAL AIDS

SOME minds enjoy a quick grasp of numbers and their relations, others comprehend them only with difficulty, and derive great assistance from visual aids. For the latter pictorial, diagrammatic, and graphical representations of statistical material have proved of advantage; and, in the case of

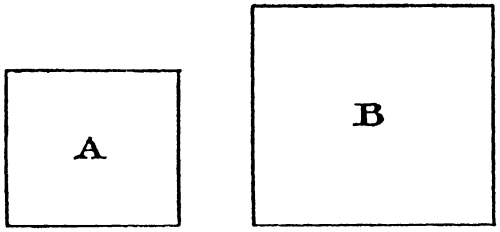


FIG. 1

some of the more intricate relations, something that appeals to the eye is necessary for every one.

But the use of pictures and diagrams can be overdone; sometimes they are unnecessary; sometimes they are positively misleading. If we know that the population of one city *A* is twice that of another *B* we may, if we care, represent the respective populations by two lines, one twice as long as the other, thus--

A ————————
B ————————————————

That is useless enough, but it is worse, if, misled by the fact that a city is an area, we represent the respective populations by figures of two dimensions, say squares. For, if we make each side of one of the squares twice as long as each side of the other, the resulting figures are in the proportion not of 2 : 1 but of 4 : 1, and if we draw the figures correctly, by making the sides of the respective squares in the proportion of 1 to the square root of 2, the resulting figure looks wrong; it fails to convey immediately to the mind the fact that the one figure is twice as great as the other. The diagram, then, is not a help but a hindrance, as can be seen from the above figure, in which one square is exactly twice the area of the other.

Still worse is it if, with an effort at realism, we represent the respective populations by the figures of two men, one twice as tall as the other, for this exaggerates the difference still more, since a man has three dimensions. For visual representations of one-dimensional statistics figures of more than one dimension are deceptive; at the best they leave the reader wondering whether to compare linear or superficial or cubic size. They are, therefore, simply confusing, and should, in most cases, be avoided.

There is, however, one pictorial diagram which is less open to objection than others; that is what the Americans call the pie-chart, a circle divided into sectors to represent the parts of a whole group. The following, for example, are the details of the Government expenditure for the last financial year, and the sums are represented, in the second column, by proportionate numbers which, when added together, give a total of 360, which is the number of degrees in a circle.

	£	Relative No.
National Debt Services.		
Interest, etc.	318,583,679	137
Sinking Fund	60,000,000	25
Road Fund	17,373,190	
Local Taxation Accounts	14,172,075	17
Other Consolidated Fund Services	8,636,083	
Supply Services:		
Army, Navy, Air Services	110,730,000	50
Civil Services	240,486,000	103
Customs, Excise, and Post Office	66,414,000	28
Total	£842,395,027	360

A circle divided into sectors by angles of 137°, 25°, 17°, etc., will give a pictorial representation of the facts, which gives rise to no confusion, since

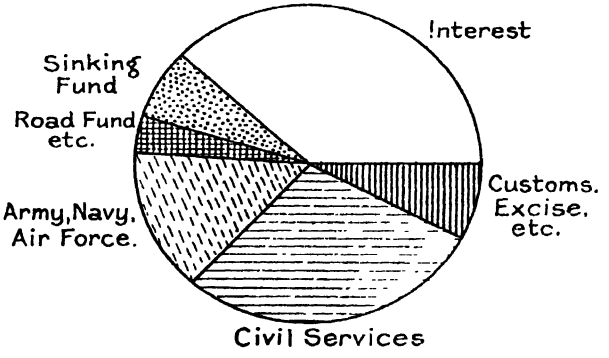


FIG. 2

in a circle the areas of the sectors are proportional to the angles at the centre and to the arcs on which they stand.

But, even in this case, the same result may

be more satisfactorily attained in other ways. For the unpractised eye finds difficulty in comparing one angle with another, or the area of one sector with another, or several arcs which run in

Government Expenditure, 1926-27.

FIG. 3

different directions. A simple line or bar, divided in the correct proportions, is more effective.

Thus we come back to the fact that one-dimensional diagrams are best. Even they are superfluous when comparisons are being made between few instances, but they are useful when we are dealing with a number of cases so large as to be unintelligible numerically, or when we are dealing with a series, that is with statistical changes at different points of time.

Thus, to take the first case, suppose we had investigated the weekly family incomes of a large number of working-class households. It would contribute to an understanding of the facts if we represented each of these incomes by a line proportionate to the size of the income, and if we arranged these lines on a given base in order of magnitude. We should then get a diagram something like this—

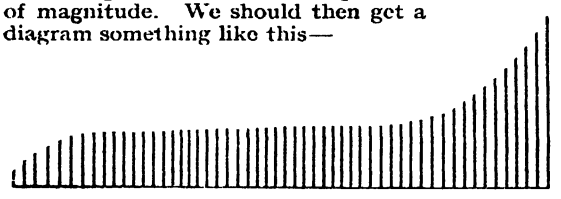


FIG. 4

It is to be observed that in this figure the majority of the lines do not differ greatly from each other in length (and this, as we shall see, is a feature common to all large groups). By erecting a scale at the side of the diagram, we can easily read off the size of income of the majority of cases; we can see at a glance how many cases differ from the majority, and whether these differences are great or small.

Turning next to a series, it is obvious that a diagrammatic representation will greatly facilitate our comprehension of the facts. The figures at the bottom of the previous column show in tons the shipbuilding output of the Clyde in the past 50 years.

1877: 169,710	1890. 349,995	1903: 446,809	1916: 506,922
1878: 222,353	1891 320,475	1904: 417,870	1917: 461,589
1879: 174,750	1892: 336,414	1905. 539,850	1918: 555,803
1880: 241,114	1893. 280,160	1906: 598 841	1919: 646,154
1881: 341,022	1894: 340,885	1907: 619,919	1920: 672,438
1882: 391,934	1895: 360,152	1908: 355,586	1921: 511,185
1883: 419,664	1896. 420,841	1909: 403,187	1922: 388,481
1884: 290,854	1897: 349,037	1910: 392,392	1923: 175 528
1885. 193,453	1898: 466,832	1911: 630,583	1924: 538,021
1886: 172,440	1899: 491,074	1912: 640,529	1925: 523 322
1887: 185,362	1900: 486,337	1913: 756,976	1926: 287,254
1888: 280,037	1901 511,990	1914: 543,332	
1889: 335,201	1902. 516,977	1915: 307,215	

Let the reader try to grasp the meaning of these figures rapidly, and then turn to the following diagram, which shows the facts in terms of length of lines—

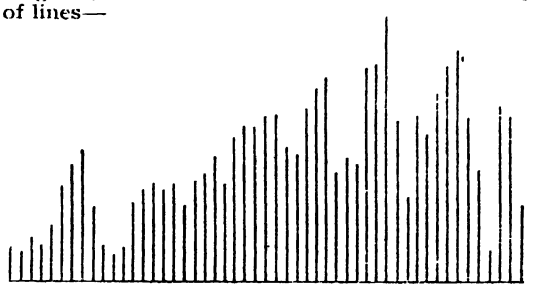


FIG. 5

This is an improvement on the numbers; but further simplification is possible. When we erect lines on a given base, it is the tops of the lines that have significance, for they indicate how far the tonnage has reached up in any year. To follow these rapidly with the eye, it is a help if we join the tops of the successive lines, thus making a continuous curve, along which the eye travels without difficulty. Then, by thickening the curve, and making the uprights thinner, we exclude causes of distraction, and that process can be completed by omitting the uprights altogether and presenting only the finished curve.

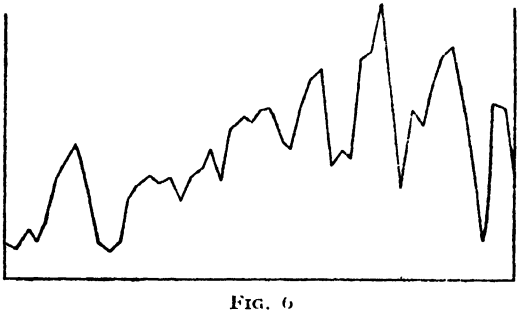


FIG. 6

This is the type of visual aid which is most widely used, and we shall proceed in the next article to consider the general scheme on which any such curve can be plotted.

STATISTICAL APPENDIX

(*Continued from page* 144)

CLASSIFICATION BY INDUSTRIES

OCCUPIED AND UNOCCUPIED

THE statistics in a number of parts to follow will relate to industry. We begin by a preliminary classification of the population into occupied and unoccupied. The following table gives the figures for Great Britain according to the reports of the Census of 1921—

POPULATION OF GREAT BRITAIN, 1921
"OCCUPIED" AND "UNOCCUPIED"

	Males 000's	Females 000's	Total 000's
Unoccupied —			
Under 10 years of age	3,935	3,864	7,799
10 and under 14	1,628	1,616	3,244
14 and under 20	384	873	1,257
Others —			
Single	828	1,247	11,110
Married and widowed	—	9,035	
Total unoccupied	6,775	16,635	23,410
Occupied —			
Wage earners	10,526	4,182	14,708
Salaried	1,037	1,071	2,708
Independent workers	841	366	1,207
Employers, farmers, professional	652	83	735
Total occupied	13,056	5,702	19,358
,, unoccupied	6,775	16,035	23,410
Total population	20,431	22,337	42,768

OCCUPIED POPULATION OF GREAT BRITAIN AND NORTHERN IRELAND, 1924

	Men and boys 000's	Women and girls 000's	Total 000's
Wage earners	11,000	4,400	15,400
Salaried	1,700	1,100	2,800
Independent workers	900	400	1,300
Employers, farmers, professional	700	100	800
Total occupied	14,300	6,000	20,300
,, unoccupied	?	?	24,571
Total population	?	?	44,871

Since it is intended at a later stage to give statistics of the national income and its distribution, the latest figures for which, calculated by Professor Bowley and Sir Josiah C. Stamp, refer to the year 1924 and cover Northern Ireland as well as Great Britain, the estimated[1] distribution of the occupied population for the later year and the wider area are given in the table at the bottom of the previous column.

The above classification of the people for 1924 is shown diagrammatically in Fig. 6.

DISTRIBUTION BY INDUSTRY

The next table shows the distribution of the population (10 years of age and upwards) according to the industry in which they are engaged. The information on this subject, which is contained in the reports of the Census of 1921, was obtained from the column on the Census schedule headed "Employment," and the nature of the employer's business was taken to be the industry of all the employees engaged for the purposes of that business, no matter what their individual occupations might be. In the case of persons who were themselves "employers" or "working on their own account," their personal occupation was also their industry. This classification of the occupied portion of the population by industries is shown diagrammatically in Fig. 7.

CHANGES IN DISTRIBUTION

In order to give an indication of the relative numbers and proportions of the people in different industrial groups at different dates, the Reports of the Census of 1921 for England and Wales and for Scotland print tables showing the numbers, 10 years of age and upwards, engaged in the principal groups of industry at each Census from 1881 to 1921. These are combined for Great Britain in Table XXV. It should be noted, however, that, owing to the changes in classification for census purposes which have taken place from time to time, the table gives only the most general indication of the fluctuations. The biggest change was made in the 1921 Census; up to and including 1911 the figures for maintenance staff, clerks, carmen, and certain other occupations common to all industries were excluded from the totals for industries; in 1921 all persons engaged in the industry are included. Hence, it has been necessary to present the figures for 1911 in two columns, the first of which conforms to the classification in use from 1881 to 1911 and the second to the classification used in 1921. Comparisons, therefore, are roughly valid between the figures for 1881-1901 and the first column for 1911; and between the second column for 1911 and 1921.

[1] *The National Income*, 1924. By Professor Bowley and Sir Josiah Stamp.

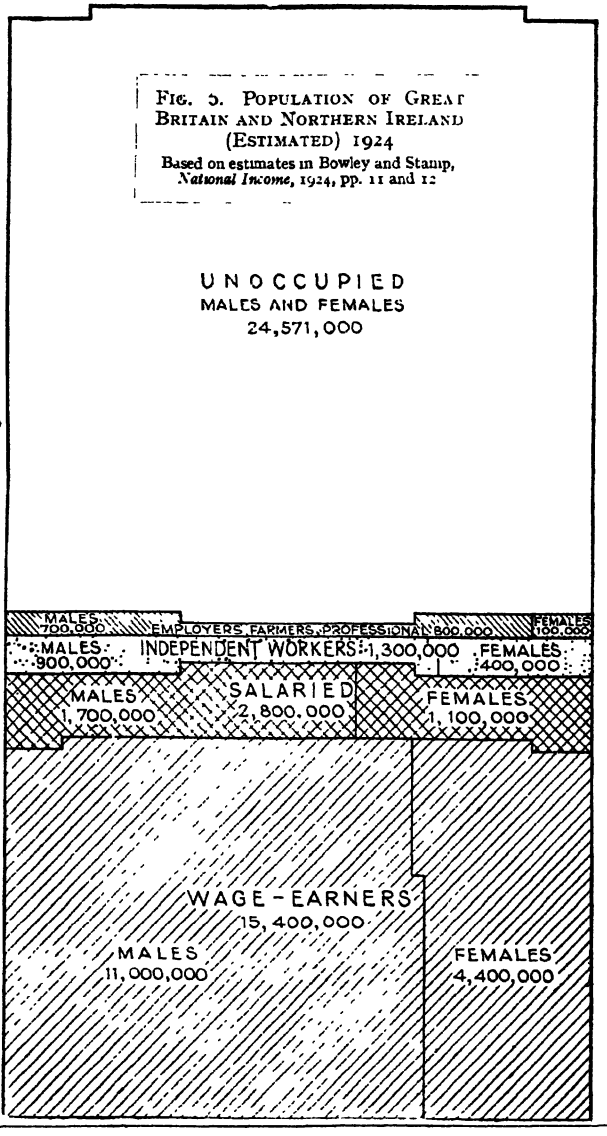


FIG. 5. POPULATION OF GREAT BRITAIN AND NORTHERN IRELAND (ESTIMATED) 1924

Based on estimates in Bowley and Stamp, *National Income*, 1924, pp. 11 and 12

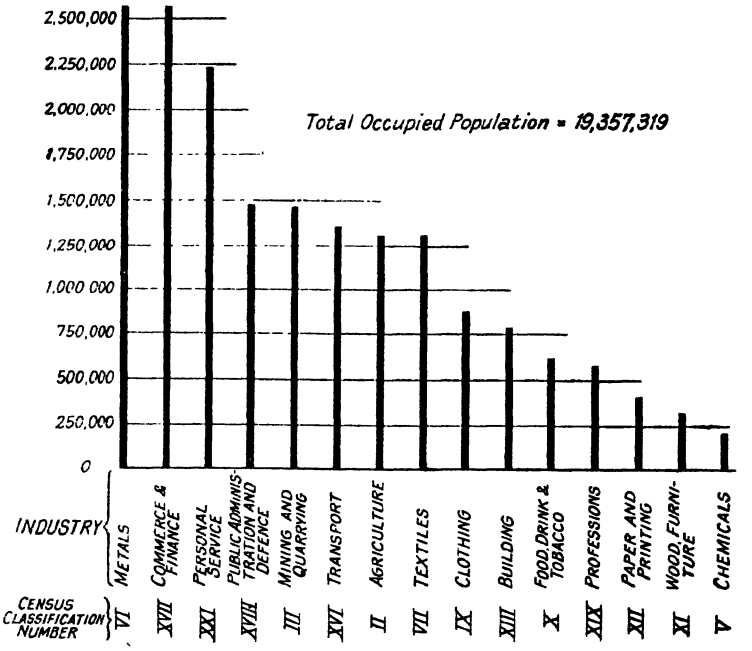


FIG. 7. DISTRIBUTION OF THE OCCUPIED POPULATION OF GREAT BRITAIN (10 YEARS AND OVER) BY INDUSTRIES, 1921

Based on Census Tables England and Wales, and Scotland, 1921

TABLE XXIV

DISTRIBUTION OF THE POPULATION (10 YEARS OF AGE AND OVER) OF ENGLAND AND WALES, SCOTLAND, AND GREAT BRITAIN, BY INDUSTRIES, JUNE, 1921

Industry	Total engaged in each industry, June, 1921		
	England and Wales	Scotland	Great Britain
All industries	17,178,050	2,179,269	19,357,319
1 Fishing	40,246	25,011	65,257
2. Agriculture	1,123,962	183,086	1,307,048
3 Mining and quarrying, and treatment of non-metalliferous mine and quarry products	1,283,728	179,952	1,463,680
4 Manufacture of bricks, pottery, and glass	176,541	12,440	188,981
5. Manufacture of chemicals, dyes, explosives, paints, etc.	197,677	17,087	214,764
6 Manufacture of metals, machines, implements, jewellery, etc	2,196,014	368,610	2,564,624
7 Manufacture of textiles and textile goods (not dress), cellulose	1,153,829	151,166	1,304,995
8 Skins, leather (manufacture, preparation, etc)	80,472	6,021	86,493
9. Manufacture of clothing	805,678	66,888	872,566
10. Manufacture of food, drink, and tobacco	540,718	81,844	622,562
11. Woodworking, manufacture of cane and basketware, furniture, fittings (not elsewhere enumerated)	261,856	51,985	313,841
12 Papermaking, manufacture of stationery, etc , printing, bookbinding, and photography	356,808	46,078	402,886
13 Building, decorating, stone and slate cutting and dressing, contracting	726,368	67,829	794,197
14 Other manufacturing industries	185,022	20,067	205,089
15 Gas, water, electricity	162,767	16,451	179,218
16 Transport and communications	1,203,566	155,564	1,359,130
17 Commerce and finance	2,275,148	279,449	2,554,597
18. Public administration and defence	1,335,879	143,191	1,479,070
19. Professions	514,776	65,792	580,568
20 Entertainments and sport	122,004	10,689	132,693
21. Personal service (including hotels, etc., but excluding Government and Local Authorities)	2,046,825	199,648	2,246,473
22 Other industries or industry not stated	388,166	30,421	418,587
Grand Total	17,178,050	2,179,269	19,357,319

TABLE XXV

NUMBERS ENGAGED IN INDUSTRY

NUMBERS 10 YEARS OF AGE AND UPWARDS ENGAGED IN PRINCIPAL INDUSTRY GROUPS AT EACH CENSUS FROM 1881 TO 1921

(Compiled from the Census Reports of England and Wales and Scotland)

Industries	Numbers engaged in each industry (thousands)					
	1881	1891	1901	1911 (see	1911 text)	1921
Total aged 10 years and over	20,081	25,100	28,770	32,234	32,234	34,979
Total occupied	12,739	14,500	16,312	18,354	18,354	19,357
Fishing	61	54	51	54	70	65
Agriculture	1,593	1,498	1,403	1,501	1,429	1,307
Coal and shale mining	437	599	752	1,021	1,128	1,305
Manufacture of bricks, cement, pottery, and glass	130	142	177	174	201	214
Manufacture of chemicals, explosives, paints, oils, etc.	52	69	101	149	183	209
Manufacture of metals, machines, implements, and conveyances	927	1,095	1,447	1,765	1,779	2,491
Manufacture of textiles	1,191	1,253	1,169	1,294	1,350	1,293
Cotton	520	562	544	620	646	621
Wool and worsted	252	275	235	248	261	260
Silk	64	53	37	31	33	34
Flax, hemp, jute, canvas, and canvas goods	85	93	99	102	105	88
Dyeing, bleaching, printing, finishing	66	66	79	105	111	117

TABLE XXVI

PROPORTION OF THE POPULATION ENGAGED IN EACH INDUSTRY PER 10,000 OCCUPIED

Industries	1881	1891	1901	1911 (see	1911 note)	1921
Total occupied	10,000	10,000	10,000	10,000	10,000	10,000
Fishing	48	37	32	29	38	34
Agriculture	1,250	1,033	860	818	779	675
Coal and shale mining	343	413	461	556	615	674
Manufacture of bricks, cement, pottery, and glass	102	98	109	95	110	110
Manufacture of chemicals, explosives, paints, oils, etc.	41	43	62	81	100	139
Manufacture of metals, machines, implements, and conveyances	728	755	887	962	969	1,287
Manufacture of textiles	935	864	717	705	740	668
Cotton	408	388	333	338	352	321
Wool and worsted	198	190	144	135	142	134
Silk	50	36	23	17	18	18
Flax, hemp, jute, rope, canvas and canvas goods	67	64	61	55	57	46
Dyeing, bleaching, printing, finishing	52	46	40	57	60	60

PROPORTION OF OCCUPIED POPULATION IN THE SEVERAL MAIN INDUSTRIES

During the years 1881–1921 the total numbers occupied in industry have increased; and the above table (XXVI) is given in order to show what proportion of the total occupied population was engaged in each industrial group at the several Census dates since 1881. The outstanding feature of the table is the great reduction which has taken place since 1881 in the proportion engaged in agriculture, which has fallen from 12·5 per cent to 6·7 per cent of the occupied population. In contrast, coal and shale-mining rose from 3·4 per cent to 6·7 per cent, and thus reached a position equal to that of agriculture. In the manufacturing industries the outstanding changes took place in the manufacture of metals, machines, etc., which has increased its proportion from 7·3 per cent to 12·9 per cent; and in the manufacture of textiles, whose proportion declined from 9·3 per cent to 6·7 per cent.

RECENT CHANGES

Information about changes in the relative importance of industries (judged by the number of their employees), subsequent to the date of the last Census, is not available in a form comparable with that given in the tables above. But the *Labour Gazette* for November, 1927, published figures of the numbers of insured persons in different industries at July, 1923, and July, 1927, from which an indication of the changes taking place can be gained. Those industries in which the changes are most important are included in the following table (XXVII), which shows the increase or decrease in the number of insured persons in the industries named, and also the percentage increase or decrease, between the two dates.

TABLE XXVII

CHANGES IN ESTIMATED NUMBER OF INSURED PEOPLE IN CERTAIN INDUSTRIES IN GREAT BRITAIN AND NORTHERN IRELAND BETWEEN JULY, 1923, AND JULY, 1927

INDUSTRY	Increase or decrease in numbers	Increase or decrease per cent
Silk (including artificial silk)	+ 17,770	+ 47·6
Brick, tile, etc., making	+ 35,080	+ 40·5
Electrical engineering	+ 18,340	+ 30·1
Distributive trades	+ 327,090	+ 20·1
Construction and repair of motor vehicles etc	+ 41,030	+ 21·4
Building and contracting	+ 173,200	+ 20·5
Tramway and omnibus service	+ 49,840	+ 19·4
Laundries, dyeing and cleaning	+ 19,870	+ 18·6
Electric cable, wire, etc., manufacture	+ 12,390	+ 17·2
Printing, publishing, bookbinding	+ 28,770	+ 12·6
Fishing and shipping service	+ 18,730	+ 12·3
Coal Mining	− 44,590	− 3·6
Woollen and worsted	− 20,240	− 7·5
Steel smelting and iron puddling furnaces, iron and steel rolling mills and forge	− 16,440	− 7·8
Bread, biscuit, etc., manufacture	− 12,830	− 8·0
Chemicals manufacture	− 8,590	− 8·3
General engineering, engineers' iron and steel founding	− 66,560	− 10·0
Shipbuilding and ship repairing	− 53,940	− 20·0

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page 146*)

V

THE ORIGINS OF BRITISH HISTORY

"The splendid days of Augustus and Trajan were eclipsed by a cloud of ignorance; and the Barbarian subverted the laws and palaces of Rome. But the scythe, the invention or emblem of Saturn, still continued to mow the harvests of Italy." -EDWARD GIBBON, *The Decline and Fall of the Roman Empire*, Chapter XXXVIII.

To divide history into epochs may be necessary for purposes of study, but the method has its pitfalls. It is so easy to assume that contemporaries were conscious of the march of events, when, as a matter of fact, only the lapse of time could make its meaning plain. It used to be the practice to mark the end of the Roman occupation of Britain by saying that the legions were withdrawn in A.D. 410. Thereafter it was supposed that an effete British population fell an easy prey to the Barbarian invaders. But the crossing of legions to the continent to meet some pressing crisis there was no novelty. It had happened before. Time alone could reveal the fact that the Empire in its helplessness would be unable to send legions to take their place. By the beginning of the fifth century the Roman Empire was, indeed, a mere shadow of its former greatness. Its decline had been a slow process, due as much to weaknesses in the original structure as to shocks from outside. The so-called withdrawal from Britain was but one incident in the collapse of a great administrative system. The whole of Western Europe was involved in that disaster. It is a mistake, therefore, to treat the history of Britain in the subsequent centuries as in some way unique. Everywhere, Barbarian invaders overthrew existing institutions, and then strove painfully to rebuild society with some knowledge of what it had been like before their arrival.

RECONSTRUCTION IN THE WEST

The task of political and economic reconstruction was undertaken by Christianized kings, who learnt from the Church—the repository of the Roman tradition—that peace could be secured in their petty kingdoms if the tribal principle gave place to the territorial. In other words, the idea of the State again began to win acceptance. It found its most ambitious expression in the attempt of Charlemagne to restore the Empire of the West (A.D. 800). But the same movement is illustrated by the work of the house of Capet in France and of Egbert in England. The kings tried to secure the safety of the roads, to establish market-centres, to provide currencies, and, above all, to ensure peace within their territories. By one means and another they and their leading men—nobles by birth or by service—acquired large estates, which they improved by reclamation and more efficient cultivation. The work of agricultural development was particularly promoted by the communities of monks. On them grants of land were lavished in an age when such gifts were considered to be peculiarly meritorious. The duty of labour was imposed on the monks by their vows. It is little wonder, therefore, that they proved to be pioneers. The great lay landowners followed their example. Under these influences there was gradual improvement, and agriculture entered upon the phase which may be called broadly "manorial." The tendency was for large estates owned by a lord, ecclesiastical or lay, to develop at the expense of the smaller holdings. For if the lower orders had a collective share in tribal lands they lost it, and if they held in private ownership they were often forced by circumstances to surrender their rights. Over Western Europe as a whole the emergence from anarchy was associated with the aggrandisement of the upper classes. The mass of the people fell into a position of dependence or serfdom. They were bound to the soil, and had to make payments in labour or in kind for the land they cultivated.

THE BASIS OF SERFDOM

How did this come about? There are two possible ways of approaching this question. It may be said that the remarkable uniformity in the structure of Western Europe at the beginning of the Middle Ages must be explained by the general operation of certain economic forces. The price of establishing such order as existed, and of effecting such improvements in agriculture as the "Dark Ages" had witnessed, was the reduction of the great majority to serfdom. For serfdom did provide the basis for an ordered society It gave stereotyped class divisions; there were those who performed military services (*bellatores*), those who performed spiritual services (*oratores*), and those who performed labour services (*laboratores*)—a division familiar enough in mediaeval thought. To secure these services, payments had to be made to induce men to render them. Payment in money was out of the question. So the military leader was paid in land, as were also the ecclesiastics. But land is useless without labour. The actual cultivators, therefore, were guaranteed in their holdings, provided they gave part of their time to work on the lord's land. If they had originally been slaves this would be an improvement in status; but if they had enjoyed collective or private ownership they were degraded in the social scale. This explanation is plausible. But it will not satisfy everybody. A second way of approach is to attempt to trace the steps by

which the society which we find in the eleventh century actually evolved from that of the fifth century. Instead of speaking of the general operation of economic forces, can we say precisely what happened and when? In the second part of the nineteenth century our history was approached with a strong Teutonic bias. To Freeman, for instance, the coming of the Angles and Saxons meant a clean sweep of Roman tyranny and Celtic political incapacity. It led to the foundation of self-governing institutions by vigorous bodies of freemen. In recent years there has been a reaction against this point of view. It is clear that the invaders were long opposed by the Romano-Celtic population. In the course of time some *modus vivendi* must have been effected. Did it involve continuity of economic institutions? This question does not admit of a simple answer. We do not know what conditions prevailed in Roman Britain at the beginning of the fifth century. If it could be shown that the "villa" was universal, we would have a definite point of departure, i.e. that of an estate with dependent labour. But it cannot be demonstrated that the "villa" was the characteristic unit in Roman Britain. There is a strong probability that the Celtic unit of cultivation based on kinship survived. It may well have strongly reasserted itself at the end of the Roman period. So it is not certain what the invaders found. Nor is it clear what notions they brought with them. Archaeological research goes to show that the maritime Teutonic peoples of the fifth century were acquainted with the cultivation of the ordinary cereals and possessed a variety of agricultural implements. Probably they were organized in kin-groups. During the years of invasion and settlement this bond would be loosened. The successful leader may have asserted an ascendancy from the outset. It has been contended that there is "a strong presumption, if not actual certainty, that the Saxon 'ham' and 'tun' was the estate of a lord, and not a free village community."[1] According to this view, the chieftains naturally assumed the position of the former lords of "villae"—for Seebohm postulated the existence of the "villa" and their followers, together with the conquered peoples, became dependent on them. This would mean that English history began with serfdom. If so, there is no reduction in status to explain.

AN ALTERNATIVE EXPLANATION

If we suppose that the free village community existed among the settlers, we have to fall back on the argument already used: that economic forces eliminated this freedom in the course of the "Dark Ages." That there were unfree classes in the early days of the English kingdoms can be proved from the codes of laws. The so-called "Laws of Ethelbert," ascribed to the seventh century, include references to "laets" and "theows," who were, apparently, freedmen and slaves. But these may have belonged to the conquered people. Later in the same century Wilfred, according to Bede, found that there were two hundred and fifty male and female slaves on the estates with which the monastery at Selsey had been endowed. In the eighth and ninth centuries evidence accumulates of the complexity of social classes. The distinctions were founded on blood, rank, and service, but they all tended to be expressed in terms of land tenure. There is a document of the end of the tenth century which describes in much detail the classes of persons which may be expected to be found on an estate of that time. At the head is the *thegn*, or lord, who holds of the king, on condition of military service, the maintenance of local strongholds and the keeping of the bridges in repair. Below him come the *geneats*, who perform such honourable services as riding, carrying loads, and bringing "strange wayfarers to the tun." They are obviously freemen. The *gebur*, however, has sometimes to work two days a week throughout the year "at such work as is bidden." He has to make payments in money and in kind at prescribed seasons. Stock is provided for him, and "when death befalls him his lord shall take back the things which he leaves." There were also *cotters*, who have to work one day a week for the lord. This unique document is important because it illustrates the complexity of rural society in England before the Norman Conquest. It shows that the "feudal system," although still too amorphous to be strictly a system, was taking form. As an indication of the consequences of the forces in operation during the Old English period it is more valuable than evidence taken from Norman times. Can we define these forces a little more clearly? It has been suggested that the pressure of taxation—the *danegeld*, a land tax first imposed in 991 to buy off the Danes—was so heavy that small freeholders had to make arrangements with the large landowners to pay it for them. They thus entered into a position of dependence. Bad harvests or the damage done by the attacks of the Northmen may have operated in the same direction. The small-holder would need assistance, and all he had to pledge was his future labour. On the other hand, circumstances enhanced the importance of the local lords. The kings, owing to the lack of administrative machinery, had to delegate functions to them. They raised and commanded the military levies. They erected courts, in which they tried a variety of offences and took the profits of justice. The freemen, therefore, found themselves unable to hold their own, and the kings were obliged to allow the power of the local landowners to develop. So a certain uniformity was imposed on society.

[1] F. Seebohm, *The English Village Community* (1883), page 175.

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page 148*)

V

THOUGH forest spread very widely over the earth in early ages, differences of soil and climate gave rise from the very first to variety of types, and man had only one effective weapon for clearing forest—fire. He wanted it cleared to get pasture for his domestic animals, and burning resulted in the area being covered with potash, and, therefore, providing extraordinarily good grass for this purpose. In recent times, the burning of forest in New Zealand had an exactly similar effect on the quality of the pasture. The greatest aid, therefore, in the economic development of forest in early days has become the greatest danger in modern times.

TIMBER

Temperate latitudes have always been far more important than tropical, because in the former species are social and gregarious. In a typical tropical forest hundreds of species may be found on a single square mile, and one might be able to cut perhaps three or four trees of the same kind on that square mile. To deliver a hundred loads of *uniform* timber is, therefore, practically impossible, or prohibitively costly, and a "mixed bag" is quite useless for ordinary commercial purposes. But, in Central Europe, the species on the same area do not number even fifty, and in Northern Europe not ten. The mass of these two areas is low land, and this still more favours uniformity of "cover," for height has the same kind of climatic effect as latitude, only acting much more rapidly.

The change of altitude or latitude affects the timber as much as the trees, but the increase of variety in the outward appearance of the forest does not imply any increased utility in the timber; the contrary is rather the case. Tropical latitudes produce the hardest timber from the least hardy trees, but it is usually the "best" only for cabinet purposes. Really temperate latitudes produce all the "best" constructional timber—from pine, spruce, larch, etc. In the transitional latitudes we find, naturally enough, trees with the merits of both the other classes; oak and ash and beech can be used for both purposes. Indeed, the great heat in the summer drought of the Mediterranean basin gives to walnut, olive, and yew almost as much colour as is found in mahogany, ebony and teak; and, although not usually quite so hard, they are hard enough to take a fine polish. Further, to protect themselves from the summer drought, several of them secrete a volatile oil; and it is the presence of this oil that allows walnut to be used in connection with iron and steel, e.g. for the stocks of guns and rifles, without any fear of rusting. The winter drought in the lower, i.e. the hotter, latitudes of monsoon lands gives rise to a similar "response" in the case of teak; and so it came to be the regular timber used for men-of-war in the early days of iron ships.

FOREST VALUES

In the economy of Nature the original value of forests must have been what we now call "indirect." In the earliest ages, as we have seen, they were the home of man, providing him "directly" with house, food, fuel, etc.; but, as soon as man left the forest, its value became indirect - climatic and scenic. Possibly, this is still really the chief use, but very little attention has been paid to it till quite recently.

FOREST "COVER"

Obviously, from the geographical standpoint, we have to interpret three factors. the actual bulk and canopy of the tree, the leaves and other debris with which it covers the ground, and its roots underground. The actual bulk and canopy of the tree are at once an obstacle to the movement of wind and to the penetration and radiation of sunlight; the collected leaf-mould, or humus, protects the soil from extremes or rapid changes of temperature, and helps to store water; and the roots bind the soil together. The result is that the forest tends to make temperature equable, giving a slightly higher average annual rate than in the neighbouring open country; it tends to increase the relative humidity, both transpiring itself and reducing evaporation; it greatly regulates the water supply, preserving springs and preventing floods; it prevents the waste of soil—by erosion of higher land and silting of rivers; and it forms an admirable wind-screen for both crops and cattle. Reckless destruction of forest is, therefore, one of the most stupid things, even from the most utilitarian standpoint; and, if we may give weight to the influence of forest on the beauty and the healthiness of a human environment, it becomes a crime. Unfortunately, the tree which any thoughtless spendthrift—a "jerry" builder or a municipal "crank"—can cut down in a day, cannot be replaced, perhaps, for fifty years.

The direct value of forests to-day lies in their production of wood products, but they represent also an immense amount of capital, and provide a very large amount of work. This, however, does not include at all a proper proportion of actual foresters, the number of trained foresters in the British Empire not much exceeding 1,000, i.e. not one to every 1,000,000 acres of forest.

This direct value, then, is mainly in timber, pulp-wood, and firewood, three great necessaries

of daily life; and for all these purposes the coniferous forests are overwhelmingly important so much so that they need special and separate notice.

TROPICAL TIMBER

Indeed, for most practical purposes, we may divide the forests of the world into two classes — the broad-leaved hardwoods and the coniferous softwoods; but the former include the deciduous trees of temperate latitudes, which—as we have seen—have some of the merits of both hard and soft types. Unfortunately, of the 11,000,000 square miles, i.e. one-fifth, of the earth's surface under forest, only 35 per cent is under softwood forest; and, even if we count the temperate zone hardwoods with the softwoods, about half the total area of forest is still under hardwoods—tropical hardwoods. There is no anxiety, therefore, about the supply of these. There are, however, some problems connected with these tropical hardwoods. For instance, we know very little about them, and the first thing to be done is to obtain reliable information covering both the vast extent of them and the immense variety of kinds. The next thing is to investigate the possibilities of substituting perhaps after long and careful scientific treatment —some of the new species for old species which are rapidly running out. Once these two things were done, it would be comparatively easy to make the supplies more accessible than they are at present; and the main difficulty would be to guarantee the supplies to be regular and in " commercial " quantities - the one thing which tropical conditions do not favour. Indeed, jungle supplies of rubber have, for that very reason, been beaten out of the field by plantation supplies.

So far as the British Empire is concerned, we are well supplied. In India, counting only State forests, we have certainly 250,000 square miles — far better organized than any other area of tropical forest; in West Africa we have an equal area, though poorly organized; and we have rather more or rather less than 100,000 square miles in the East and West Indies (especially in British Guiana and Malaya), in East Africa (especially in Southern Rhodesia), and in Australia. In all there are, perhaps, 1,000,000 square miles of such forests within the Empire, and at least 25 per cent is both good and fairly accessible.

TEMPERATE FORESTS

Over 80 per cent of the total area of forest in the world is in the Northern Hemisphere, especially in 45°-70° N.; and, if we confine our attention to the softwoods and the " temperate " hardwoods, the proportion is still higher. Very nearly 90 per cent of the area under " temperate " hardwoods is in the Northern Hemisphere, and fully 95 per cent of that under conifers. That is to say, the great mass of the supplies of " commercial " timber is in that half of the world in which fully 75 per cent of the population is found, and this must react on the cost of transport.

The figures become more impressive when we remember that the " mass " consumption of timber is largely confined to civilized, especially industrialized, countries, such as are the exception in the Southern Hemisphere; and such countries are practically the sole users of " cabinet " timber for furniture. Indeed, excluding firewood - a very important item—these countries use only 20 per cent of hardwoods to 80 per cent of softwoods. In Britain, however, which is much the greatest importer, the proportion of softwoods is 90 per cent, and this makes our timber problem very urgent.

NORTH AMERCIA

Though Britain is the greatest importer, the United States are much the greatest users of timber, and this was of no importance to us so long as they were also the greatest producers of timber. But, to-day, the U.S.A. forests are scarcely a quarter of their old size; first the New England States and then the Lake States were stripped, and now the South Atlantic States are being stripped. The total cut is four times the annual growth, and the only reserves are in the northern half of the Pacific States. But these States are from 2,000 to 4,000 miles away from the great markets of the central and eastern cities; and, as 80 per cent of the total U.S.A. population is in that quadrant, the price of timber is bound to rise owing to both the shortage of supply and the cost of transport. And the latter may divert the U.S.A. demand across the Atlantic—to compete in Europe for constructional timber, as it already does for pulp-wood.

Of course, there is the most important source of supply in the world close at hand in Canada, but the position there is far from satisfactory, for, at the present rate of " destruction," the accessible areas of virgin forest will not last more than twenty-five years. The largest loss is undoubtedly due to insects and disease, which probably destroy 2,000,000,000 cubic feet of timber every year, but the methods of working are so wasteful and destructive that, for every 9,000,000 cubic feet actually used, 8,000,000 are wasted! This means a total annual waste of 800,000,000 cubic feet, and as a similar huge amount is lost every year by fire, the outlook is far from cheering.

PRODUCTION

(*Continued from page* 150)

V

THE FACTORS OF PRODUCTION

(*continued*)

2. **The Three Factors.** (*b*) **Labour.** By *labour* is meant the effort which man puts forward with a view to bringing wealth into existence (i.e. adding utility to matter), or to satisfying, by direct exertion, an economic demand—it is *work* in the sense in which we used the term in Section I. The mere expenditure of effort is not necessarily labour; there must be an economic motive. The test of whether an activity constitutes "labour" or not is not, then, the nature of that activity, but its purpose. The tourist toiling up a mountain side in Switzerland, perspiring at every pore, and putting forward an immense amount of unnecessary effort, is not "working" no one is paying him for what he is doing, nor is he adding anything to the world's stock of exchangeable goods. The guide whom he pays to conduct him to his objective and who is probably "working" —as far as physical exertion goes—much less hard, is, in the economist's sense of the term, putting forth labour. The point is that his services *are* being remunerated; that he *is* engaged in producing a stream of utilities which our friend the tourist is consuming. Similarly, a distinction can be drawn between the activities of the amateur and the professional at cricket. The former is not a "producer"; the latter is. I go to the Oval to see Hobbs and Mr. Fender. I pay for certain "utilities" which I consume as I watch their play. Hobbs and Mr. Fender are both concerned in the business of giving me enjoyment. But only Hobbs is directly a party to a process of exchange; the "labour," effortlessly as he made his century, is his. Were he to condescend to join the amateurs, to become Mr. Hobbs, he would cease to be a "producer."

There are, of course, border-line cases. There is, for example, Mr. Sharper, with whom I play cards. Cards, to me, is a recreation, for which, as for other recreations, I am prepared to pay. Now, Mr. Sharper enjoys the game (or so he tells me) as much as I do; at the same time, the small sums that he regularly takes from me go to support his wife and family, and I have reason to believe that he counts on them. If Mr. Sharper will tramp through the snow to play with me when he has a cold in the head, are we to deny to him the meed of honest "labour"?

We have dwelt here at some length on labour in its relation to the production of intangible or immaterial goods because these instances illustrate most clearly the distinction between economic and non-economic effort. But most labour, of course, is expended in the production of material things. It will be remembered, nevertheless—the point was made at some length in the last section—that all labour is similar in kind. No valid distinction can be drawn, for the purpose of the analysis of productive activities upon which we are now to embark, between one kind of "labour" and another—be it that of the ploughboy on the land, the hewer in the pit, or the typist at her desk; the blacksmith at his forge, the policeman on his beat, the professor at his rostrum. Each of them is concerned with the production of "utilities"; each of them is animated, in some degree at least, by self-regarding motives; each of them, by his or her labour, is establishing some claim to a share in the wealth which they co-operate to produce.

3. **The Three Factors.** (*c*) **Capital.** We have said that production is possible in terms of land and labour alone. In the South Sea Islands (as beloved once of economic theorists as they are of best-seller-mongers to-day) the "production" of wealth may well involve nothing more than the collecting of driftwood from the beach or the plucking of mangoes from the trees. But it is only in the most primitive communities that economic activities fail to advance beyond this stage. However backward a race or tribe may be, one is seldom or never found in which there is not some appreciation, however rudimentary, of the possibilities of weapons and tools. And, once man reaches the point where, not content merely to allow the fruits of Nature to fall into his lap, he seeks to facilitate the gathering of them through the agency of his own handiwork, then "capital" and a capitalistic order have become accomplished facts.

For by "capital" is meant, simply, wealth which, already in existence, is being applied to the production of further wealth. The simplest forms of capital are, then, the knife or the bow and arrows of the hunter, the coracle or canoe which he uses for his fishing, the tent or hut which he erects for himself and his squaw, the cache in which he deposits his store of food, and - in so far as it is not required for immediate consumption, but is put by to meet the requirements of the future—that store of food itself. To put it shortly, *capital is wealth intended for use in the production of more wealth*. As soon as production involves, not only land and labour, but wealth, in the making of which man's labour has already been utilized, it involves the use of capital. The third factor of production has come into play. A moment's reflection will show that, in a modern society, it is not less essential than the other two.

4. **The Growth of Capital.** This is not the place to tell in full the story of the growth of capital, but some faint outline may be suggested of the picture that would emerge were that story to be told. From the humble beginnings hinted at in the last section—the bow and spear of the hunter, or the first primitive cooking utensils—it has developed into the dominant fact of our environment. The tools and weapons of savage peoples have given place to the massive and inescapable paraphernalia of present-day civilization. Capital breeds capital. A few centuries ago a census of capital goods would have disclosed a social equipment, in this country of ours, not greatly in advance of that of a savage people. Weapons · clothes—some domesticated animals –ploughs and other implements—a few ships—a few good houses—the admirable roads that the Romans had left behind them—these would have been the principal items in the inventory. Contrast this tale of wealth with that of the same country to-day. Consider the labour which has gone into the making of our roads ; of our railways, our canals, our docks ; of our factories, warehouses, farmsteads, and other buildings ; of our mighty fleet of ships. These are the most permanent items in our list of capital goods. But there are others not less important: rolling-stock, motor-cars ; machinery ; stores of exchangeable things for the carrying-on of our trade ; flocks and herds ; growing crops ; the means to organized recreation ; the equipment of our administrative offices, our hospitals, our universities and our schools. Whether the environment of steel and concrete that we have constructed for ourselves after centuries of toil is or is not superior to an unspoilt Arcadia –how far the creation of it has made for human happiness—this we are not now discussing. Our immediate point is that it *has* happened ; and that it should have happened, whatever there is to be said for or against it, has been a necessary condition of a steadily-rising standard of material enjoyment.

5. **" Fixed " and " Circulating " Capital.** It will be evident already that the term " capital " covers goods of many different kinds. It lends itself, therefore, to various classifications and cross-classifications, at some of which we must glance in passing. The first of these is the distinction which is drawn between " fixed " and " circulating " capital. It will be clear, on reflection, that the production of wealth, i.e. of utilities embodied in material things, involves, as a rule, the use of two kinds of material: the material of which the things we are producing are " made," and the material which is brought to bear in the making of them. An example may make this clearer. Suppose I am producing a loaf of bread. I require two kinds of capital (wealth designed for use in the production of further wealth): (*a*) an oven and the other accessories of bread-manufacture ; (*b*) flour, yeast, and other " raw materials." From one point of view, there is no distinction between these two sets of materials. They are both made use of in the production of " utilities " of a certain kind—the " utilities " embodied in my finished product ; they are both of them in existence before the process of production begins ; and, since matter is indestructible, they are both in existence afterwards. But, from another point of view, there is a profound distinction between them, since one of them, in the process of production, completely changes its form while the other remains virtually unchanged. And—a more striking distinction still—one of them is incorporated in the finished product ; the other one is not.

This distinction is of sufficient importance to justify a special terminology. Capital which is, relatively, enduring (which does not, in the process of production, become embodied in the product) is known as *fixed capital* ; my oven and other impedimenta can be brought within this category. Capital which can only be used once, or, to be exact, can only be used once in one form, is known as *circulating capital*. My flour, yeast, etc., are evidently of this order. The production of wealth means, then, if we are to analyse it with more precision, the addition of utilities to one class of goods (circulating capital) by bringing to bear upon them another class of goods (fixed capital). Both kinds of capital are equally instrumental in producing such utilities, but the former kind alone becomes a part of the " wealth " which embodies the utilities produced.

6. **Production Goods and Consumption Goods.** Of importance also is the distinction between *production goods* and *consumption goods*, or, as some writers put it, between *producers' capital* and *consumers' capital*. It has already been suggested that whether exchangeable things constitute capital or not depends, in part, on the use to which it is intended they should be put. This fact, that the classification of wealth, for certain purposes, may turn upon *intention*—upon what is in men's minds—is not easily grasped ; but for some purposes it is important. The " distribution " of the industrial product, for example, has some relation to just that classification of wealth which we are now considering ; its justification may, in part, depend upon whether particular categories of wealth are to be regarded as capital.

The distinction between production goods and consumption goods can best be illustrated by examples. A house is, from one point of view, a consumption good. That is to say, the utilities embodied in it are being consumed or enjoyed by the occupants. But they do not enter directly into the production of further wealth. A house, however, which is owned by a colliery company, and leased to one of its employees, is a production good ; it is part of the colliery's capital equipment.

BUSINESS MANAGEMENT

(*Continued from page 152*)

V

LOCATION (3)

IN the two previous articles an attempt was made to indicate the factors determining the geographic distribution of those industries the products of which are sent to more or less distant markets. When two or more factories are erected in a locality they attract a further group of economic activities and in time a town comes into existence. In almost all cases the pioneer factories employ but a minority of the workers of that town. The majority—usually the great majority—are employed in other occupations. Many are employed in small establishments which are subsidiary to the main factories. Some of these establishments may be foundries, woodworking shops or other establishments supplying accessories. Others of the local workpeople are employed in local transport, in building, in warehouse operations, in wholesale trades, and in retail distribution. Others, again, are employed in the provision of personal service in hairdressing establishments, in places of worship or entertainment, in schools, in hotels, or in the various departments controlled and operated by the local authorities.

But this pyramid of industrial activity is erected upon the foundation formed by those industries which supply goods for markets outside the town. If such central or basic industries were destroyed or severely injured and substitutes could not be discovered, the pyramid would collapse. Although the majority of the workers supply local needs and appear to be independent of the rest of the world, their fortunes are intimately bound up with the fortunes of those who work in the establishments which created the town or industrial region.

REGIONAL SPECIALIZATION

Some industrial regions are so highly specialized that they ultimately depend upon one central or basic industry, which may be coal mining, steel manufacture, engineering, shipbuilding, textiles, or some other industry serving a wide market. Other regions possess a greater variety of industries of that type, and in one sense are more stable than those which are more highly specialized. It should be noted that the difference between the two classes is not revealed in the variety of occupations offered in the district, for, outside the central or basic industries, the variety of occupations is mainly determined by the size of the population, and even a highly specialized district may offer a wide variety of occupations to the industrial population. The difference between the two is revealed by the extent of the dependence of the district upon one or a small group of basic industries.

A highly specialized district experiences wider fluctuations of trade than a district which possesses a greater number of basic industries. Sometimes it enjoys a big boom in trade. At other times it suffers from profound depression. The fluctuations in the basic industry react quickly and profoundly upon the subsidiary or local trades. In a district such as Birmingham, where there are a number of basic industries, the fluctuations are not likely to be so violent. The average moves more slowly than the constituent members of the group. The subsidiary trades rarely experience either a pronounced boom or a deep depression.

It follows from what has been said that before deciding upon the site of a proposed establishment, a business man, even if he embarks upon a form of enterprise which is to be found in every industrialized region, should examine carefully the prospects of the basic industry, however remote the latter may appear to be from his own enterprise. The prospects of the small trades of a town are ultimately determined by the prospects of its basic industries. The latter determine the market for the former.

THE SHIFTING OF INDUSTRY

Industry is dynamic, not static. Over a long period the centres of an industry tend to shift, and this tendency is naturally reflected in the changes in the distribution of population. Usually, the shifting takes place not through the decay of existing centres, but through a reduction in their rate of growth and the rapid growth of larger centres elsewhere. This shifting of industry may mean either that the older centres have grown so large as to start a process of decentralization, or that, for other reasons, other centres acquire a new attracting force. Thus, for example, the discovery of new coal seams may create a new mining centre; the growth of ocean commerce may make coastal regions more attractive to manufacturing industries; or the discovery of new processes may change the whole relationship of the industry to the market. Such tendencies should be sought and allowed for in making decisions about the location of any new enterprise.

IS INDUSTRY MOVING SOUTH?

It is said that during the last few years there has been a marked tendency for industry to move from the north to the south of Great Britain. Since the middle of 1921 over a million workpeople have been registered as unemployed, and the great bulk of unemployment is to be found in the staple industries which depend in greater or less degree upon the export trade. The depressed industries, which include coal mining, steel manufacture,

engineering, shipbuilding, and cotton manufacture, are chiefly concentrated in the North. The exports of the products of such industries have failed to recover even their pre-war volume. The cotton trade appears to have been permanently injured by the competition of India and Japan, where mill production has largely increased. The shipbuilding industry has been injured by the policy of disarmament. The coal mining industry has been seriously affected by the growing use of electricity and oil. The growth of the steel and mechanical engineering industries has been held in check by the delay in the development of world resources. For these reasons, not only is the North seriously depressed, but it is held by many observers that the depressed industries cannot be expected to recover their former importance in the national economy and that the recent development of the South is likely to continue until a new industrial balance is achieved and unemployment is reduced to its former dimensions.

TEMPORARY FACTORS

These statements cannot be fully considered at this stage. They will be examined more closely in the final issue of the EDUCATOR. But the following considerations suggest that the main assertion should be treated with caution. In the first place, a considerable part of the growth of industry in the rural districts of the South represents a process of decentralization from London. This process was in evidence before the world war and was illustrated by the migration of printing establishments to places where land was cheap and rates were low, and by the growth of garden cities such as Letchworth. It has been hastened in recent years by the growing use of electricity as a source of power and the employment of road transport. In the second place, the development of recent years partly represents a "rush" to restore the balance which was disturbed during and on account of the necessities of the war. The staple industries of the North became essential for war purposes and (excluding the textile group) were rapidly expanded. They attracted a greater number of workers than they would have done if the war had not occurred. A part of the present process of industrialization represents an attempt to make up the leeway in the South. In the third place, there are certain places in the South (such as Slough) which acquired strategic value during the war, and were used as depots and repair centres. The buildings afterwards became more or less derelict and were bought up at low prices for use as manufacturing establishments. The firms concerned thus enjoyed a sort of subsidy, which gave the sites of their establishments a value that they would not otherwise have possessed. In the fourth place, the process of industrialization in the South is far more spectacular than in the North. It is, however, the case that similar developments have taken place in northern centres, where they have been hidden from the popular gaze by the fact that they have taken place under the shadow of the older establishments. Moreover, their effect upon employment has been hidden by the unemployment figures for the regions within which they have occurred. Thus, for example, the developments which have taken place at Aintree, Liverpool, would have attracted far greater public attention if Aintree had been in the Home Counties.

INDUSTRIAL CHANGE

Nevertheless, when full allowance has been made for these factors, it remains true that there has been a shifting of industry from North to South. It should be observed that the change is due, not to the fact that the North has become less attractive for the older industries, but to the fact that new industries have come into existence. The geographic change represents an industrial change. Coal mining and shipbuilding have ceased to grow for the time being, and the gap is being filled by the growth of lighter trades such as the electrical trades and motor-car construction. In the lighter trades the amount of power used per unit of value created is less than in the heavier trades, and this fact, combined with the wider distribution of power made possible through the use of electricity, has released the lighter trades from the coal-bearing regions. Other factors have, therefore, become increasingly important, and the cheap land and the low labour costs of the South have produced their effect.

There remains another point. The balance between saving and spending has also been disturbed in recent years; as a nation we spend more and save less. Saving means investment, and such investment usually means prosperity for the heavy trades. Sooner or later the balance between the two will be restored, not only in this country but in the world as a whole, and the result will be advantageous to the North. Thus, it may be suggested that the forces tending to shift industry from North to South will gradually grow weaker, and that in the near future a new balance between the two will be struck and maintained.

FINDING CAPITAL

(*Continued from page* 154)

V

SECTION II

FINDING CAPITAL FOR THE ESTABLISHED BUSINESS

In the previous section we have seen that it is usually best to finance a new business from one's own resources. Notwithstanding the increasing trend of industry towards trusts and combines and of the distributive trades towards amalgamations and multiple-shop systems, there is as much room, as great opportunity, as ever for the new man with initiative and courage. What becomes more and more important is the direction that his initiative and courage take. It is yearly less profitable for the man with little capital to enter into competition with the combine, but mass production and mass distribution have definite limits. They cannot satisfy the whole of human needs; and even in the case of the needs they satisfy, they give rise to a host of subsidiary trades that are best left in the hands of the small firm. All great businesses have grown from small beginnings; to-day it exercises more judgment than ever to foresee if the small beginnings are capable of development into the great business.

In many cases, however, the new business cannot be wholly financed from the resources of the founders, and we have examined the methods they usually adopt to find capital elsewhere.

Let us now assume that the business has been established for some time, that its possibilities are proved, and avenues for the profitable employment of further capital seen. At this stage it is often advisable to form a private limited company.

PRIVATE LIMITED COMPANY

It is the great privilege and advantage of a limited company incorporated under the Companies Acts that the liability of the individual members for losses sustained by the company is limited to the amount, if any, unpaid on their shares. A company is a distinct being independent of the shareholders. The property of the company belongs to the company as such; it is not the property of the shareholders in common. Shareholders, therefore, differ from partners in a partnership in that they may make contracts with the company, and their goods cannot be seized for the debts of the company. A man applies for 100 shares of £1 each, the shares are duly allotted, and he subscribes £100 for them. The company may in the course of time become insolvent and be put into liquidation. Its assets will be realized and divided among the creditors; but our holder of 100 shares cannot be called on to help to pay these debts. He has paid £1 per share -the full nominal value—for 100 shares; and there ends his liability. Of course, if he had only paid 10s. per share, he would, in the event of liquidation, be required to contribute the balance of 10s. It is for this reason that banks and insurance companies often call up only a small proportion of the amount of their ordinary capital, and their balance sheets show, for example, £5 shares with 10s. paid. The balance of £4 10s. per share is of the nature of a reserve that can be called on in the event of some heavy and unexpected loss.

The advantages of the limited company to friends who are asked to help the business are great. If they subscribe capital they know the precise limit of their liability for losses, and the partition of the capital into shares provides a very convenient method of dividing profits. The share is not only a convenient unit, but it is transferable. A member of a company, in case of need, may, without surrendering all of his holding, sell or assign a portion of it. If he wishes to make provision for his family, shares are easily transferred, and any suitable sub-division of a holding may be made. If he dies, the shares go to his heirs; if he becomes bankrupt they pass to his trustee. In neither case is there the dislocation that usually occurs on the death or bankruptcy of a partner.

These remarks must, however, be qualified by the reminder that the transferability of shares in a private limited company is restricted. As its name implies, a private limited company is in theory composed of friends. The number of shareholders is confined to 50, exclusive of employees, past or present, and on no account may any invitation be made to the public to subscribe for shares, nor may any shares be offered for sale to the public. A director or the secretary of every private limited company is required, when making the annual return to the Registrar of Joint Stock Companies at Somerset House, to certify that in the course of the year just ended the number of members, exclusive of employees, has at no time exceeded 50, and that no invitation has been made to the public to subscribe for shares. The directors are given powers to ensure that the number of members is kept within the requisite limit. As a rule they are authorized to refuse to register a transfer of shares, and they need not give reasons for their refusal; but it is usually stipulated that, on the death of a member, his shares may go to his heirs, so long as the number of members is kept below 50.

It is important to note that the restriction of the number of members does not apply to employees, past or present. Profit sharing with employees may most easily and advantageously

be carried out where a company exists. In many cases one of the main reasons for the conversion of a firm into a limited company is to give effect to a profit-sharing scheme. It opens up an avenue for fresh capital, and the business is consolidated by giving employees an interest in its success. The manager and others may well be willing to find capital to put in the business in order to obtain a shareholding in it, or they may be ready to allow part of their remuneration to remain in the company, so that at the end of a period they will receive the equivalent in shares.

The formalities to be observed at the time of the formation of a private limited company, and during the course of its existence, are lighter than in the case of a public company. The memorandum of association, defining the constitution of the company, and the articles of association, setting out the regulations that will govern it, must be drawn up, printed, and filed with the Registrar of Joint Stock Companies, together with a statement of nominal capital and a declaration of compliance with the requirements of the Companies Acts. On payment of the registration fees, the Registrar issues a certificate of incorporation, and the company may commence business forthwith.

FINDING CAPITAL FOR THE PRIVATE LIMITED COMPANY

We have in mind the conversion of a firm into a limited company so that new capital may be obtained with a view to the expansion of the business. In order that the friends whom we approach may know exactly what we are offering them it is usual to draw up a memorandum embodying our proposals. We avoid the word "prospectus" in this connection. A prospectus is a circular sent out by the promoters of a company to induce the public to take shares in the company, and round the prospectus has gathered a great mass of legislation to safeguard the public from unscrupulous or dishonest promoters. We may not appeal to the public for capital for our private company; we must find the money privately. Let us, therefore, avoid some possibilities of confusion at any rate by labelling our memorandum "Confidential Particulars of the Proposed Company," or words to that effect. As the particulars will form the basis of the contract under which our friends will engage to contribute capital, great care must be taken that every statement of fact in them is accurate, that no essential point is omitted, and that such estimates as appear are made on the soundest possible basis.

PARTICULARS OF THE PROPOSED COMPANY

There is no rigid form that the particulars must follow, but as a general rule they will show

1. The capital of the proposed company, and details of the shares offered for subscription.
2. The board of directors as tentatively suggested, leaving one or two vacancies, and, perhaps, the names of the solicitors, auditors, and secretary.
3. The objects of the company.
4. History of the business that is being taken over by the company.

Statement of net assets to be taken over.
Statement of past profits.
The consideration paid to the vendors.
Estimates of future profits.
Management of the company.

5. Any contracts or liabilities not disclosed in the foregoing, made or incurred, or that will be made or incurred, by the company.
6. Form of application for shares.

CAPITAL OF THE COMPANY

Our first task is to make a careful estimate of the capital required by the company in view of the expansion of its activities that is anticipated as the result of the introduction of new funds. This estimate will follow the general lines suggested in our second chapter, but it can be drawn with a firmer hand, for it now is based on actual experience. The business has been running for some time; we can assess its capabilities, and we know where fresh capital can be most profitably employed.

Of the total required, we are contributing the portion represented by the present business, or by so much of the assets of the present business as we are transferring to the company. It is, therefore, necessary for us to determine exactly what we are going to sell to the company, and to calculate the value thereof. We must remember that a limited company is a being independent of its members a separate legal person; and in the case of the conversion of a firm into a limited company, even if the partners of the firm become the sole shareholders of the company, there must be a vending agreement, formal or informal, defining what the firm sells to the company. We need not necessarily make a complete transfer of assets and liabilities. There may be certain assets, say book debts, that we desire to retain. There may be certain liabilities which it is advisable for the partners to settle themselves. The values taken should be those shown in the audited balance sheet of the firm at the date of the conversion, but it is usually best to have assets such as land, buildings, and plant valued by a licensed valuer. If we deduct from the total capital required the value of the net assets that we are bringing to the limited company, we obtain the amount of fresh capital which we desire to raise among our friends.

MARKETING

(*Continued from page 156*)

V

CLEARING HOUSES, SETTLEMENTS AND DIFFERENCES

At this point it may be convenient to give a description of arrangements affecting settlement and the presence of clearing houses in organized marketing. As Professor J. G. Smith points out, different contracts for the same number of units of wheat or other produce of standard grade are, for all practical purposes, identical if they have matured within the same delivery period; in this case the dealer who has bought and sold equal amounts of the same grade for the same period of delivery has not necessarily any concern in the actual goods; and the difference between the price of the sale and of the purchase completes his interest in both transactions. Accordingly, to provide facilities for the offset which results from bringing together the person from whom he purchased and the person to whom he sold the produce—the dealer having dropped out and having handled perhaps nothing more than a warehouse receipt clearing houses have been established, together with periodical settlements; these deal with the adjustment of the differences already described.

MARKET SETTLEMENTS

In some cases market settlements are effected daily; in other cases weekly. But on some exchanges no settlement can be made before the close of the terms of contract. Periodical settlement usually proceeds on the underlying general principle of partial payments pending the final delivery and the final settling up. The strict service of a clearing house is seen perhaps most clearly when settlement takes place daily. Good examples are provided by the methods employed on the Chicago Board of Trade. Many of the settlements are effected by direct arrangement between the parties, but a considerable volume proceed through what are described as rings. A ring is formed when a group of dealers come together for purposes of settlement without the intervention of the clearing house. Complete rings involve a series of intermediaries between sellers to ultimate buyers, each intermediary taking his profit or meeting his loss without unnecessary delay. The formation of rings often occupies much time, and frequently gives considerable trouble; from this point of view the clearing house is specially important. On all exchanges it is an independent organization but not necessarily an independent corporation; it has its own officials and regulations. Within this effort are kept the records of the market where all contracts in futures must be registered. In Chicago, and indeed on most of the other exchanges, each member keeps a settlement book, in which are entered the names of parties with whom he makes his daily settlement, the dates and terms of all contracts involved, including particulars of the original contracts which pass through his hands, the amounts due to or owing by him on each separate settlement, and the consolidated amount of all settlements. Each day, at the close of business, members attend at the clearing house and pass in their reports or accounts. If, as a result of the day's business, a member is in credit, he receives a cheque on the clearing house; if the contrary, he makes payment by cheque for the amount to the clearing house. Under this system members are relieved of the trouble of searching out at the close of business the various parties with whom they have traded during the day.

BETTING ON PRICE FLUCTUATION

Certain critics have always attacked several features of the work of these exchanges on the ground that they practically facilitate the efforts of dealers who are merely betting on price fluctuation. For the purpose of trying to discourage this class of operator, a request is often made that, in addition to short settlement, an amount equal to five or ten per cent of the total sum involved in the contract should be lodged with the clearing house. This deposit is described as putting up a margin, but it is contended that the short settlement system and the putting up of margins do not prevent dealers from assuming risks which it is beyond their means to cover. The system may provide facilities for gambling in mere price movement, as distinct from dealing in commodities. On the other hand, it is defended mainly with the argument that it helps to check wild speculation by weak dealers unable to meet losses which, however, they were quite willing to risk before the system was introduced. The purpose of the clearing house is well illustrated in the case of the Winnipeg Grain and Produce Exchange Clearing Association, whose aim is more efficiently and economically to facilitate adjustment of daily balances due to changes in the price of grain, and also to give additional security to contracts. As distinct from the general practice in North America, this association assumes the position of seller to the buyer, and buyer to the seller on all contracts of its members; it also guarantees the fulfilment of all such agreements, substantial liquid assets being available as security. These arrangements, however, do not preclude its management from insisting upon such additional security as

in their judgment may be required to ensure due fulfilment of the contract.

In the Liverpool Corn Trade Association the procedure resembles that of Chicago. On being entered into all contracts are recorded in the books of the Association; this record, while the contracts run, provides protection to both parties against the risk of non-fulfilment. It is obligatory on the Association to call on the seller or the buyer to deposit a fixed amount of margin, together with the difference accruing between the market value and that of the previous day. Somewhat similar arrangements apply in the markets of Buenos Ayres Grain Association; it is generally regarded as modelled mainly on the Liverpool principle, with perhaps simpler arrangement in that after the contract has been recorded no member is responsible to any other member, but only to the Association itself. This assumption of responsibility by the market authority or by the clearing house is virtually unknown in the United States; most of the authorities describe it as common in Europe, particularly in the coffee trade.

CLEARING HOUSE FUNCTIONS

The clearing house of this description at Havre, dating from 1882, and dealing in cotton, coffee, lard, and other contracts, is the oldest; but there are many similar institutions in different continental centres. Established in 1888, the London Produce Clearing House Limited assumed responsibility in contracts for forward delivery, including futures proper, in wheat, maize, coffee, sugar, and other commodities. In every case the procedure was similar; business was always transacted through special brokers; from them alone the institution accepted binding contracts, and there were always the two objects of guaranteeing to both parties to a contract its fulfilment in due course, and providing facilities for a clearing house when such facilities were required. Within recent years interesting extensions of this type of clearing house have applied to agreements not immediately or directly concerning produce. Observe, for example, the opening at Antwerp, in 1920, of an institution to protect Belgian purchasers of foreign goods against losses caused by wide fluctuations in foreign exchange. By this device, the local supply and demand for foreign currency or credits is consolidated. Prices are quoted in Belgian currency. Professor Smith points out that at the close of each session contracts for delivery of exchange are registered with the institution; it then assumes the obligations by buyers and sellers towards one another; and it guarantees the execution of all agreements which are made under its supervision, the method of delivery being exceedingly simple.

OTHER MARKET OPERATIONS

In futures contracts, whether they apply to grain, cotton, or other commodities, the normal standard of an average crop is that ordinarily yielded for delivery when the period is reached for the fulfilment of the agreement. A futures contract, however, is a "basis" contract; that is, it does not require the delivery of any specific grade. Within its terms the seller has the unfettered privilege or choice of making delivery from a range of grades. In adopting a basis instead of a specific contract, there is the simple explanation that the proportions of the numerous grades to the total crop vary widely from season to season; they are also liable to sudden changes, owing to damage by unfavourable weather or other unforeseen contingencies. For these reasons, sellers could not be found who would bind themselves to forward sales of specific grades in numbers which were sufficient to maintain a futures market on practical lines. Had they done so they would always have exposed themselves to the risk of a disastrous corner.

Within such market operations there is also the method of "commercial differences" as opposed to that of "fixed differences," which used to be the rule of the New York Cotton Exchange, and is the rule in the Chicago Board of Trade and all exchanges dealing in commodities other than cotton. Under the first method the allowances are calculated with reference to spot prices, in the case of cotton either in the Liverpool market itself or in certain selected American markets. Under the method of "fixed differences," on the other hand, premiums and discounts are allowed for better and poorer grades, delivered or fixed arbitrarily by a committee at stated intervals instead of by the actual selling prices of the different grades in a spot market at the time of delivery. It is generally pleaded that the system of "commercial differences" works better than that of "fixed differences," chiefly on the ground that it is fairer to the manufacturer, merchant, and producer; but most of the authorities point out that it is not necessarily a perfect arrangement, and it cannot be argued that under its auspices the normal relationship of futures and spot quotation is always maintained. The awards of arbitration and appeal committees are frequently criticized on the ground of their uncertainty and inconsistency; and having regard to their influence in market disturbance, steps have been taken, notably at Liverpool and other centres, to deal with this problem.

VALUE AND DISTRIBUTION

(*Continued from page 158*)

V

THE INTERPLAY OF SELF-REGARDING MOTIVES

(*continued*)

30. "SELF-INTEREST," as it operates in regard to the choice of occupation, is, in hardly less degree, a blind and ineffectual force. For most men and women, enlightenment and opportunity in this most important respect are very largely to seek. And this in spite of conscious effort, on the part of a number of persons and institutions, to ensure that the wealth-producing capacities of individuals will be exerted in ways which are not only useful to mankind but profitable to themselves. At the moment of writing there are, in this community of ours, a hundred thousand coal miners at least who, if they pursued their own "self-interest," would be doing anything rather than coal mining, and whose children are severely handicapped, as regards the pursuit of *their* self-interest, by the special limitations of their environment—limitations which a greater knowledge of available possibilities would do so much to remove. In such circumstances, the doctrine of "self-interest," unless stated in this tentative and qualified form, is liable to mislead. Its full implications are obscured by so many "ifs" as to render it, like other economic "laws," no more than a statement of *tendencies* which operate, in varying circumstances, with very varying precision.

31. NOR must we ignore the conscious interference with economic activities of other than self-regarding motives. Man fails to conform to the idea of the *economic man*, not only because he is slack, ill-informed, and hampered by convention, but also because he deliberately pursues not wholly selfish aims. The shopkeeper, it is true—driven, as he will explain, by the necessity of earning a living in a competitive environment—is not likely to expose his goods for sale at a price lower, on the whole, than people are prepared to pay for them. But the mere fact that to cut profits, and so to promote friendlier relations with customers and a reputation for "straight dealing," is "good business," is significant. And the exchange of services, if not that of goods, is frequently conducted with reference to other than profit-making considerations. Personal relationships may override considerations of cash. Much work, too, is performed solely, or very largely, for its own sake, and a strictly "economic" analysis may fail to take account of it. The very institutions of marriage and the family, to which some allusion has been made, cut deeply into the notion that the life of man is a sordid and self-seeking affair. These institutions have, of course, their sordid and self-seeking aspects, but bound up with these, in ways which we need not here stop to disentangle, are relationships in regard to which non-economic motives predominate—some "higher" and some "lower" in the scale, as the moralist assesses them. But "higher" or "lower," they are equally remote from the impulses by which, it is assumed, the conduct of the "economic man" is regulated.

COMPETITION AND ITS LIMITATIONS

32. Nevertheless, it remains broadly true that self-regarding motives dominate our activities. It is broadly true also that *competition* is the medium in which such motives attain their fullest expression. If self-interest is to be given free play, a competitive order is essential; the one principle implies the other. It is, of course, easy enough to visualize the elimination of both. A society might be organized, for example, on a basis of *compulsion*, as some of the civilizations of the past doubtless have been; in ancient Assyria, for example, or in Peru under the Aztecs, there was little of the interplay of competition as we understand the term. Again, it might be organized on the basis of self-sacrifice or *service*; of the subordination of self to the interests of others or of the community at large. Countless Utopias have been planned on some such foundation. The economic organization of present-day Russia is represented by its admirers as resting upon the second of these bases; certainly, there has been sacrifice enough, though to what end is open to question. By its critics it is said to rest upon the first. But neither the principle of compulsion nor the principle of service, in Russia or in any other industrial and trading community, can prevent the principle of competition from playing a predominant part in the conduct of economic activities.

33. Competition, no less than self-interest, operates subject to qualifications which considerably restrict its application and render economic "laws" much harder to formulate than would otherwise be the case. The community itself, from various motives, is always tending to interfere with it. The economic legislation of the Middle Ages, for example, was dominated by such doctrines as that of the "just price"; there was a "just price" for commodities exposed for sale, a "just price" for a day's labour of a particular grade, a "just price" for the rent of land or the loan of capital. But with the growth of contractual relationships and of a monetary economy, attempts to restrain the bargaining power of individuals proved ineffective. From the fourteenth century,

or thereabouts, to the nineteenth, their importance tended to dwindle. That we have witnessed during the last fifty years a tendency towards the reimposition of restrictions upon free competition is the most significant fact of our recent history. It indicates the emergence of a change in the relations of the individual and the community, the reasons for which we cannot here explore. The expression given to it has been more far-reaching and thorough-going in some countries than in others, but in every civilized community the forces which underlie it are at work.

34. Our own laws, for example, interfere at numerous points with the determination of economic equilibria by purely competitive forces. Our Rent Restriction Acts are a good example. Their operation has prevented a particular "good" —dwelling accommodation—from being bought and sold at prices which purchasers would be willing to give and vendors only too anxious to obtain. Their justification is, of course, that it is in the interest of the community at large that certain "economic laws" should be over-ridden. There are those who assert that the policy is a mistaken one; that it is always to the community's interest to give "economic law" free play. The so-called "philosophy" of *laissez-faire* is the embodiment of this view. But that philosophy has never had the grip upon the conduct of affairs that we are apt, looking at it in retrospect, to attribute to it, and to-day its exponents represent a steadily-diminishing minority. In point of fact, political considerations alone, in communities organized on a basis of majority rule, render its decline inevitable—apart altogether from the part that may be played by theories of distributive justice.

LEGISLATIVE INTERFERENCE

35. Other and more important instances of interference, whether by legislation, by custom, or by organized action, with the free play of self-regarding motives, will readily occur. In the first category (legislative interference) may be placed such laws as the Trade Boards Acts of 1909 and 1918 and the Agricultural Wages Regulation Act of 1924. These Acts make it a criminal offence for workers to be employed in certain industrial occupations, or in agriculture, at lower wages than specially-constituted arbitral bodies may prescribe. Legislation of this kind has had important consequences (to which we shall return) both in the sphere of exchange and in that of distribution. It is by no means confined to our own country; in Australia, for example, an analogous principle is applied throughout almost the whole of industry.

36. Other instances, in view of the increasing importance of this kind of legislative interference, may usefully be mentioned. The sale of certain "goods" is a statutory monopoly; the law, that is, prescribes that there shall only be one seller, and therefore competition, with its consequent interplay of incentives as between producer and consumer, is eliminated. The postal services, which are a monopoly owned and operated by the State, are a case in point; telephone charges, for example, are determined independently of competition, save in so far as the telephone, as a method of communication, itself competes with other methods. "Broadcasting" is another example; the right to "listen-in," represented by a wireless-user's licence, is purchasable at a fixed price. Here, however, an element of taxation enters in; the State derives profit indirectly from the grant of the monopoly. Railway rates are fixed by law, or, rather, by bodies operating under a legislative sanction; the price of gas is fixed, not by law, but in terms of a principle designed to protect the consumer and embodied in a series of private Acts; the price of electricity will ultimately be subject to the same sort of control. All these controlled prices, whether for communication, for transport, or for power, enter largely into the prices of other things, and to that extent considerably modify the strength of competition as a price-determining force.

TENDENCIES TO MONOPOLY

37. But the most far-reaching interference with competition, in our own community at least, is not that of legislation. It is a consequence of the conscious activities of certain social and industrial organizations. Of these the most important are *trade unions*, whether of workers or of employers, and the various types of producers' associations which are loosely known as "*trusts*."

Trade unions are concerned mainly with the determination of the rate at which services of different kinds shall be remunerated. About half the men and women employed in industry (using the term in its broadest sense) are directly affected by their operations. The result is that the wages which workers receive for their work depend very largely not on individual, but on "collective," bargaining. The technique of the *collective bargain* has made remarkable headway during the last half-century. Its development, as we shall see, has reacted significantly upon the whole problem of distribution.

CURRENCY AND BANKING

(*Continued from page 166*)

V

FORMS OF MONEY

It is difficult in these days to appreciate the difficulties which were formerly experienced through defective coinage systems, or even to understand that a coinage such as we know it to-day is of comparatively recent development. It has already been shown that various articles were employed as standards of value, and that these were gradually reduced in number to certain of the metals, and in particular to the precious metals. The significance of a metallic standard is simply that a given weight of the metal is made to constitute the standard, and it is worth noticing that it is the weight that is fixed rather than the value. Thus, prices become the values of goods and services in relation to the *value* of a given weight of the selected metal.

INTRODUCTION OF COINAGE

In its origin, metal money passed by weight. The earliest use of gold money in India, for example, is said to have taken the form of gold dust, made up in bags and passing by weight. It was in Lydia, about the seventh century B.C., that coins were first put into circulation, and in time the practice of coining spread over the whole of Greece. A system of coinage means that metallic money passes "by tale" rather than by weight, i.e. the authority which issues the coins will issue pieces of money, stamped for recognition purposes, and carrying some guarantee as to the weight and quality of the metal. This implies that technical methods of minting have been developed, and also that there are recognized systems of weights and measures. In this respect the earliest coins were defective and these defects were not eliminated until comparatively modern times. In Lydia, for example, there were two systems of weights in use, the Babylonian and the Phoenician, and two sets of coins on these different standards were issued. These coins, moreover, were made of a combination of silver and gold, known as electrum, and the proportions of the two metals varied very considerably.

The manner in which the invention of coinage occurred was probably a development of the ancient practice of affixing seals to objects for the purpose of signifying ownership or possession. These seals were also imposed to ratify agreements and in this form they still survive. But underlying all these uses of the seal there is the idea of authority without which such an impress would be of no significance. "When a ruler first undertook to certify the weights of pieces of metal, he naturally employed his seal to make the fact known, just as, at Goldsmiths' Hall, a small punch is used to certify the fineness of plate."[1] A further condition of a satisfactory coinage was thus the existence of a strong central government. For many centuries, therefore, there were multitudinous issues of coins by different authorities, each supreme within its own district, and the coins issued lacked uniformity both in respect of weight and quality The so-called Dark Ages, for example, with their relapse into semi-barbarism and the break-up of stable forms of government, witnessed a decline and in some cases a complete disappearance of monetary standards. The chief difficulty in that connection was not merely the collapse of authority and confidence, but also the disappearance of effective standards of weight. No proper system existed whereby the weights of different coins could be measured, and there were no longer any legal codes to enforce whatever standards might have survived. The result was a certain relapse to conditions of barter. Coinage traditions, however, survived among the Arabs, whose influence latterly spread far west into Europe, and it was Charlemagne, in the ninth century A.D., who succeeded in confirming and enforcing the existing coinage systems. New methods of minting were introduced, and for the first time the issue of coins was made a royal prerogative and no longer the private privilege of bishops and barons.

When a coinage system has been established, contracts which involve payment will be expressed in terms of coin rather than in terms of weight of metal. But so long as there existed different types of coinage based on different systems of weight, contracts would have to make a further specification of the particular coin in terms of which payment was to be made. As late as 1762 we find that Frederick the Great was obliged to make the following declaration: "It is a general principle of law, based upon its essential justice, that every debtor must repay the debt in the same type of currency in which he received it." Further difficulties arose with "the debasement" of the currency. This was not always a deliberate act of fraud. It must be remembered that minting methods remained crude. Of a number of new coins issued by a mint, some would be heavier and thicker than others, although nominally they were all alike. This, however, provided an opportunity for clippers and filers to select the good-weight coins, reduce their weight and sell the clippings which they obtained. Extensive clipping could easily be undetected if the coins issued from the Mint were badly struck The debasement of the coinage, however, was frequently practised either

[1] Jevons, *Money*, p. 56.

by reducing the weight of the coin or by increasing the mixture of alloy. In England the pound weight of standard silver was originally coined into twenty shillings. In the reign of Edward III it was coined into twenty-five shillings; in 1464 into thirty-seven and sixpence. In 1543, under Henry VIII, the standard of fineness of the silver coins was reduced from 37/40, at which it had remained for centuries, to 5/6 and later to 1/2, 1/3, and 1/4. In 1547 the pound weight of silver was coined into £7 4s. It was one of the tasks of Elizabeth to complete an important currency reform, and the original standard of fineness of 37/40 was restored.

COINAGE DEFECTS

The later sources of confusion were somewhat involved: (*a*) In those countries where there was no single uniform coinage, but several coinages with different standards, there was no legal connection between the different types of coin. In Germany there were gold gulden and gold ducats, silver dollars and silver gulden, and the types of these different coins varied with the time and place of coining; (*b*) The crudeness of minting processes led to the practice of clipping, and this, together with abrasion, or wear and tear, resulted in reducing the metallic contents of the coins considerably below their nominal and legal contents. In the period of the Middle Ages traders dealt in money not by tale but by weight, and the early banks of deposit, founded from the sixteenth century, conducted their operations not in terms of coined money but in terms of the weight of the precious metals in the coins actually deposited with them.

So long as minting methods remained backward, the debasement of the coinage through wear and tear and clipping was bound to be rapid and considerable, and the actual coinage could only be maintained at a high standard by frequent recoinages, which were extremely costly. These differences, however, have now been removed. With improved technique in the manufacture of coins it was easily possible to detect defects in the metallic circulation, and governments came to place a legal limit to the amount of abrasion tolerated in legal tender metallic currency. Thus, if the weight of the coin fell short of the standard contents of that coin by more than a certain amount, the coin was no longer legal tender.

At this stage the phenomenon which has come to be known as Gresham's Law may be noticed. One form of this law, that "bad money drives out good money," tended to make its appearance when the actual coins in circulation varied considerably from the standards of weights and fineness which were prescribed. The good coins were more valuable for foreign trade operations, where money passed by weight rather than by tale; consequently, they tended to disappear from current circulation where bad coins predominated.

FREE COINAGE AND MINT PRICE OF GOLD

A system of "free" coinage is said to obtain when anyone is at liberty to take any amount of the metal of a coin—e.g. silver or gold—to the Mint and have it coined. Under these conditions, and assuming that the State makes no charge for the cost of minting, the monetary value of a coin must equal the value of its metallic contents. If, for example, a gold sovereign was worth more as metal than as coin, actual gold sovereigns would be melted down into bullion; the supply of sovereigns would be contracted, while that of gold metal would be increased, and forces would be set in operation to restore a uniformity between the metallic and the monetary values of the coin. Conversely, if the sovereign was worth more as coin than as metal, the opposite process would occur, and the result would be the same. By the Coinage Act of 1816 (56 Geo. III, c. 68), the Mint price of gold in this country was virtually fixed at £3 17s. 10½d. per standard ounce; and since a standard ounce is 11/12 fine—i.e. eleven parts pure or fine gold and one part alloy—this corresponds to a price of £4 4s. 11½d. per ounce troy of pure or fine gold. Suppose now that the market price of gold metal rose to £4 10s. per fine ounce, there would be a profit of 5s. per fine ounce in melting gold sovereigns into bullion and selling them as such. This is virtually what happened during the late war, but legislation was introduced to make it a penal offence to melt down gold coins, and they were, in fact, largely withdrawn from circulation.

A government, however, may make some charge for the expense of coining. If it is determined to charge an amount just sufficient to cover the cost, it is said to charge a "brassage" or "mintage"; if it charges more than that cost, the excess, which is a profit to the State, is called "seignorage." For example, the Mint price of gold is £3 17s. 10½d. per standard ounce, and the State bears the entire cost of minting. If the cost of minting were 5 per cent—i.e. roughly 3/11 per standard ounce—and the State decided to charge this, the Mint price would be reduced to £3 13s. 11½d. If it further desired to make a profit by charging a seignorage of 2½ per cent, the Mint price would be further reduced to £3 12s per standard ounce. In other words, anyone who took a standard ounce of gold to the Mint would receive £3 12s., although that standard ounce was, in fact, coined into £3·894 sovereigns—i.e. the equivalent of £3 17s. 10½d. The effects of such charges and the problems of "token" coins will be considered in the following article.

INTERNATIONAL TRADE

(*Continued from page* 162)

V

THE DIRECTION OF THE TRADE OF THE U.K. AND THE U.S.A.

In the previous section an analysis was made of the classification of the imports and exports of the United Kingdom as between foodstuffs, raw materials, and manufactured goods, and it was shown that whereas the bulk of the net imports of the country consisted of foodstuffs and raw materials, the bulk of the exports of British produce consisted of manufactured goods. It was also found that on the basis of a sufficiently long period, the proportion of the country's trade with the other parts of the Empire had tended to increase relatively to the trade with foreign countries. Nevertheless, the trade with foreign countries still represented the greater part of the total trade of the country. It will be useful at this stage to carry the latter analysis a stage further by considering the distribution of the country's trade as between the different continents. Such an analysis is given in the following table—

Year and Class of Trade	Europe per cent	Africa per cent	Asia per cent	N. America per cent	S. America per cent	Australasia per cent
Imports—						
1870	46·6	6·3	13·4	19·2	8·4	4·6
1900	43·4	3·9	8·7	29·1	5·8	6·9
1913	40·5	6·1	12·7	23·9	9·1	7·7
1924-26 (average) .	31·2	7·4	13·0	27·2	9·0	9·2
British Exports—						
1870	44·2	6·4	17·7	15·9	10·4	5·2
1900	45·2	7·4	18·9	9·9	8·9	9·6
1913	34·6	9·9	25·2	12·0	9·6	8·7
1924-6 (average) . .	30·6	11·3	24·1	13·4	8·7	11·9

The table cited indicates that, taking the European countries as a whole, they still represented the chief source of British imports and the chief markets for British exports, but their relative importance had diminished. The importance of South American markets had also shown some relative decline, but Africa, Asia, and Australasia had increased in relative importance both as regards imports and exports. Broadly speaking, therefore, there have been important modifications in the geographical distribution of Britain's overseas trade in the course of the last fifty years. These changes, moreover, do not appear to have been peculiarly affected by war and post-war conditions. They have occurred gradually over a long period of years, and it is natural to look for the existence of some permanent underlying factors which will enable the changes of the period to be interpreted.

IMPORTANCE OF INDIVIDUAL COUNTRIES IN U.K. TRADE

Meantime, it will be convenient to complete the discussion of the geographical distribution of Britain's overseas trade by reference to the importance of individual countries. For that purpose the present position will be illustrated by reference to the year 1925 rather than to the year 1926, since, for several reasons, the position in 1926 tended to become abnormal. The commercial importance of the different countries may be examined in three groups as follows—

1. **Europe.** Imports from European countries in 1925 amounted to £442,000,000, and exports to these countries to £254,000,000. Except in the cases of Portugal, Greece, Rumania, and Turkey, our imports from the individual countries of Europe exceeded our exports to these countries. France, Holland, Denmark, Germany, and Belgium —in the order given—were the chief sources of our European imports and, taken together, represented fully 60 per cent of our total imports from the Continent. As regards exports, Germany, France, Holland, Belgium, and Italy, in order of importance, provided markets for fully 62 per cent of British exports to the Continent.

2. **Foreign Countries Outside of Europe.** In this group of countries in 1925, imports to the United Kingdom amounted to £451,000,000, and exports from the United Kingdom £184,000,000. Of these totals, the United States was the most important single country, accounting for more than 55 per cent of the imports from the group and approximately 30 per cent of the exports to the group. Next in order came Argentina, which provided £69,000,000 of Britain's imports and a market for £29,000,000 of British exports.

3. **The Dominions.** Imports into the United Kingdom from the rest of the Empire amounted to £430,000,000, and exports to these countries to £335,000,000, including the Irish Free State. Apart from the latter State, India took first place both as regards imports and exports, and was followed in order by Australia, Canada, New Zealand, and Canada.

The next table summarizes the trade with the most important single countries in 1925.

Imports from	£ millions	Per cent	Exports to	£ millions	Per cent
U.S.A.	250·3	18·8	India and Ceylon	91·0	11·7
India and Ceylon	97·0	7·3	Australia	60·2	7·8
Australia	72·7	5·5	U.S.A.	53·5	6·9
France	72·0	5·4	Germany	44·2	5·7
Canada	70·7	5·3	Irish Free State	40·2	5·2
Argentina	68·5	5·2	France	38·7	5·0
Holland	62·0	4·7	Holland	36·5	4·7
New Zealand	51·3	3·9	S. Africa	30·7	4·0
Denmark	49·3	3·7	Argentina	29·2	3·8
Germany	48·2	3·6	Canada	27·6	3·6
Irish Free State	43·4	3·3	New Zealand	23·1	3·0
All countries	£1323		All countries	£773	

CHANGES IN CHARACTER OF U.S. TRADE

By way of comparison with the general changes which have been evident in the case of the United Kingdom, the more rapid transformation of the foreign trade of the United States may be considered. In 1870 the special trade of the United States amounted to approximately $800,000,000, the imports being in excess of the exports. Ten years later the total special trade reached $1,480,000,000, and there was an excess of exports, which has been maintained in the subsequent period. In 1913 the special trade was fully $4,200,000,000. Imports increased from $420,000,000 in 1870 to $1,776,000,000 in 1913, and exports from $377,000,000 to $2,429,000,000.

Analysis of the trade returns reveals to what extent the United States had become an industrial community within the period under review. In 1880 55 per cent of the country's exports in that year consisted of articles classified as foodstuffs, and only 14 per cent were classified as manufactures. Since that time, manufactures have increased in relative importance, while foodstuffs have declined. In 1913 the proportions were 21 per cent under the head of foodstuffs and 49 per cent as manufactures.

At the beginning of the period 13 per cent of the imports into the United States consisted of raw materials, 34 per cent of foodstuffs, and 53 per cent of manufactures mostly in a finished condition. In 1913 35 per cent of the imports of that year took the form of raw materials, 22 per cent of foodstuffs, and 42 per cent of manufactures. The outstanding feature, therefore, is the decline in the relative importance of imported foodstuffs and the increase in the relative importance of raw material imports. The latter rise should be considered together with the great increase both relatively and absolutely in the exports of manufactured goods, which in 1913 represented almost one-half of the total exports of the country.

These proportions may be sufficient to indicate in broad outline how the changes in the internal structure of the country and the rise of new industries have been reflected in the character of its foreign trade. Nevertheless, articles of foodstuffs continue to occupy an important place in the outward trade of the country. For the ten years 1871-80 the United States wheat crop averaged 312,000,000 bushels, of which 86,000,000 bushels were exported annually. For the ten years 1901-10 the average crop was 654,000,000 bushels, of which 143,000,000 were exported. Over the period, therefore, there was a slight decline from 27 to 22 per cent in the proportion of the wheat crop which found a market in other countries. As regards cotton, which is the most important raw material export, the quantity exported increased from 959,000,000 lb. in 1870 to 5,535,000,000 lb. in 1912. No great change occurred in the proportion of the domestic crop which was exported. The money value of these raw cotton exports was $227,000,000 in 1870 and $566,000,000 in 1912.

At the beginning of the period the export trade in meat was just entering upon a period of rapid growth. That growth was dependent upon the evolution of satisfactory means of transportation and of facilities for cold storage. Iron and steel manufactures were also increasing in importance, but home requirements were absorbing the bulk of the domestic production. Up to 1894 imports of iron and steel and their manufactures exceeded exports of the same classes of products.

THE TRADE CYCLE

(*Continued from page 164*)

V

THE COMPOSITE THEORY OF THE TRADE CYCLE

THEORIES of the trade cycle may be divided into two main types, which, for lack of better names, we might call the "composite" type and the "dominant factor" type. The composite type of theory accounts for each successive step of the trade cycle by the action and interaction of a number of factors, no single one of which is stressed more than any other. The dominant factor type, on the other hand, while recognizing that numerous causes play a part in the trade cycle, endeavours to show that one particular cause may be regarded as playing a dominant part. Among the economists advancing some form of the composite explanation of the trade cycle Prof. Wesley C. Mitchell is pre-eminent, and it is his account of the forces underlying the fluctuations in trade that will be taken as representative of this type of theory. It should be said that so brief an outline as can be given in these few pages necessarily falls far short of doing the theory full justice.

Prof. Mitchell's account of the trade cycle begins with the revival phase —

A period of depression produces after a time certain conditions which favour an increase of business activity. Among these conditions are a level of prices low in comparison with the prices of prosperous times, drastic reductions in the cost of doing business, narrow margins of profit, ample bank reserves, and a conservative policy in capitalizing business enterprises and in granting credits.

These conditions are accompanied sooner or later by an increase in the physical volume of purchases. When a depression begins, business enterprises of most sorts have in stock or on order liberal supplies of merchandise. During the earlier months of dullness they fill such orders as they can get mainly from these supplies already on hand, and in turn they buy or manufacture new supplies but sparingly. Similarly, families and business concerns at the end of a period of prosperity usually have a liberal stock of clothing, household furnishings and equipment. For a while they buy little except the perishable goods which must be continuously consumed, like food and transportation. But after depression has lasted for months, the semi-durable goods wear out and must be replaced or repaired. As that time comes there is a gradual increase of buying, and, as the seller's stocks are gradually reduced, there is also a slow increase of manufacturing.

HOW REVIVAL DEVELOPS INTO PROSPERITY

The revival thus begun tends to grow cumulatively. Manufacturers replace equipment. Merchandise is ordered in advance of immediate needs. More men are employed. A more cheerful state of mind prevails among business men. Sellers stand out for higher prices and buyers rush to place contracts before prices rise. Large profits are made. Investments expand, creating a demand for more machinery and new construction. Prices are driven still higher. The revival of trade has developed into a period of intense prosperity.

All these factors interact one with the other.

Not only does every increase in the physical volume of trade cause other increases, every convert to optimism make new converts, and every advance of prices furnish an incentive for fresh advances, but the growth of trade helps to spread optimism and to raise prices, while optimism and rising prices both support each other and stimulate the growth of trade. Finally, as has just been said, the changes going forward in these three factors swell profits and encourage investments, while high profits and heavy investments react by augmenting trade, justifying optimism, and raising prices.

HOW PROSPERITY BREEDS RECESSION

Prosperity develops certain stresses "which ultimately undermine the conditions upon which prosperity rests."

The first of these stresses is the increased cost of doing business. Antiquated equipment and ill-located plants are brought into use. The price of labour rises: not only do wage rates increase but much overtime at higher pay is worked. The efficiency of labour declines for various reasons: "because overtime brings weariness, because of the employment of 'undesirables,' and because crews cannot be driven at top speed when jobs are more numerous than men to fill them." Finally, numerous small wastes creep in because managers are too harassed by press of orders to prevent them.

A second stress is the relative scarcity of capital —now greatly in demand—causing a rise in interest and discount rates and so tending to reduce the profits of merchants and manufacturers.

A third stress arises in industries producing industrial equipment —tools, machines, plant—and the materials of which this equipment is made. "During depression and early revival the equipment-building trades get little business except what is provided by the replacement demand. When the demand for products has reached the stage where it promises soon to exceed the capacity of existing facilities, however, the equipment trades experience a sudden and intense boom." But this boom depends upon the demand for manufactured products continually increasing, and if it does not continually increase there is a slump in the industries producing equipment.

A fourth stress comes from the fact that in certain industries prices are stereotyped by law, by public commissions, by contracts of long term, by custom, or by business policy. And in these industries trouble arises since their costs are growing and so threatening to eliminate all profit.

The wavering in prosperity brought about by these stresses shakes business credit, and cautious

creditors " begin to refuse renewals of old loans to the enterprises which cannot stave off a decline of profits, and to press for a settlement of outstanding accounts."

" Thus prosperity ultimately brings on conditions which start a liquidation of the huge credits which it has piled up. And in the course of this liquidation, prosperity merges into crisis."

HOW RECESSION DECLINES INTO GENERAL TRADE DEPRESSION

The period of business recession thus brought about leads on to a period of cumulative depression.

Consumers' demand declines in consequence of wholesale discharges of wage-earners, the gradual exhaustion of past savings, and the reduction of other classes of family incomes. With consumers' demand falls the business demand for raw materials, current supplies, and equipment used in making consumers' goods. Still more severe is the shrinkage of producers' demand for construction work of all kinds, since few individuals or enterprises care to sink money in new business ventures so long as trade remains depressed and the price level is declining. The contraction in the physical volume of business which results from these several shrinkages in demand is cumulative, since every reduction of employment causes a reduction of consumers' demand, and every decline in consumers' demand depresses current business demand and discourages investment, thereby causing further discharges of employees and reducing consumers' demand once more.

With the cumulative falling off in demand goes a cumulative fall of prices. But this is counterbalanced to some extent by a fall in costs of materials, by increased efficiency of labour and other causes.

HOW TRADE DEPRESSION GIVES PLACE TO BUSINESS REVIVAL

While these reductions in costs are still being made, the demand for goods ceases to shrink and begins slowly to expand—a change which usually comes after one or two years of depression. Accumulated stocks left over from prosperity are gradually exhausted, and current consumption requires current production. Clothing, furniture, machinery, and other moderately durable articles which have been used as long as possible are finally discarded and replaced. Population continues to increase at a fairly uniform rate; the new mouths must be fed and new backs clothed. New tastes appear among consumers and new methods among producers, giving rise to demand for novel products. Most important of all, the investment demand for industrial equipment revives; for, though saving slackens it does not cease. With the cessation of foreclosure sales and corporate reorganizations the opportunities to buy into old enterprises at bargain prices become fewer, capitalists become less timid as the crisis recedes into the past, the low rates of interest on long-term bonds encourage borrowing, the accumulated technical improvements of several years may be utilized, and contracts can be let on most favourable conditions as to cost and prompt execution.

Once these various forces have set the physical volume of trade to expanding again " everything is ready for a revival of activity, which will begin whenever some fortunate circumstance gives a sudden fillip to demand, or, in the absence of such an event, when the slow growth of the volume of business has filled order books and paved the way for a new rise of prices. Such is the stage of the business cycle with which the analysis began, and, having accounted for its own beginning, the analysis ends."

The question we have to ask ourselves is, " Does this constitute an adequate explanation of the trade cycle ? "

NOTE. The extracts collected here are taken from *Business Cycles and Unemployment* (1923), being the record of an investigation made under the auspices of the National Bureau of Economic Research. Prof. Mitchell has put out his theory at far greater length in *Business Cycles* (1913), together with detailed statistical corroboration.

This latter volume may be said, without exaggeration, to have marked an epoch in the study of the trade cycle.

A new work, *Business Cycles : The Problem and its Setting*, has recently been published (August, 1927) by the National Bureau of Economic Research, as part of an extensive inquiry being carried out by Professor Mitchell and a staff of prominent economists and statisticians into the causes and consequences of the trade cycle.

SURVEY OF INDUSTRIES

(*Continued from page 170*)

V

IRON AND STEEL

By Sir William J. Larke, K.B.E.
Director of the National Federation of Iron and Steel Manufacturers

Although coal, iron, and steel are the basis on which modern civilization is founded and without which it would not have been possible, it is remarkable that these basic industries were not developed to any extent until the eighteenth century, although coal and iron were known and used hundreds of years previously, and iron has been used by man to a greater or less extent for the past six thousand years.

USE OF CHARCOAL FOR SMELTING

In the Middle Ages iron was smelted with charcoal, and, therefore, in this country the iron industry was situated in those wooded districts where the fuel was obtainable, such as the counties of Kent, Surrey, Sussex, and the Forest of Dean. The consumption of timber in the production of iron created such a shortage of timber that in 1558 an Act was passed forbidding timber to be used to make "coals for burning," but from this Act the county of Sussex, the Weald of Kent, and certain parishes in the Weald of Surrey were specially excluded. A further Act was, however, passed in 1581 which enacted that no new ironworks should be built within 22 miles of London, within 14 miles of the River Thames, nor on the downs or sea coast of Sussex. Neither should any wood within these boundaries be converted to charcoal for the making of iron. The reason for this legislation was the conservation of timber required for shipbuilding, especially the navy.

RESTRICTION OF IRON SMELTING

In 1585 a further Act prohibited the erection of new iron works in Surrey, Kent, and Sussex. This Act had the very definite effect of discouraging the manufacture of iron and encouraging the import of iron from abroad, and while there were 300 furnaces in this country in 1665, they had been reduced to 59 by 1740.

As showing the close relation between industries of widely divergent kinds, even in those days, a petition was made to Parliament in 1750 against a Bill for encouraging the importation of iron from our American colonies by "the tanners of leather in and about the town of Sheffield in Yorkshire," representing "that if the Bill should pass, the English iron would be unsold, consequently a great number of furnaces and forges would be discontinued; in that case the wood used for fuel would stand uncut and the tanners be deprived of oak bark sufficient for the tanneries and support of their occupation."

BIRTH OF THE MODERN INDUSTRY

Thus, at the beginning and even towards the middle of the eighteenth century, the iron industry in this country was a decaying one, but in 1730[1] Abraham Darby, at Coalbrookdale, owing to a shortage of charcoal, smelted iron ore with pit coal. In 1735 Darby actually used coke in the blast furnaces, and this date marks the birth of the modern iron and steel industry and the commencement of that transfer of the industry from the wooded centres of the country to those where pit coal and ore were obtainable.

The scale of the iron industry may be gauged from the fact that in 1740 the total production of iron in the United Kingdom only amounted to 17,350 tons, which at that date was the second highest production of any country in the world, being second only to Sweden.

At this time steel in the modern sense was unknown, the steel referred to in early historical times being produced as iron and frequently converted to steel more or less accidentally by the process of forging and reheating with charcoal. No doubt this accidental production of tempered steel is the explanation of the weapons of ancient times which were alleged to possess supernatural qualities. In the case of the Damascus sword blades, these were actually produced from steel made in India by a process similar in every respect to that known as the "cementation" process invented by Huntsman in Sheffield, which has formed the basis of the higher grade steel production.

With the possibility of smelting iron with pit coal, the industry received a great stimulus, since it was able to make available, at a considerably lower cost, iron in much larger quantities than heretofore, and therefore rendered possible the mechanical developments which resulted from the inventions of Watt in the application of the steam engine, in the inventions of Arkwright and Crompton of the spinning frame, and other industrial applications, followed by the inventions of Stephenson in the development of the locomotive. The enormous impetus given to transport, which itself rendered possible the assembly of raw materials from distant parts of the country, brought into productive use raw materials, which, for lack of fuel or transport facilities for their assembly and the distribution of the finished product, had not been developed. We thus find the discovery of the use of pit coal in the smelting

[1] There is some evidence that coal was coked and used in blast furnaces some years prior to this.

of iron, coinciding as it did with a period of active invention and discovery in the fields of engineering and manufacturing industry, brought about what has since been termed "the Industrial Revolution."

THE INDUSTRIAL REVOLUTION

The birth of the industrial era created a demand for iron which gave a still further stimulus to the development of the industry, until we find the production of iron in the United Kingdom rising from 17,350 tons in 1740 to 600,000 tons in 1825, to 1,400,000 tons in 1840, and 9,000,000 tons in 1900, reaching a maximum of 10,260,000 tons in 1913.

The remarkable development of the railways from 1825 to 1846 was due, according to Cunningham, to the fact that industrial development had proceeded more rapidly than the transport facilities for the distribution of the products of industry—as they had not kept pace with the demand created by industry—therefore, at the time of Stephenson's development of the locomotive, which made railway transit possible at speeds hitherto unknown, the traffic already existed, and the phenomenal railway development of that era was the natural result.

This railway development thus provided the most important stimulus to the development of the modern iron and steel industry, as also of industrial development generally, but since the railways would have been impossible without the production of iron by means of coal, it will be seen how truly coal and iron may be styled the basis of modern civilization. The effect of this development of industry and rapid transit on population is other evidence, if such be needed, of the importance of these materials in the creation of the modern world. In Great Britain the population increased from 9,000,000 in 1780 to 47,000,000 in 1921; an increase that was only rendered possible by the application of mechanical power to industry and the development of transport by railways, which ensured the distribution of the products of industry and necessaries of life over a wide area, thus enabling the country to support a much larger population than was possible on its localized agricultural production.

INVENTION OF STEEL

Steel, as generally understood, was not invented until the introduction of the Bessemer process in 1856, and up to this time iron had been used both in the forms known as cast and wrought. The production of wrought iron involves considerable labour and is, therefore, expensive. As an indication of the cost of early railway development, Mr. Bland, in his *Century of Permanent Way*, quotes an estimate of Stephenson's in 1830 for the Liverpool and Manchester Railway for rails at the price of £15 10s. per ton (rails being 35 lb. per yard) and chairs weighing 10 lb. each at £15 per ton, these being of iron. The price of steel rails to-day weighing approximately 100 lb. per yard is approximately £8 2s. 6d. to £8 7s. 6d. per ton. The Bessemer process, however, reduced the cost of production materially and provided a material which was harder and generally more suited to railway work at that time, as it would withstand wear and tear.

INFLUENCE OF RAILWAY DEVELOPMENT

In 1857 the first Bessemer steel rail was rolled at Dowlais, Glamorgan, and laid on the main line of the Midland Railway at Derby. It was not until 10th November, 1861, that a double line of steel rails was laid at Crewe. In 1862 the first rails were imported into the United States from this country. Clapham, in his *Economic History of Modern Britain*, pp. 427-8, makes the following statement—

> Railway demand, direct and indirect, dominated the home market also. Fluctuations in the home consumption, so far as they can be ascertained, coincide closely enough with the flow and ebb of railway construction. Apart from new construction, railway demands were always growing. Almost every year the weight of rails and chairs increased. In 1830–32 32 or 33 lb. to the yard was a good weight for rails; in 1841 rails of 73 lb. were being rolled at Middlesbrough for the Stockton and Darlington, and the weight of iron, in rails and chairs, used for a mile of single track was 156 tons as against 53½ tons in the early days. On some such basis, the 2,000 miles of new line opened in the year 1847–8 must have used about 400,000 tons of iron for rails and chairs alone, allowing for sidings, shunting yards, and double tracks. If the iron required for rolling stock, bridge building, station building, fencing and all the minor requirements, together with the demand of the 3,000 miles of line already open on 31st December, 1846, be added, the railway companies' share of the not more than 3,000,000 tons retained for home use in Great Britain during these two years can be roughly conceived.

The demand of railway developments on the iron and steel production of the world became so great, that in 1881, out of a total production of steel in the United Kingdom amounting to 1,778,000 tons, 1,000,000 tons were utilized for rails, and in the United States, which in the same year produced 1,000,000 tons of steel rails, the total steel production for that year was only 1,588,000 tons.

INVENTION OF SIEMENS OPEN HEARTH PROCESS

While, in 1870, the world production of steel—principally Bessemer—was only 500,000 tons, the production of pig iron was as high as 11,800,000 tons, showing that the structural and engineering developments of that day were based almost entirely on cast and wrought iron. Owing, however, to the invention and development by Siemens between the years 1864 and 1867 of the open hearth process, steel production had increased in 1886 in the United Kingdom to 2,250,000 tons and the total production of the world was then 7,500,000 tons.

INVENTION OF THE THOMAS BASIC PROCESS

In 1877 Sydney Gilchrist Thomas invented the process of removing phosphorus, known as the Thomas or basic process. This enabled phosphoric ore, which was available, to be used in both the Bessemer and the open hearth processes. This process brought into production large bodies of ore, hitherto unusable, notably on the Continent - the process being first taken up in Germany owing to the phosphoric nature of the native ores of Germany and Lorraine—and production rapidly exceeded demand. In the United Kingdom, between 1877 and 1883, the production of pig iron increased from 6,600,000 to 8,530,000 tons and in the United States from 2,070,000 to 4,600,000 tons; in Germany from 1,700,000 to 3,080,000 tons; in France from 1,500,000 to 2,040,000 tons.

The effect on prices was no less remarkable, as steel rails in 1874 were £12 1s. 1d. per ton, and in 1883 were £5 6s. Wrought iron rails fell from £9 18s. 2d. per ton to £5, according to Sir Lowthian Bell in his evidence on "Depression in Industry" in 1883.

In addition to the advantage of lower price, steel possesses qualities compared with wrought iron which render it particularly suitable for railway and structural purposes. These are, perhaps, best illustrated by reference to the test made by the London and North Western Railway under their then Chief Engineer, Ramsbottom, at Chalk Farm. Ramsbottom laid one side of the track carrying all trains out of London with iron and the other side of the same track with steel rails. The result was that the iron rails, which were double headed, were replaced 23 times before one face of the steel rail was sufficiently worn to need reversal. Therefore, the ratio of durability was as 46 to 1 in favour of steel.

As showing the paramount influence of railway development in the production of steel, it may be mentioned that in 1860 the total mileage of the world was only 65,558. In 1920 this amounted to 678,895 miles.

STEEL SUPERSEDES IRON

In the year 1886, for the first time, the production of steel exceeded that of puddled iron. Whereas, up to this time steel had been the rarer and more costly material, being largely produced by the crucible process for special purposes, as a result of the Bessemer and Siemens processes not only was the cost reduced, but the possibility, particularly in the open hearth process, of producing a wide range of qualities having different characteristics as to ductility and strength as well, enormously increased the range of production of this material and its importance in the industrial and economic development of the world.

As a natural consequence, the production of wrought iron in the United Kingdom fell from 2,841,000 tons in 1882 to about 450,000 tons in 1925. In this country the open hearth process rapidly superseded the Bessemer process, until at the present time the Bessemer process is only used for a small proportion of the production of acid steel.

The reason for this is that with the open hearth process quality and mechanical characteristics can be controlled with greater certainty, and consistency of quality in the resulting product assured. In this connection, Mr. F. Bramwell, at the Royal Institution in 1877, said: "In employing the Bessemer process, reliable results can only be expected when it is in the hands of skilful men with a thorough knowledge of their work. In the Siemens process, on the contrary, great ingenuity would be required to make the result untrustworthy." British engineers have in the past specified either steel made by the open hearth process or acid Bessemer, whereas in Continental countries basic Bessemer steel finds wider acceptance.

The justification for the British attitude may be found in the world preference for British rails and structural material, but advances in the technique of production have undoubtedly improved the standard of quality attained by the basic Bessemer process without, however, yet reaching that standard of quality which satisfies the requirements of British engineering practice. It was not, however, until 1894 that the production of open hearth steel in the United Kingdom exceeded that of the Bessemer process. The relative figures for that year were Bessemer, 1,536,000 tons; open hearth, 1,575,000 tons.

STEEL AS MATERIAL FOR SHIPBUILDING

Steel, as a new material, in its earlier development was accepted with caution by the engineers, and while the first iron-clad vessel, *The Warrior*, was launched in 1861, it was not until 1876 that the British Admiralty specified British steel exclusively for the building of H.M.S. *Iris* and *Mercury*, and the following year steel was generally accepted as material suitable for ship construction, and, although in 1851 Sir John Hawkshaw had raised the question of the use of steel in the construction of Charing Cross Bridge, it was not until 1877 that its use was permitted by the Board of Trade, on the recommendation of the committee of which he was a member.

Progress, therefore, since that date has been remarkable and coincident with the general development of industry and the application of mechanical power. This may be seen from Table I, giving the world production of steel by countries from 1868 to the present date, and Table II giving a similar table of the world production of pig iron from 1866 to present date.

As a matter of historical interest, as showing the development, Table III gives the production of

TABLE I

World Production of Steel—in Millions of Tons

Year	United Kingdom	Germany	Saar	Luxemburg	France	Belgium	Russia	Poland	Sweden	Spain	Austria-Hungary	Italy	United States	Canada	Australia	India	Japan	China	Grand Total	Year
1868	0·11[1]	0·00[1]		—	0·07	—	0·01		0·01	—	0·01[1]	—	—	—	—	—	—	—	0·30	1868
1869	0·16[1]	0·11[1]		—	0·10	—	0·01		0·01	—	0·02[1]	—	—	—	—	—	—	—	0·42	1869
1870	0·22[1]	0·13[1]		—	0·08	—	0·01		0·01	—	0·02[1]	—	—	—	—	—	—	—	0·51	1870
1871	0·33[1]	0·14[1]		—	0·08	0·01	0·01		0·01	—	0·04[1]	—	—	—	—	—	—	—	0·67	1871
1872	0·41[1]	0·10[1]		—	0·13	0·01	0·01		0·02	—	0·06[1]	—	—	—	—	—	—	—	0·94	1872
1873	0·57	0·25[1]		—	0·15	0·02	0·01		0·02	—	0·08[1]	—	—	—	—	—	—	—	1·26	1873
1874	0·63	0·32[1]		—	0·21	0·04	0·01		0·02	—	0·10[1]	—	—	—	—	—	—	—	1·53	1874
1875	0·71	0·32[1]		—	0·21	0·05	0·01		0·02	—	0·09[1]	—	—	—	—	—	—	—	1·79	1875
1876	0·83	0·37[1]		—	0·19	0·08	0·01		0·02	—	0·09[1]	—	—	—	—	—	—	—	2·14	1876
1877	0·89	0·39[1]		—	0·25	0·10	0·05		0·02	—	0·10[1]	—	—	—	—	—	—	—	2·40	1877
1878	0·98	0·46[1]		—	0·28	0·12	0·10		0·02	—	0·09[1]	—	—	—	—	—	—	—	2·78	1878
1879	1·01	0·51		—	0·33	0·11	0·20		0·02	—	0·09[1]	—	—	—	—	—	—	—	3·21	1879
1880	1·29	0·69		—	0·38	0·13	0·29		0·03	—	0·12[1]	—	—	—	—	—	—	—	4·18	1880
1881	1·78	0·90		—	0·42	0·14	0·29		0·05	—	0·13[1]	—	—	—	—	—	—	—	5·30	1881
1882	2·11	1·07		—	0·45	0·18	0·24		0·06	—	0·15[1]	0·09	1·74	—	—	—	—	—	6·09	1882
1883	2·01	1·06		—	0·52	0·17	0·22		0·00	—	0·16[1]	0·13	1·67	—	—	—	—	—	6·01	1883
1884	1·77	1·14		—	0·50	0·18	0·21		0·07	—	0·31	0·12	1·55	—	—	—	—	—	5·85	1884
1885	1·89	1·20		—	0·55	0·15	0·19		0·08	—	0·28	0·14	1·71	—	—	—	—	—	6·19	1885
1886	2·26	1·29		0·02	0·43	0·16	0·24		0·08	—	0·26	0·18	2·56	—	—	—	—	—	7·48	1886
1887	3·04	1·65		0·06	0·49	0·21	0·22		0·11	—	0·30	0·24	3·34	—	—	—	—	—	9·68	1887
1888	3·30	1·76		0·07	0·58	0·24	0·22		0·11	—	0·39	0·29	2·90	—	—	—	—	—	9·86	1888
1889	3·57	1·96		0·10	0·62	0·26	0·26		0·13	—	0·42	0·33	3·39	—	—	—	—	—	11·04	1889
1890	3·58	2·10		0·10	0·67	0·22	0·38		0·17	—	0·50	0·28	4·28	—	—	—	—	—	12·28	1890
1891	3·16	2·41		0·11	0·73	0·24	0·43		0·17	—	0·48	0·22	3·90	—	—	—	—	—	11·85	1891
1892	2·92	2·61		0·10	0·81	0·26	0·50		0·16	—	0·50	0·18	4·33	—	—	—	—	—	12·97	1892
1893	2·95	2·98		0·13	0·78	0·27	0·62		0·16	—	0·56	0·21	4·02	—	—	—	—	—	12·68	1893
1894	3·11	3·56		0·13	0·80	0·40	0·71		0·16	—	0·65	0·19	4·41	—	—	—	—	—	14·12	1894
1895	3·26	3·83		0·13	0·86	0·45	0·86		0·19	—	0·73	0·21	6·11	0·02	—	—	—	—	16·65	1895
1896	4·13	4·63		0·13	1·16	0·59	1·00		0·25	0·10	0·57	0·20	5·28	0·02	—	—	—	—	18·36	1896
1897	4·49	4·81		0·14	1·30	0·61	1·19		0·27	0·10	0·92	0·21	7·16	0·02	—	—	—	—	21·22	1897
1898	4·57	5·19		0·17	1·41	0·64	1·58		0·26	0·11	1·05	0·25	8·93	0·02	—	—	—	—	24·18	1898
1899	4·86	5·78		0·16	1·47	0·72	1·85		0·27	0·11	1·11	0·30	10·64	0·02	—	—	—	—	27·29	1899
1900	4·90	6·36		0·18	1·54	0·63	2·16		0·29	0·12	1·14	0·30	10·19	0·02	—	—	—	—	27·83	1900
1901	4·90	6·04		0·25	1·40	0·51	2·18		0·26	0·15	1·07	0·30	13·47	0·03	—	—	—	—	30·56	1901
1902	4·91	7·34		0·31	1·54	0·76	2·13		0·28	0·16	1·13	0·27	14·95	0·18	—	—	—	—	33·96	1902
1903	5·03	8·29		0·37	1·81	0·95	2·38		0·31	0·20	1·13	0·33	14·53	0·18	—	—	—	—	35·51	1903
1904	5·03	8·43		0·36	2·06	1·05	2·70		0·33	0·20	1·22	0·35	13·86	0·15	—	—	—	—	35·74	1904
1905	5·81	9·51		0·39	2·22	1·18	2·21		0·36	0·26	1·42	0·44	20·02	0·40	—	—	—	—	44·22	1905
1906	6·46	10·53		0·43	2·41	1·37	2·43		0·39	0·29	1·56	0·56	23·40	0·57	—	—	—	—	50·40	1906
1907	6·52	11·43		0·44	2·72	1·44	2·60		0·41	0·29	1·68	0·59	23·36	0·65	—	—	—	—	52·13	1907
1908	5·30	10·56		0·45	2·68	1·18	2·03		0·43	0·30	1·96	0·73	14·02	0·51	—	—	—	—	40·75	1908
1909	5·88	11·32		0·53	2·93	1·55	3·07		0·31	0·30	1·91	0·88	23·96	0·68	—	—	—	—	53·38	1909
1910	6·37	12·89		0·59	3·36	1·91	3·45		0·46	0·31	2·12	1·01	26·09	0·74	—	—	—	—	59·33	1910
1911	6·46	14·08		0·70	3·78	2·15	3·87		0·46	0·32	2·29	0·99	23·68	0·79	—	—	—	—	59·57	1911
1912	6·80	16·09		0·93	4·36	2·47	4·42		0·51	0·33	2·64	0·97	31·25	0·85	—	—	—	—	71·62	1912
1913	7·66	17·32		1·31	4·61	2·43	4·75		0·58	0·30	2·58	0·92	31·30	1·04	0·01	0·06	0·24	0·04	75·15	1913
1914	7·84	13·59		1·12	2·61	1·37	4·66		0·50	?	2·13	0·00	23·51	0·74	0·02	0·07	0·40	0·03	59·49	1914
1915	8·55	12·09		0·97	1·07	0·10	4·82		0·59	?	2·63	0·99	32·15	0·91	0·06	0·10	0·50	0·04	65·57	1915
1916	8·99	14·64		1·29	1·92	0·10	?		0·60	?	3·28	1·25	42·77	1·29	0·11	0·13	0·60	0·04	77·01	1916
1917	9·72	15·26		1·07	2·20	0·01	?		0·57	?	2·87	1·31	45·06	1·56	0·15	0·16	0·78	0·04	80·76	1917
											Austria / Hungary / Czecho-Slovakia									
1918	9·54	13·87		0·87	1·78	0·01	?		0·54	?	? / ? / 1·00	0·98	44·46	1·70	0·14	0·18	0·83	0·04	75·94	1918
1919	7·89	7·72		0·36	2·15	0·33	?		0·48	0·25	? / ? / 0·77	0·72	34·67	0·93	0·18	0·19	0·83	0·04	57·51	1919
1920	9·07	8·40	0·73	0·57	3·00	1·23	0·16	0·96	0·43	0·20	0·19 / 0·04 / 0·96	0·76	42·13	1·11	0·17	0·16	0·83	0·05	71·21	1920
1921	3·70	8·93	0·91	0·74	3·05	0·78	0·18	0·84	0·21	0·35	0·34 / 0·09 / 0·89	0·00	19·78	0·67	0·21	0·18	0·85	0·05	43·44	1921
1922	5·85	11·53	1·24	1·37	4·40	1·54	0·36	0·98	0·31	0·31	0·48 / 0·31 / 0·63	0·97	35·60	0·48	0·22	0·15	0·02	0·12	67·86	1922
1923	8·45	6·20	0·98	1·18	5·03	2·20	0·71	1·11	0·27	0·47	0·50 / 0·26 / 0·68	1·12	44·04	0·88	0·20	0·22	0·97	0·20	76·98	1923
1924	8·20	9·68	1·45	1·86	6·79	2·53	1·12	0·67	0·49	0·53	0·37 / 0·24 / 1·20	1·34	37·93	0·66	0·31	0·34	1·11	0·20	77·32	1924
1925	7·39	12·00	1·55	2·05	7·33	2·51	2·11	0·77	0·47	0·57	0·46 / 0·23 / 1·48	1·70	45·39	0·70	0·35	0·45	1·32	0·20	89·15	1925
1926	5·60	12·15	1·71	2·21	8·30	3·32	3·05	0·78	0·49	0·60	0·47 / 0·20 / 1·55	1·75	48·29	0·78	0·34	0·52	1·48	0·20	91·82	1926

[1] Bessemer steel only.

TABLE II

World Production of Pig Iron—in Millions of Tons

Year	United Kingdom	Germany	Saar	Luxemburg	France	Belgium	Russia	Poland	Norway	Sweden	Italy	Austria-Hungary	Spain	United States	Canada	Australia	India	Japan	China	Grand Total	Year
1866	4·52	0·79		0·07	1·24	0·46	0·31		—	?	0·02	0·25	0·04	1·21	—	—	—	—	—	8·94	1866
1867	4·76	0·97		0·08	1·21	0·42	0·32		—	?	0·02	0·32	0·04	1·31	—	—	—	—	—	9·45	1867
1868	4·97	1·04		0·08	1·22	0·43	0·32		—	?	0·02	0·38	0·04	1·43	—	—	—	—	—	9·93	1868
1869	5·45	1·16		0·10	1·36	0·53	0·33		—	?	0·02	0·41	0·03	1·71	—	—	—	—	—	11·10	1869
1870	5·96	1·24		0·13	1·16	0·56	0·30		—	0·20	0·02	0·40	0·05	1·67	—	—	—	—	—	11·84	1870
1871	6·63	1·40		0·14	0·85	0·67	0·36		—	0·29	0·02	0·42	0·05	1·71	—	—	—	—	—	12·54	1871
1872	6·74	1·78		0·18	1·20	0·72	0·40		—	0·33	0·03	0·45	0·06	2·55	—	—	—	—	—	14·44	1872
1873	6·57	1·95		0·25	1·36	0·68	0·38		—	0·33	0·03	0·53	0·04	2·50	—	—	—	—	—	14·68	1873
1874	5·99	1·63		0·24	1·39	0·60	0·38		—	0·33	0·02	0·49	0·03	2·40	—	—	—	—	—	13·50	1874
1875	6·37	1·73		0·27	1·42	0·53	0·43		—	0·34	0·02	0·45	0·03	2·02	—	—	—	—	—	13·61	1875
1876	6·56	1·59		0·23	1·41	0·56	0·40		—	0·34	0·02	0·30	0·03	1·87	—	—	—	—	—	13·46	1876
1877	6·61	1·69		0·21	1·48	0·54	0·46		—	0·33	0·02	0·40	0·05	2·07	—	—	—	—	—	13·86	1877
1878	6·38	1·87		0·24	1·50	0·58	0·48		—	0·33	0·02	0·42	0·06	2·30	—	—	—	—	—	14·18	1878
1879	6·00	1·93		0·26	1·38	0·52	0·46		—	0·34	0·02	0·40	0·05	2·74	—	—	—	—	—	14·10	1879
1880	7·75	2·43		0·20	1·70	0·68	0·56		—	0·40	0·02	0·46	0·06	3·84	—	—	—	—	—	18·16	1880
1881	8·14	2·58		0·29	1·86	0·61	0·60		—	0·43	0·03	0·53	0·07	4·14	—	—	—	—	—	19·34	1881
1882	8·59	2·95		0·37	2·01	0·72	0·70		—	0·39	0·02	0·60	0·08	4·62	—	—	—	—	—	21·11	1882
1883	8·53	3·08		0·33	2·04	0·77	0·77		—	0·42	0·02	0·70	0·08	4·60	—	—	—	—	—	21·34	1883
1884	7·81	3·18		0·36	1·84	0·74	0·75		—	0·42	0·02	0·70	0·08	4·10	—	—	—	—	—	20·00	1884
1885	7·42	3·22		0·41	1·60	0·70	0·70		—	0·46	0·02	0·69	0·07	4·04	—	—	—	—	—	19·33	1885
1886	7·01	3·08		0·39	1·49	0·69	0·70		—	0·44	0·01	0·71	0·07	5·68	—	—	—	—	—	20·27	1886
1887	7·56	3·47		0·48	1·54	0·74	0·75		—	0·45	0·01	0·69	0·08	6·42	—	—	—	—	—	22·19	1887
1888	8·00	3·75		0·52	1·66	0·81	0·85		—	0·45	0·01	0·77	0·10	6·49	—	—	—	—	—	23·41	1888
1889	8·32	3·90		0·55	1·71	0·82	0·85		—	0·41	0·01	0·84	0·10	7·60	—	—	—	—	—	25·11	1889
1890	7·90	4·03		0·55	1·93	0·77	0·80		—	0·45	0·01	0·91	0·11	9·20	—	—	—	—	—	26·75	1890
1891	7·41	4·03		0·54	1·87	0·67	0·90		—	0·48	0·01	0·91	0·12	8·28	—	—	—	—	—	25·28	1891
1892	6·71	4·28		0·58	2·02	0·74	1·03		—	0·48	0·01	0·93	0·13	9·16	—	—	—	—	—	26·07	1892
1893	6·93	4·36		0·55	1·97	0·73	1·11		—	0·45	0·01	0·97	0·13	7·12	—	—	—	—	—	24·38	1893
1894	7·43	4·62		0·67	2·04	0·81	1·29		—	0·46	0·01	1·05	0·12	6·66	0·04	—	—	—	—	25·20	1894
1895	7·70	4·69		0·68	1·97	0·82	1·40		—	0·46	0·01	1·11	0·17	0·45	0·04	—	—	—	—	28·50	1895
1896	8·66	5·47		0·80	2·30	0·94	1·57		—	0·49	0·01	1·20	0·10	8·62	0·09	—	—	—	—	30·22	1896
1897	8·80	5·91		0·86	2·44	1·02	1·81		—	0·53	0·01	1·29	0·14	9·65	0·05	—	—	—	—	32·51	1897
1898	8·61	6·26		0·93	2·48	0·96	2·18		—	0·52	0·01	1·40	0·11	11·77	0·07	—	—	—	—	35·30	1898
1899	9·42	7·05		0·97	2·54	1·01	2·63		—	0·49	0·02	1·44	0·11	13·62	0·09	—	—	—	—	39·39	1899
1900	8·96	7·43		0·96	2·07	1·00	2·85		—	0·52	0·02	1·43	0·09	13·79	0·09	—	—	—	—	39·81	1900
1901	7·93	6·85		0·90	2·35	0·75	2·78		—	0·52	0·02	1·46	0·13	15·88	0·24	—	—	—	—	39·81	1901
1902	8·68	7·33		1·06	2·37	1·05	2·52		—	0·53	0·03	1·40	0·25	17·82	0·32	—	—	—	—	43·36	1902
1903	8·94	8·66		1·20	2·79	1·20	2·42		—	0·50	0·07	1·36	0·31	18·01	0·27	—	—	—	—	45·73	1903
1904	8·69	8·72		1·18	2·93	1·27	2·00		—	0·52	0·09	1·35	0·29	16·50	0·27	—	—	—	—	44·71	1904
1905	9·61	9·35		1·35	3·02	1·29	2·66		—	0·53	0·14	1·52	0·31	22·09	0·47	—	—	—	—	53·24	1905
1906	10·18	10·66		1·44	3·26	1·35	2·64		—	0·59	0·13	1·62	0·31	25·31	0·54	—	—	—	—	58·03	1906
1907	10·11	11·21		1·46	3·53	1·38	2·77		—	0·61	0·11	1·79	0·35	25·78	0·58	—	—	—	—	59·68	1907
1908	9·06	10·34		1·28	3·35	1·25	2·75		—	0·56	0·11	1·96	0·40	15·94	0·50	—	—	—	—	47·56	1908
1909	9·53	10·91		1·53	3·52	1·59	2·82		—	0·44	0·20	1·96	0·42	25·20	0·08	0·03	0·04	—	—	59·47	1909
1910	10·01	12·89		1·66	3·97	1·82	2·08		—	0·59	0·34	2·01	0·37	27·30	0·74	0·04	0·04	—	—	64·76	1910
1911	9·53	13·63		1·70	4·40	2·01	3·53		—	0·62	0·30	2·08	0·40	23·65	0·82	0·04	0·05	—	—	62·76	1911
1912	8·75	15·35		2·22	4·86	2·26	4·14		—	0·69	0·37	2·27	0·40	29·73	0·91	0·03	0·15	0·24	—	72·37	1912
1913	10·26	16·49		2·51	5·12	2·45	4·55		—	0·72	0·42	2·31	0·42	30·07	1·02	0·05	0·21	0·24	0·16	77·90	1913
1914	8·92	12·29		1·80	2·65	1·43	4·10		—	0·64	0·38	1·96	0·43	23·33	0·71	0·08	0·24	0·30	?	59·35	1914
1915	8·79	10·03		1·57	0·58	0·07	3·63		—	0·77	0·38	1·93	0·43	29·92	0·83	0·15	0·27	0·35	?	59·70	1915
1916	9·05	11·15		1·92	1·47	0·13	3·68		—	0·75	0·48	2·38	0·49	39·44	1·07	0·13	0·25	0·43	?	72·82	1916
1917	9·32	11·42		1·51	1·71	0·01	1·50		—	0·84	0·50	2·00	0·35	38·02	1·09	0·15	0·25	0·40	?	69·76	1917
1918	9·03	10·51		1·25	1·29	—	—		—	0·77	0·33	—	0·38	39·06	1·11	0·21	0·27	0·68	?	64·95	1918
												Austria / Hungary / Czecho-Slovakia									
1919	7·40	6·19		0·61	2·37	0·25	0·11		—	0·50	0·25	0·06 / ? / 0·02	0·29	31·02	0·56	0·25	0·32	0·79	?	51·89	1919
1920	8·03	6·93	0·88	0·68	3·38	1·10	0·11	0·40	0·01	0·46	0·09	0·10 / ? / 0·73	0·25	36·93	1·00	0·34	0·31	0·72	0·40	62·85	1920
1921	2·62	7·72	1·13	0·95	3·31	0·86	0·11	0·44	?	0·31	0·08	0·22 / 0·07 / 0·57	0·24	10·69	0·62	0·35	0·37	0·65	0·37	37·68	1921
1922	4·90	9·25	1·14	1·65	5·14	1·59	0·18	0·47	?	0·27	0·18	0·32 / 0·10 / 0·33	0·21	27·22	0·40	0·08	0·34	0·70	0·31	54·78	1922
1923	7·44	4·80	1·00	1·38	5·24	2·11	0·52	0·51	0·03	0·30	0·27	0·34 / 0·12 / 0·80	0·30	40·36	0·91	0·33	0·01	0·80	0·49	68·91	1923
1924	7·31	7·68	1·37	2·12	7·57	2·80	0·74	0·33	0·06	0·53	0·34	0·26 / 0·11 / 0·97	0·49	31·41	0·62	0·42	0·88	0·82	0·37	67·20	1924
1925	6·26	10·01	1·43	2·33	8·30	2·50	1·53	0·31	0·08	0·45	0·53	0·37 / 0·09 / 1·28	0·46	36·70	0·60	0·44	0·89	0·92	0·38	75·92	1925
1926	2·46	9·50	1·61	2·52	9·28	3·35	2·40	0·32	0·08	0·49	0·55	0·33 / 0·19 / 1·07	0·48	39·37	0·80	0·44	0·90	1·16	0·40	77·70	1926

TABLE III

PRODUCTION OF PUDDLED IRON, 1881-1926

Year	Puddled iron	Year	Puddled iron	Scrap ball and bushelling bars
	Tons		Tons	Tons
1881	2,681,150	1904	936,228	-
1882	2,841,534	1905	938,558	
1883	2,730,504	1906	1,010,346	
1884	2,237,535	1907	975,083	
1885	1,911,125	1908	1,168,115	-
1886	1,616,700	1909	1,129,412	
1887	1,701,312	1910	1,118,895	-
1888	2,031,473	1911	1,191,499	
1889	2,253,756	1912	1,326,917	
1890	1,923,221	1913	1,206,745	
1891	1,733,902			
1892	1,560,697	1915	942,906	
1893	1,363,974	1916	960,107	---
1894	1,339,062	1917	816,233	245,900
1895	1,148,012	1918	646,700	358,800
1896	1,214,005	1919	540,300	345,600
1897	1,238,159	1920	588,700	386,800
1898	1,115,699	1921	218,300	182,600
1899	1,201,606	1922	219,800	229,100
1900	1,162,765	1923	332,400	313,900
1901	974,476	1924	308,600	290,700
1902	908,278	1925	209,900	220,900
1903	950,393	1926	111,200	130,600

puddled iron from 1881 to 1926, and demonstrates the effect of the introduction of steel. However, it must be borne in mind in this connection that wrought iron was the first form in which iron could be applied to structural and mechanical uses, and that it still has the very special uses for which its peculiar qualities of resisting corrosion and shock render it particularly suitable.

GEOGRAPHICAL DISTRIBUTION OF THE INDUSTRY

The geographical distribution of the British iron and steel industry was the natural result of the discovery by Abraham Darby of the use of pit coal for the smelting of iron ore. The iron and steel industry of this country has, naturally, been distributed over certain areas within ready access to iron and coal, or, in some cases, in the coal centres, where access by water permitted the ready importation of suitable iron ore, as in the case of the district of South Wales. In fact, Darby's discovery really resulted in a rebirth as well as a redistribution of the iron industry.

1. **Scotland.** Thus, in Scotland, the iron and steel industry is located mainly in the south-western areas among the coalfields of Lanarkshire and Ayrshire, where were also located the iron ore mines. Scotland imports a substantial proportion of iron ore from Spain and Sweden, and the iron industry of Scotland is peculiar in that owing to the absence of coking coal the blast furnaces are for the most part operated with raw coal, the blast furnaces being specially equipped with by-product recovery plants, and in this respect are treated as gas retorts, producing a rich coal gas and the normal by-products such as ammonia, oil, benzol and tar, to an extent in some cases that it might be said that the pig iron was the by-product.

2. **Cleveland.** The iron industry of the north-east coast was founded in the 'fifties of last century as a result of the discovery of the Cleveland ironstone. Owing to its situation close to the Durham and Northumberland coalfields, and the location of works on the Tees, this district rapidly became the premier iron and steel producing district of the country. Although the Cleveland ironstone is showing some signs of exhaustion and larger quantities of imported ore are being used, owing to the favourable position of the industry in this district in its ready access to suitable coking coal, and to the sea, providing facilities for importing suitable ore, and the exporting of the finished products, this area is likely to maintain the position which it has established possibly indefinitely, although it has a potential rival for premier place in the Lincolnshire area, which has not yet reached the full stage of its possible development.

3. **Lincolnshire.** In North Lincolnshire, of which area Scunthorpe is the centre, the works are actually built on the ore bed, and the material removed for the foundation of the buildings of the works can in many cases be put into the blast furnaces. The ore is a lean variety with an average analysis of 22 per cent of iron content. It is cheaply mined, being surface mining, and, although coal has to be obtained from South Yorkshire and the finished product exported through Immingham or Grimsby, such low costs of production are achieved that this district is rapidly developing into one of the most important iron and steel centres of the kingdom. It is anticipated by some that it may ultimately surpass the north-east coast in importance and productive capacity.

There is no doubt that the conditions governing efficient production are improving by reason of the development of the coalfields from Doncaster towards Lincolnshire, thus materially decreasing the cost of transport of the coal supplies required for this industry.

4. **South Wales.** The South Wales centre undoubtedly grew up as a result of close proximity to suitable coking coal and access to the sea for the importation of suitable ore and for the export of the finished products. As this centre was developed largely for the production of sheet and tinplates, it may be said to be the birthplace and centre of the sheet and tinplate industry of the world. It was from South Wales that the United States learned the tinplate industry by importing Welsh mills and labour to operate them.

(TO BE CONCLUDED)

LABOUR ORGANIZATION

(*Continued from page 172*)

V

THE HISTORICAL BACKGROUND

THE outline of British trade unionism which has been given shows the working class organized industrially in a number of different groupings—some craft, others industrial, some local, others national. (For a graphic picture of these various types of trade union, the student is referred to an ingenious chart which prefaces Mr. G. D. H. Coles's *Organized Labour* (1924).) We have also seen that there are inter-union relations of different types, from federations to trades councils, and that there is a national Trade Union Congress.

It will be obvious that this structure has been of slow growth, and can only be fully understood by reference to its historical origins. In a later section we shall have to ask ourselves: "What is the *function* of trade unionism?" We shall require also to examine the question of the *legal status* of trade unions. These, and other questions, must be discussed in the light of a knowledge of trade union history. The forms of to-day are the product of the strivings and the ideas of the past, in particular of the period since the Industrial Revolution began—the last 150 years. Readers must refer to other sections—to the course on Economic History in particular—for an account of the rise of modern industry between 1750 and 1850. That age of rapid development, economic and technical, in trade, production, and transport, has been called the Industrial Revolution. The development is still going on, but the foundations of the modern industrial system had been laid by 1850, and with them the foundations of modern trade unionism.

Some historical background is necessary if we are to understand either the aims or the methods of labour organization to-day. These aims and methods have varied in each successive stage of trade union history, but there is always continuity. We shall see that British trade unionism has swung back and forward indecisively from political, or "indirect," action to industrial, or "direct," action. For a full account one must go to Mr. and Mrs. Webb's *History of Trade Unionism*. These writers trace trade unions back to the late seventeenth century. Some authorities would go farther back. We shall begin with the later eighteenth century, and deal only with the most significant phases of the movement.

GROWTH AND MEANING OF CAPITALISM

During the eighteenth century what we now call "capitalism" began rapidly to transform society in Western Europe. The transformation was earliest and most rapid in England. The growth of capitalism was no new thing. It had been going on slowly for at least 500 years. But not till after about 1750 was its pace sufficient to revolutionize the economic and social relations of a national community within a single lifetime. What, then, do we mean by capitalism?

It is defined by Sir William Ashley as "modern methods of production directed for the profit-making purposes of capital . . . . characterized by the dependence of large bodies of workpeople on the provision of capital by investors, induced thereto by the motive of profit" (*Economic Organization of England*, pp. 173 and 180). Thus, the capitalistic organization of industry implies a definite separation between the function of the owner of capital and the function of the workman. When the ownership of the instruments of production and the control of the supply of raw materials pass out of the hands of the working master-craftsman into those of the capitalist, the former is inevitably depressed into the position of a wage-earner pure and simple. He now makes his living, not, as his ancestors did, by selling the finished product of his independent labour in the market, or to a merchant, but by selling his labour power to an employer, in whose hands are concentrated the functions of control and management. The result is that the craftsman who is also a "small master" ceases to be the typical figure in industry. His place is taken by a great mass of employed wage-earners—the "proletariat"—on the one hand, and by a small employing class, owning or directing capital, on the other. In other words, the function of industrial direction or "control of industry" has become completely distinguished from that of industrial execution or "manufacture" in its original sense. The craftsman or labourer, if he wishes to improve his position, must now combine with his fellow wage-earners—for while enterprise and initiative, or special ability, may serve a few individuals for self-advancement, the wage-earning class as a whole must obviously rely on common action to attain common ends.

THE "TRADE CLUB" OF THE EARLY EIGHTEENTH CENTURY

Here we have the origin and cause of modern trade unionism. It is a product of the capitalistic organization of industry. We must not forget, however, that trade unions, like capitalism, existed before the Industrial Revolution. When capital, from the fifteenth century or earlier, began the process of breaking down the old gild system, one of the reactions was the rise of temporary associations of journeymen, and in various forms up to the seventeenth century we find combinations

of such journeymen and of economically depressed small masters. But not till the late seventeenth or early eighteenth century do these organizations have the characteristics of a trade union. Only round about 1700 do they become continuous associations of wage-earners seeking to improve their position as employed persons. The "Trade Club" of the first eighty years of the eighteenth century is definitely a trade union. These clubs, mostly composed of the better-off skilled craftsmen, underwent a process of natural development during the first three-quarters of the eighteenth century. Then came the Industrial Revolution, which modified, and, in many cases, fundamentally altered the course of this development. Here emerges a clue to both the early and the later history of trade unionism. The stages of trade union history correspond very nearly to the stages in the evolution of capitalism. Thus, the trade clubs of the first eighty years of the eighteenth century were primarily fraternities of journeymen, local in their sphere and outlook, and confined, as a rule, strictly to craftsmen in the same trade, and living in or near the same town. They did negotiate with their employers, and, in many cases, organized strikes, but the fact that they were composed of exclusive urban craftsmen, combined with the lack of communications, prevented the development either of federations within the one trade, or of that community of outlook and a class sense which creates a national working-class movement. The millwrights, the weavers, the tailors of the mid-eighteenth century were, on the whole, concerned with mutual aid and collective bargaining only within the limits of their own craft.

The explanation is that the industrial system was still, in the main, "domestic." The typical employer in a town was still a small master employing only a few men. In the country the typical employer was still the wealthy merchant from a distance, whose agent gave out piece-work to be performed in the workers' own homes. The scattered domestic workers had naturally no conception of concerted action which, in the absence of good roads and communications, was, in any case, impossible. The local urban trade club is, therefore, the type of trade unionism which corresponds to the stage in the growth of capitalism which we call the "domestic system" of industry. The merchant, rather than the industrial employer, was the typical large capitalist, and the craftsman saw as yet no great gulf, either economic or social, between himself and his employer.

ATTITUDE OF THE GOVERNMENT

Even in this period, however, trade unionism was not allowed to develop unchecked. The idea that the regulation of wages and working conditions was a matter for the Government and Justices of the Peace still survived from Elizabethan times. The Statute of Artificers of 1563 still governed the law of wage regulation, and the governing class were still inclined to think that the workers should protect their interests rather by petitioning for the enforcement of the wages and apprenticeship clauses of the said statute, than by striking against their employers. And so, while collective bargaining was, in the main, allowed to go on quietly, we find a long series of combination laws from the early part of the century onwards, directed against particular sections of workmen who had been more than usually turbulent or aggressive, e.g. the Act of 1720 against the London tailors, and one of 1725 as to brick and tile makers within fifteen miles of London. Such specific Acts, however, were much less repressive in their operation than the later General Acts of 1799 and 1800, which fall in the next stage of trade union history. Adam Smith, who published his *Wealth of Nations* in 1776, when the Industrial Revolution had barely got under way, interprets the trade unionism of the domestic stage of industry in a celebrated passage: "What are the common wages of labour," he says, "depends everywhere upon the contract usually made between those two parties, whose interests are by no means the same. The workmen desire to get as much, the masters to give as little, as possible. The former are disposed to combine in order to raise, the latter in order to lower, the wages of labour. It is not, however, difficult to foresee which of the two parties must, upon all ordinary occasions, have the advantage in the dispute, and force the other into a compliance with their terms. The masters, being fewer in number, can combine much more easily; and the law, besides, authorizes, or, at least, does not prohibit, their combinations, while it prohibits those of the workmen. We have no Acts of Parliament against combining to lower the price of work, but many against combining to raise it. In all such disputes, the masters can hold out much longer. . . . We rarely hear, it has been said, of the combination of masters, though frequently of those of workmen. But whoever imagines, upon this account, that masters rarely combine, is as ignorant of the world as of the subject. Masters are always and everywhere in a sort of tacit, but constant and uniform, combination, not to raise the wages of labour above their actual rate. To violate this combination is everywhere a most unpopular action, and a sort of reproach to a master among his neighbours and equals. We seldom, indeed, hear of this combination, because it is the usual, and one may say the natural, state of things, which nobody ever hears of."

It was left for the Industrial Revolution to transform this natural opposition of masters and workmen into a class antagonism.

METHODS OF REMUNERATION

(*Continued from page 174*)

V

OUTPUT AND PREMIUM BONUS

OUTPUT bonus and premium bonus are commonly treated as though they were quite distinct methods of payment. Essentially, however, in the forms to which the terms are most usually applied, output and premium bonus are one method. Further, considered arithmetically, the method just described—straight piece-work with a time guarantee is only a special case of that common method. (We shall see that there are many special modes of application, and that the differences among them are of importance; and it should be noted that output bonus is used in a variety of ways, with the most usual of which only are we now concerned.)

OUTPUT BONUS

Output bonus, in its most general use, is a name applied to a method of payment such as the following: a worker, whose time rate of 1s. per hour (using, for convenience in comparisons, the same standard as heretofore) is guaranteed, is paid an extra rate for each "piece" in excess of a standard number completed within a specified time. Thus, if we take the standard output as 32 pieces per day of 8 hours, the output bonus may be a piece rate of 1½d. for each unit produced in excess of the 32 in the 8 hours; or, again, it may be 2d., or 3d., or some other number of pence per unit, or a number of pence which varies according as the production is 33, 34, 35 . . . pieces per 8 hours. Of these examples—the possible variations are unlimited - it will be noticed that where the piece rate for extra production is 3d. per unit the method corresponds to straight piece-work with a time guarantee; the rate paid for the standard output—32 pieces—is the time rate of 8 hours, i.e. 8s., which, considered as a piece payment, is 3d. per piece (the 8s. would be paid, however, even if only 30 pieces were made). On the other hand, when only 1½d. per piece is paid for the 33rd, 34th . . . units made in the 8 hours this extra piece rate (the output bonus) is less than the rate, regarded as a piece payment, for the standard output, viz., 3d. per piece.

HALSEY PREMIUM BONUS

The term premium bonus is confined to a method of calculation which, superficially considered, differs from that just described. A time rate is guaranteed. A particular job is estimated to take a certain number of hours—the standard time we may call this. If the worker performs the job in less than the standard number of hours then he receives (*a*) his time rate for the hours taken, (*b*) a fraction of his time rate for each of the hours "saved" on the job (i.e. each of the number of hours obtained by deducting the number taken from the standard number). The fraction mentioned under (*b*) may be one-third, one-half, or some other fraction, or, again, may vary according as one, two, three . . . hours are saved. Though put in this different form, it is easy to see that this method of payment is essentially the same as that of output bonus just described. The same example as has already been used may be described as a premium bonus method if we call 8 hours the standard time for the job (32 pieces; the fact that premium bonus is employed ordinarily on individual jobs not divisible into fractional pieces does not affect the argument): the worker who performs the job in 6 hours receives his time rate for these hours and the premium bonus rate for the 2 hours saved. If this premium bonus rate is half his ordinary time rate, then he receives 6s. (6 hours at 1s. per hour) plus 1s. (2 hours at 6d. per hour), or 7s. This means that his earnings are 1s. 2d. per hour. If the same worker were paid according to what is called the output bonus method then working at the same rate, he would produce 42⅔ pieces in 8 hours (32 in 6 hours and 10⅔ in 2 hours); he would receive 8s. (1s. per hour for each of the 8 hours) and 1½d. per piece on the 10⅔ pieces in excess of the standard output, i.e. 8s. plus 1s. 4d., or 9s. 4d. This sum for 8 hours is the same rate of earnings, viz., 1s. 2d. per hour. The premium bonus method when the premium is "half the time saved"—(sometimes known as the Weir method, a special case of what is called the Halsey method; this and other applications of the Halsey method, in which the fraction is a constant, are to be distinguished from another, the Rowan method, which is described later, and in which the fraction varies with output)—may therefore be translated into an output bonus in which the rate per piece for production in excess of the standard is one-half of the rate (regarded as a piece payment) paid for the standard output. The reader may work out similar correspondences when the premium is any other fraction of the time saved. In particular, it may be noted, when the worker receives—as is said - -the whole time saved, the premium bonus method gives straight piece-work with a time guarantee (just as the output bonus method also gives this as a limiting case).

ROWAN PREMIUM BONUS

The Rowan premium bonus method, like those described above, is a method of payment in which a time rate is guaranteed. The essential difference from other premium bonus methods is that the

premium payment (the bonus addition, that is, to the time rate for the time actually taken on the job) is not a constant fraction of the time saved; the bonus varies as the time saved varies, being always the fraction of the time saved which is equal to the time saved divided by the time allowed. Putting the matter in a formula, if T_1 = time allowed (or standard time) and T_2 = time taken, and B is the bonus (paid in addition to the time rate for time taken), then —

$$B = \frac{T_2}{T_1} \text{ of } (T_1 \quad T_2).$$

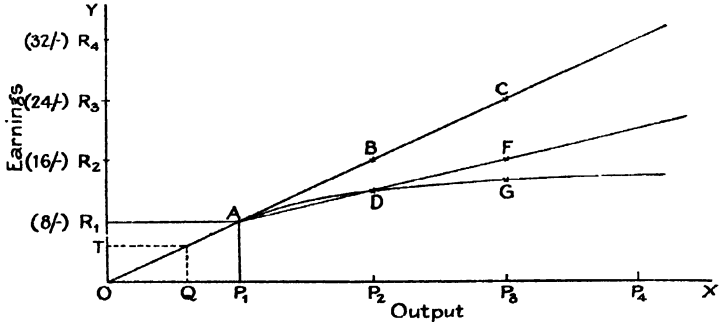
If T_1 be assumed to be 100 hours and the time taken (T_2) be 90, 80, 70 . . . hours, then $T_1 - T_2$ is equal to 10, 20, 30 . . . hours and the bonus B is $\frac{90}{100}$, $\frac{80}{100}$, $\frac{70}{100}$ . . . of 10, 20, 30 . . . hours. If, that is, the worker saves 10 per cent on the time allowed (takes 90 hours on the 100 hours standard time job), he gets a bonus of 90 per cent of the time saved; if he saves 20 per cent of the time allowed, he gets a bonus of 80 per cent of the time saved; and so on . . . the rate, as it is said, "cutting itself," since as the time saved increases (to 90 per cent say) the bonus becomes a smaller and smaller percentage of the time saved (10 per cent when 90 per cent is saved). It will be seen that the principle can be otherwise expressed as follows: for X per cent time saved X per cent increase in earnings; 10 hours saved from 100, time rate on 90 hours has added to it 10 per cent of 90 hours rate (or 90 per cent of 10 hours); 20 hours saved, time rate on 80 hours has added to it 20 per cent of 80 hours (or 80 per cent of 20 hours); . . . 99 hours saved, time rate on 1 hour has added to it 99 per cent of 1 hour (or 1 per cent of 99 hours)—it being impossible, since a job cannot be done in no time, for the hourly rate to be doubled.

COMPARISON OF BONUS METHODS

A comparison may be made with the Halsey method which, in a formula corresponding to that already given, may be expressed as

$$B = K \text{ of } (T_1 - T_2)$$

where K is some constant (commonly $\frac{1}{2}$ in the applications in this country). It will then be seen that for small savings in time the Rowan method gives a large bonus compared with the Halsey method; whereas, however, the Halsey method—when constant fraction is $\frac{1}{2}$—continues to give half the time saved (20 when 40 hours, 45 when 90 hours are saved out of 100), the Rowan method produces an increasingly smaller fraction (40 per cent of 60 hours, i.e. 24 hours when 40 hours are saved, and 10 per cent of 90 hours, i.e. 9 hours, when 90 hours are saved out of 100); the Rowan bonus—though increasing at a decreasing rate—remains greater than the Halsey (in the Weir form, with fraction of one-half) until 50 hours are saved from 100; when 50 hours are saved in 100—or when the output is double the standard output—the bonus on the Rowan method is the same as on the Halsey method (in the Weir form), since the bonus in either case is 25 hours.



The relationship of the various methods described above may be put into simple diagrammatic form.

It should, however, be remembered that neither a diagram nor a purely arithmetical treatment such as has been given provides an adequate explanation of any system of payment. Each is only of the same kind of use as a skeleton in studying the living body.

For diagrammatic representation it is most convenient to consider the premium bonus in terms of output. (It has already been explained that output bonus—in its most usual applications—is the same in principle as premium bonus.) All that this means is that in the diagram two units of output (the standard being one unit) represent a saving of 50 per cent of the time allowed (time taken is one-half), three units of output represent a saving of 66⅔ per cent of the time allowed (time taken is one-third), four units . . . 75 per cent time allowed (time taken is one-fourth), . . . and so on. In the accompanying diagram output is measured along the horizontal axis, OX, and earnings along the vertical axis, OY.

UNEMPLOYMENT

(*Continued from page 176*)

V

SEASONAL UNEMPLOYMENT

MANY trades show a more or less regular movement of good and bad seasons within the year. Sometimes, as with the docks, there are several short spells of brisk work, which give an irregular character to the course of employment. But by seasonal fluctuation is commonly meant that a trade shows a yearly ebb and flow of employment, which year after year follows a similar course, certain months being good, others bad. The fluctuations will be less marked in some years, since seasonal influences are affected by the general conditions of trade, but, exceptional circumstances apart, the seasonal movement is always there.

DISTRIBUTION OF SEASONAL UNEMPLOYMENT

Two points may be specially noted. Certain trades have a marked seasonal fluctuation, including house building and allied trades, furniture, gasworks, clothing, and printing; but nearly every industry has some fluctuation within the year. This, indeed, may not involve serious unemployment, and may be met largely, as in the coal and iron trades, by reducing hours. But, apart from a few highly regular occupations like railway service, most trades show a greater or less degree of seasonal variation. Secondly, the causes at work produce a variety of effects, and the busy and slack periods in different industries are distributed all over the year. "There is," Mr. Sidney Webb has written, "as the Board of Trade from accurate statistics is able to testify, no month in the year in which some great industry is not at its very slackest, and equally no month in which some great industry is not at its very busiest."

AMOUNT OF SEASONAL UNEMPLOYMENT

In fact, the amount of unemployment attributable to seasonal causes is considerable, but is apt to be concealed, because fluctuations in different industries offset each other. For the fifteen pre-war years, 1899 to 1913, for instance, the trade union percentage of unemployment showed a yearly average for all trades of 4·2 per cent, with a minimum of 3·8 per cent (May) and a maximum of 4·8 per cent (December), the difference between the best and worst month being thus about 1 per cent. The real extent of the fluctuations, however, is shown by the following table for certain important industries from 1899 to 1913, two of which (engineering and shipbuilding) have at most only moderate seasonal variations.

	Best month	Worst month	Yearly average of unemployment
Building	4·8 (Aug.)	8·0 (Jan.)	6·1
Furniture	3·5 (May)	9·3 (Jan.)	5·8
Printing	3·1 (Nov.)	6·1 (Aug.)	4·7
Engineering	4·6 (May)	5·8 (Dec.)	4·9
Shipbuilding	8·4 (March)	11·5 (Nov.)	9·4

In building, the unemployment in the worst month is 60 per cent higher than in the best month, in printing it is nearly double, and in woodworking nearly three times as high; whilst August is the best month of the year in building and the worst in printing, and November the best in printing and the worst in shipbuilding.

On the other hand, seasonal fluctuations seem largely influenced by the general state of trade. When trade is good, they tend to be reduced, and in extreme cases, as during the Great War, they almost disappear; whilst bad trade often has the effect of seriously increasing them. Brisk trade may compel postponement of work to the slack months, but when trade is bad the opportunity is taken to avoid doing work in the less convenient seasons.

CLIMATIC INFLUENCES

Two main influences contribute to produce these fluctuations. Climatic influences, pure and simple, have direct effects in preventing or retarding work. Heavy frost will stop the outdoor trades and cause considerable unemployment, as in the big frost of 1895. Bad weather, again, may operate over the whole year, and bricklayers in particular are liable at any period to considerable "wet time." But in winter the outdoor trades are affected generally by conditions of weather. Short days, rain, fog, frost, and so on, make work more difficult and less convenient than in the summer, and thus cause it to be postponed, where this can be done without inconvenience. Indeed, the influence of climatic causes is often not so much to prevent work altogether, as to make it more difficult for the producer and less convenient to the consumer. In the short days and bad weather of the winter, work about the house, for instance, takes longer and is altogether dirtier and more uncomfortable than in the summer. But it is not only in the winter that climatic influences are at work. In the heavy iron and steel trades, in which men work in great heat, July and August are relatively slack, the slackness taking the form chiefly of reduction in shifts (hours). Again, the demand for domestic coal is less in summer than in winter, though the consequent summer slackness is partially mitigated by lower summer prices.

SOCIAL INFLUENCES

Besides the climatic influence, social causes, due to the consumers' requirements, bring about variations in demand. In big towns, August is exceptionally busy in building because repairs, alterations and decorations are most convenient during the holidays, when houses, offices and schools are unoccupied. For the same reason, printing is at its slackest since so many people are away from home. Again, the summer social season in London and other towns creates a busy spring season in preparation for it, notably in building and furniture, which is followed by a slackness at midsummer. Again, some forms of dressmaking are exceptionally busy, with very heavy overtime, in the early months of summer, and very slack indeed later in the summer. In other cases the requirements of the Christmas trade make the autumn the busiest time, notably in printing and bookbinding, in which November is easily the best month, in jewellery and art metal, and, apparently, in certain branches of the furniture trades. The rush is usually followed by slackness after Christmas.

SEASONS IN BUILDING AND PRINTING

The effects of climatic and social influences on seasonal unemployment may be further illustrated by fuller reference to building and printing. The former shows their combined influence. It is affected by the distinctions between big and small work and between new construction and repairs. Big contracts, heavy frosts apart, continue steadily throughout the year, but in small house building and repairs the greater convenience and longer days of summer are taken full advantage of, especially with painters and decorators, with whom "even in the best years there are some bad months, and even in the worst years some months when there is plenty of work." Again, large and small towns are differently affected. In the latter the movement is pretty regular from a midsummer maximum to a midwinter minimum. In London and the large towns the course is different. Recovery from winter slackness begins in February or March and employment improves to the spring maximum in April and May, followed by a summer slackness in June and July, whilst with the holidays come the August and September rush and then an autumn decline to midwinter slackness.

Printing illustrates social influences. The winter slackness after the Christmas rush is comparatively slight, and employment continues moderate in the first half of the year, with rather better employment in March and July. August and September are very slack, whilst November is much busier than any other month. Indeed, printing seems to be fairly steady for most of the year, with two specially slack and one specially good month, owing to summer holidays and Christmas trade respectively.

CHARACTERISTICS OF SEASONAL UNEMPLOYMENT

The features of seasonal fluctuations seem to be that they are more or less calculable. Whilst differing in severity, they recur regularly in the same months year after year. Secondly, with certain exceptions, like Court dressmaking and perhaps house painting, they are of limited severity. Moreover, wages are usually somewhat higher in the seasonal trades to compensate for the fluctuations But, whilst on the average seasonal unemployment is limited and calculable, its effect on individuals is neither. It is not evenly spread over a whole trade, but affects some little and others with great severity; and the individual cannot always forecast how it will affect him. The matter is often complicated by the influence of cyclical depressions or casual labour.

PROPOSED REMEDIES

In short, seasonal unemployment for the individual is frequently a risk far beyond what he can meet by his unaided efforts; and, as Sir William Beveridge has insisted, it is, therefore, especially suitable for joint unemployment insurance. The House and Ship Painters' Union, for instance, used to pay unemployment benefit during the four winter months (November to February) only, for a maximum of ten weeks. Seasonal fluctuations also lend themselves to adjustment of hours, either by shorter winter hours or organized overtime and short time.

Before the war the London building trades worked 50 hours in summer and 44 (for sixteen weeks) in winter; but at present building hours vary less, some districts having a uniform 44-hour week, and the summer hours in others being 46½. More might, perhaps, be done to dovetail winter and summer trades, as, apparently, is sometimes the case with brickmaking and gasworks; but in skilled work the busy and slack seasons of allied trades seem largely the same. Something, too, might be done in building to mitigate the slack summer season by transfer of workers between different towns, as some painters seem already to do for themselves. There are also more general proposals for dealing with unemployment which may favourably affect seasonal fluctuations

BOY LABOUR AND APPRENTICESHIP

(*Continued from page 178*)

V

THE PROBLEM OF BOY LABOUR

WHAT THE PROBLEM IS

Boy labourers, as distinct from learners, may be taken to include all working boys, other than those who are undergoing definite training They are employed as workers for wages, frequently in work and even in industries different from those in which they will be as men. They must, therefore, be suitably prepared to step, when the time comes, into the jobs that are waiting for them as men, whether in semi-skilled or low-skilled work, and, as with the learners, they need to be distributed suitably to their capacities among these various jobs. The problem, in short, is to see that all these boys are fitted for some occupation, so that on reaching manhood they have all some definite thing which they can do, and do well.

This problem has two main parts. First, the required preparation is different from that of the apprentice. There is not very much to teach, and frequently the boy's work does not permit of this, because of the change of occupation on reaching manhood Preparation of the boy labourer, therefore, consists mainly in developing general capacities rather than that specialized skill which is the central factor in the training of the apprentice. To the boy labourer general development is all important. It includes not only intelligence and handiness, but capacity for steady and regular work, and power of adaptability to changing conditions, which is specially needed in modern industry.

Secondly, the problem is one of supply, to dovetail into each other those occupations in which boys, and those others in which men, are predominant. It is necessary not only to prepare the boys for the work available for them as men, but to see that the transition from boys' to men's work is so made that the right boys go to their new jobs at the right time and that the "round peg" is put into the "round hole." Thus, what is at present a very real danger of the boys drifting into casual labour will be avoided.

CHIEF FORMS OF BOY LABOUR

The general position may be illustrated by considering the chief forms of unskilled boy labour. First, there is much unskilled work subsidiary to skilled trades, as shop, factory, and errand boys. Such boys, though numerous in the total, are usually few in number in an individual factory, and can often be absorbed, sometimes as apprentices. For various reasons, however, many of them are not. Some firms employ younger apprentices on this work. Secondly, boys' work in less skilled trades, or the less skilled departments of skilled industries, provides numerous openings for adult employment of similar kinds. In mass production by machinery there is often a sequence of jobs from easier to more difficult machines, which gives means of promotion and of absorbing as men all the boys employed. A few firms already organize systematically such promotion. Thirdly, much work of boys as assistants to men gives limited opportunities for their promotion, though all cannot be thus provided for. Instances of this are rivet-boys in boilermaking, the "little piecer" in cotton spinning, boys who feed or pull out in sawmills, and the van boys in horse cartage. Other such work, as in plumbing, may provide a permanent semi-skilled job. Finally, there are the blind alleys, pure and simple, which take boys at 14, keep them till 18, and then have to turn all or most of them adrift to find other jobs. These employments include certain productive industries, like rope and match making, in which very few men are employed; and similar conditions prevail in much errand and messenger work of a general kind.

FEATURES OF BOY LABOUR

Thus, certain general features may be noted. Much boys' work necessitates a definite change of job on reaching manhood; but other work gives opportunities for promotion within the factory, though many chances are missed for various reasons and the boys left stranded. These facts bring out one very essential element, the tendency of modern conditions to create a blind alley type of worker, who in youth has not been taught anything definite and has been definitely unfitted by his employment and upbringing for adult work. This type occurs also in skilled trades, in cases in which apprentices fail to learn, or are not properly taught, their trades and reach manhood without a definite occupation at their disposal, and in less skilled jobs, which are not blind alleys, where boys fail, through their own or others' fault, to utilize opportunities for promotion. But it is specially frequent in blind alley work proper, which from its very nature tends to bring about this result.

EVILS OF BLIND ALLEY WORK

The difficulties which these conditions create are influenced by the general circumstances of boy labour. First, whilst the training is simple, the making of a good unskilled or semi-skilled workman out of the ordinary boy labourer is far from easy, though the difficulty is often overlooked. The fact that there is little to learn makes it harder to exercise and develop his faculties at his work.

Lack of definite prospects robs him of incentive to effort; and the dullness and monotony of the work often have an injurious effect. Thus, he not only learns nothing from his work, but frequently forgets much that he learnt at school. Consequently, at 18, he is often, physical strength apart, of less value to an employer than at 14.[1]

Moreover, the impossibility of direct training adversely affects his chances. He and his employer look solely to output and wages. He has no inducement to stay nor the employer to keep him. Having little or nothing to learn, a boy readily changes his job whenever an extra shilling a week is offered; and the very monotony of the work makes even a change of scene welcome. Consequently, boys leave jobs which could really offer some prospects, at least of semi-skilled work, largely because it seems to be to no one's interest to make these prospects clear to them. The moral influences are also bad. What is often mere youthful restlessness, coupled with ignorance, is allowed to develop into unsteady and irregular habits, unfitting the man for anything but the lowest grades of unskilled labour, and creating the "casual" type, liable to be displaced by every change in methods of production and possessing no permanent place in industrial life. Certain employments have specially serious effects, where, for instance, as in rivet carrying, the work is rough and irregular. Street selling of newspapers by young boys has, in the past, been particularly injurious.

WASTE OF BOY LABOUR

Existing conditions cause general loss. The boys have been dealt with, and their continual coming and going often conceals from employers that they are employing far more than they can absorb as men. The conditions are likewise injurious to employers. Continuous wastage of boys, as their complaints show, causes much loss. Even unskilled boy labourers take a little time to become efficient at new jobs, and at first are of little value; the time of foremen and men is taken up with instructing them; and more material is spoilt when they are fresh at a job. Their continual arrival and departure upsets the smooth working of a factory, and their irregular habits reduce their usefulness. Finally, the community is impoverished by wasteful use of potentially good labour and its unnecessary deterioration, whilst boys who might become skilled workers fail to do so, and the surplus of unskilled labour is unduly expanded. This involves, in consequence, some wrong distribution of labour and may even hinder industrial development. Shortage of skilled workers may, on the one hand, cause opportunities for expansion to be missed, and on the other, make it impossible to provide full employment for all the less skilled workers.

BOY LABOUR IN THE FUTURE

The problem's solution requires various measures. First, the right boy must be put to the right job, which involves both physical and mental fitness. The more capable and the clever children of poor parents not least must be prevented from entering jobs without prospects, and given chances of training. Organization is required to counteract the evils, and prevent the unnecessary multiplication, of blind alleys. The existence of good prospects should be made clear to boys, and some jobs might even be made probationary to apprenticeship. Regular progression from boys' to men's work of a less skilled type, already organized by some firms, should be made more general. Wherever practicable, employers should be induced to fill vacancies for men from among their own older boys and to avoid dismissals by transfers between departments

Definite blind alley jobs need different measures. Occasionally reorganization can enable most of the boys to be absorbed, as in the Post Office, where the lengthening of the period as boy messenger from two to five years allowed nearly all to be taken permanently into the service. Again, it may be possible occasionally to substitute other forms of labour, and sometimes, owing to the irregularities of the boys, firms have installed machinery worked by adults to replace them. Usually, other treatment will be needed. During boyhood, steady and regular work must be assured, along with means to maintain and develop intelligence and adaptability, both in the workshop and by continued education, which is dealt with later. Finally, since boys' work and men's work are often in different trades, the present haphazard change at 18 must be replaced by ordered transfer at the right moment to work of a permanent character. In short, definite organization is needed. Systematic care would produce a marked improvement in the quality of unskilled labour and react largely on the skilled. Employers, boys, and the whole community, would share the fruits.

[1] The general conditions of boy labour in London are admirably described in A. H. Paterson's *Across the Bridges* (Chapter VIII).

LEADERSHIP IN INDUSTRY

(*Continued from page* 180)

V

DEVICES FOR INDUSTRIAL LEADERSHIP

It will seem to be strange that we should consider such devices as profit-sharing, co-partnership, works committees, and the like, as devices for industrial leadership. To do so does not mean that we exhaust their content by this particular consideration, but it does mean from the particular angle which we have adopted that fundamentally here lies their importance. If we had truly dominant control, challenging any question as to its authority, we should not need these devices, nor, indeed, should we find leadership. The truth is that throughout the ages there has never been dominant control of this absolute type. It has been said that there never was a despot. Louis XVI was executed, but he was executed for the social sins of the generations before him, and the historian tells us that revolutions always occur when things are beginning to improve. Put into different language, the despot finds the limits of his despotism. The slave-owner had some sense of responsibility to the slaves, and the industrial magnate in the darkest days was not the uniform monster which it has been necessary to describe him as being, for there never was a ruthless individualism. So we may say that what is happening to-day is the change of direction from the idea of domination, which never was pure domination, to the idea of leadership which, in turn, will not be pure leadership. Just as the old domination had something in it of the spirit of leadership so the new leadership will have something in it of the spirit of authority or domination. Each of us is a complex, after all, and the psychologists have never found a happier word. So I would describe the devices which I have mentioned as being representative stages in the passage from the domination of the past to the leadership of the future.

PROFIT-SHARING AND PIECE-WAGES

Thus, profit-sharing is not merely a matter of dividing a monetary result in another way: it is a method of so using the financial reward as to assist in the cultivation of a more suitable atmosphere for leadership. "Why should I follow the capitalist?" asks the worker. The profit-sharing enthusiast gives the answer: "Because you, too, are a capitalist." Leader and led will traverse (at any rate to some extent) the same road together. So with co-partnership it may be said that the mutuality is a little more definite. They share ownership as well as result. It may be that the devices have their disadvantages; profits when shared may throw a high light on profits which do not seem to be shared; co-partnership without the accompanying dignity of direction may seem to be the handing over to leadership of what is much more than leadership, of what is really one's possessions. Nevertheless it is true that these devices have in them elements of a change. There is something about wages which does seem to narrow the range of individual action. Time-wages do seem to tie the worker. These devices at any rate meditate some sort of fitting incentive to will or to intention; they do recognize differences of achievement. Why not, therefore, be logical and make all wages into piece wages? The answer is not creditable to the history of industry. It has been the case too frequently that when piece wages have promised to be very favourable to the worker the rate has been cut. Manifestly there are instances where it is perfectly just to cut the rate; for example, in those cases where improved appliances have been put at the workers' disposal, and at the cost of the employer. Making full admissions on this head there have been far too many cases where rates have been cut merely because the total wages have seemed to be too great. Consequently, piece wages have always given rise to a sense of insecurity and they have never achieved their real purpose of encouraging the worker. It is, however, the case that in the improved atmosphere which surrounds industry to-day there is a much better prospect of success for the piece-wage system. At the same time there are subsidiary aspects which have come into the foreground. For example, there is the conception of continuous employment, with its emphasis rather upon career and not upon day-by-day employment; there is the idea of pensions, of payment during sick absence or absence during vacation. The greater attractiveness of these ideas has indisputably modified the tendencies towards payment by results, and probably it is by reason of these modifications that there are signs of greater attractiveness to the trade unions of payment by results. On the whole, the future would seem to lie with some combination of principles whereby payment by results would come to be a bonus or an addition to a basic wage. Such systems have come into the foreground largely as a result of the studies of Taylor's Scientific Management.

These considerations apply in a slightly different form to profit-sharing and to co-partnership. Speaking generally, it cannot be said that these devices have encouraged that movement from domination to leadership, which, in essence, is the fundamental subject which we are discussing. In a different form in the United States they have developed as employee shareholding, and

there can be little doubt that in this connection they have been much more successful, though the wide variety of schemes is a little bewildering At first blush it seems to be asking too much to expect a worker to take a double risk, both in respect to his employment and in respect to his investment, and it has been necessary in some cases to combine several enterprises for the purpose of employee shareholding in order to modify this risk. The study of this subject which has been made by Princeton University is of outstanding value. As regards the bonus premium methods which have resulted from scientific management, there are many instances of success, but it does not seem up to the present that they have emphasized the idea of leadership. It may be that they have yet to be adapted to high ideals of leadership, and there is hope that the International Institute of Management in Geneva will achieve something, by the correlation of methods which have grown in different countries, so to " rationalize " the whole process as to bring out conceptions of leadership which, as yet, have not appeared

WORKS COMMITTEES

The different ideas of works committees act in a somewhat different way. They bring an atmosphere of corporate life and corporate interest which associates the worker in what we may call a constitutional way with the employer. In the United States there is a wide variety of schemes, shading off from the imitation of parliaments with a cabinet and legislatures down to the mildest consultative committee. As a rule there is no transfer of authority, though attempts have been made to include the corporate will of the workers in the act of discipline. In England the process is usually of the type recommended by the Whitley Committee in 1917. It has succeeded in several instances on the plane of the industry as a whole, but in the form of local or works committees the progress has been very limited. As a rule there is no transfer of authority, but there are several instances where committees are entrusted with discipline and where, for that purpose, they include representatives of the workers. Efforts have been made again and again to give legislative authority to the agreements of the committees, but the voluntary principle is deeply embedded. In Germany, on the other hand, the works committees are established by law and they function, as one may say, authoritatively, and a certain amount of success is to be recorded.

We may sum up the position by saying that true industrial leadership may find, after further experience, that one or other of these devices may assist in cultivating a better atmosphere, but it seems to be very unlikely that any one of them or any combination of them will prove to be essential. If they are adopted it must be with real sincerity and determination to make them effective. Bonaparte described such devices in politics as " playthings," but it is not in that spirit that we must adopt them. They must be genuine aids to human development, or the second stage may be worse than the first. In a word, it is the spirit of leadership and mutuality which matters.

That spirit demands personality for its incarnation, if we may use the word with a little less of the sense of tangibility than usual. It demands that there shall be an individual exemplar or exponent. This seems to bring us by means of a circular argument to the dominant " person " of the past. But it is the dominance or the directorship which, by means of its inclusiveness of the personalities of others, is really the focussing-point of what I have called the spirit of mutuality. It is sensitive in its receptivity but never hesitant in its articulation. That may seem to be a vague definition, but we may rest assured that it is within the limits of it that corporate civilized mankind will co-operate for any aim towards which it may be led.

PUBLIC FINANCE

(*Continued from page 182*)

V

EXPENDITURE on the secondary functions of the State relates to outlay on social services such as education, public health, national health, and unemployment insurance, old age pensions, and relief of the poor. In this sphere no fixed formula can be offered. The range of public assistance will be determined by the circumstances of time and place. A century ago effort of this kind in Great Britain was strictly limited. During the past fifty years there has been a wide extension of administrative supervision; many fresh duties have been imposed on public authorities. Under elaborate legislation, the free movement of citizens is influenced in the inspection of mines and factories, the regulation of shipping, railways, and tramways; the purity of articles of food is publicly tested; in many spheres local authorities have wide discretionary powers. According to Professor Bastable, the chief causes of this increase in administrative outlay are the growth of the leading centres of population, rendering necessary organization and control; the fact that the moral sense of the community is at a higher point than before, as illustrated by legislation which is designed to remove evils which shock public opinion; the democratic movement involves interference with the owners of property generally; the establishment of officials proceeds so gradually that perhaps the total outlay entailed by the system is hardly appreciated; and to these causes must be added the influence of prevalent political and economic theories.

ANALYSIS OF SECONDARY FUNCTIONS OF THE STATE

In seeking an answer to the question as to how far this expenditure is financially justifiable, it is conceded that the ends are usually trustworthy, and, as a rule, the test is expediency, but in a very broad sense. The outlay on the proposed new service is compared or contrasted with the addition to taxation involved and the apparent advantage of the remission of that burden. Inquiry is made as to the possibility of voluntary agencies undertaking the task Is the suggested State intervention hasty, and will it weaken the spirit of association? How far will the administrative action be effectual in meeting the evils which are in mind? All these considerations have figured in the analysis of one of the outstanding secondary functions of the State in the relief of poverty, in most countries now a definite charge on public revenue. In early societies, infanticide or slavery offered barbarous solution. In the Middle Ages the poor looked to private charity through the churches or the monastic institutions. But with the growth of population, and the coming of the factory system, the insufficiency and irregularity of private relief led inevitably to State intervention. In its defence, it is usually urged that the community is bound to relieve distress; that the appeal is to justice rather than to sentiment, since any other course would involve a tax on the charitable; that one of the causes of destitution is often the appropriation of the instruments of production by private persons, and that those in distress have, therefore, a claim to relief from the proceeds of the taxation of property owners; that if, under the penal system, criminals are maintained in reasonably healthy and comfortable conditions, the same privilege can hardly be denied to those who have committed no crime but are merely poor; and that in any case it will, on a long view, be more economical to give appropriate assistance rather than risk the definite waste of destitution. The arguments in opposition have usually referred to the communistic character of support of non-workers, the danger of demoralization in the recipients of relief, interference with private charity or kindred effort, the tendency of relief to discourage thrift, and the possibility of relief reacting on wages in such a way as to lower them in all or certain parts of the country. But in economic review of the problem, it is very difficult to strike a balance, and within recent times the aim has been to make the relief constructive, as in the encouragement of systems of public work.

EXPENDITURE ON EDUCATION

Expenditure on education is defended on the ground that it means much more than imparting knowledge, its beneficial effects on character will tend to increase production; workers will be more intelligent and trustworthy, and contribute a larger amount to the aggregate national income. Adam Smith emphasized the importance of education for citizens because they would then be less liable to the delusions which among ignorant nations occasioned disorder. Most of the economists have attempted to draw some distinction between primary education, which all agree is an appropriate charge on public funds, and secondary education, with that of the Universities, which a number of them would leave to the effort of individual and family interest. That distinction is increasingly difficult to maintain. In the Universities and other institutions there are many problems of the State assistance of scientific and other research, often from the standpoint of its effect on the production of wealth; in a sense all State outlay may be

regarded as for the benefit of industry, as in the pleas for education based on its economic value. In Great Britain, primary education is free and compulsory. Under recent Acts the total sums which are paid to the local education authorities out of Parliamentary monies and the Local Taxation Account in respect of elementary or higher education are generally not less than one-half of the net approved expenditure of the authorities. The system is that of percentage grant, in which half of the burden is borne by national funds and the other half by local rates. Within the regulations laid down by the Treasury the expenditure of the local authority must be such as can be recognized by the Board of Education as outlay for which grants should be made to the authority; there are certain arrangements affecting deficiency grants; and the local education authorities have usually power to borrow on the security of the fund or rate out of which the expenditure is payable. In America the States generally have systems of free education, supplemented by private and parochial schools; in the British Dominions the various governments, or the provincial governments within them, control education, the principle of free primary education being applied. The sources of revenue are the central government, the provincial government, or the locality, but the percentage contributions vary greatly; in South Africa, for example, the local education rate gives a small contribution compared with that from other sources. In the case of India, Mr. Findlay Shirras considers that education has been badly balanced as between primary and secondary schools. The principle of State effort in this sphere is now definitely established.

OTHER SOCIAL SERVICES

Public outlay on other secondary functions such as public health, unemployment insurance, the blind and the aged has increased to a remarkable extent within recent times. Prior to the great development of the social services, State or public expenditure in the United Kingdom was practically confined to education and Poor Law relief; the increased activities of the State were, as has been indicated, one of the outstanding features of the second half of the nineteenth century. They included provision by employers against accidents and the insurance of workmen against old age and infirmity. Germany, in particular, had elaborate schemes of social insurance. In 1891 Denmark introduced a system of old age pensions. Following innumerable reports on the position of the aged poor, Great Britain embarked on a scheme of old age pensions in 1907; from 1911 onwards national health insurance schemes made substantial progress; the trade unions did much in unemployment insurance; similar plans were adopted in different parts of the British Empire; these, in short, are merely illustrations of what was practically a universal movement towards greater social security. But the financial conditions varied very greatly. In some cases old age pensions were provided on a contributory basis; in others they were non-contributory. The qualifying ages were as low as fifty years for blind persons and seventy for others. Health insurance was generally on a contributory footing. It was invariably related in debate to problems of national industry; regard was had to its burden in analysing British competition in world markets, and the possibility of reaction adverse to the classes it was intended to benefit. Like education, this effort in the secondary functions of the State, and its claim to a substantial contribution from public resources, is firmly established.

PUBLIC UNDERTAKINGS

Other secondary functions include public undertakings like railways, irrigation works, posts, telegraphs, stationery, printing, and the enterprise of scientific and other departments; these outlays are not now included among the leading functions of governmental activity, such as defence, law and order. Even so strong an individualist as Adam Smith recognized that the State should undertake such public works as were too great for individuals and yet necessary to the community. This outlay is often divided into that on industry and commerce generally and that on special trades or employments. The former would include the cost of maintaining the monetary system, the regulation of weights and measures, the enactment of a commercial code, the provision of agencies for facilitating communication and transport, and the encouragement of consular and diplomatic establishments, mainly for the benefit of foreign trade, but also with reference to its effect on home industry. The aid in special branches would include that devoted to the support of new and profitable industries, the promotion of inventions on the basis of State prize or premium, exhibitions of industrial products under State auspices, assistance for model institutions such as agricultural schools, public assistance to railways or other means of transport in the poorer or sparsely populated districts of the country, and the support of credit effort by grant or loan. Broadly speaking, the defence of all outlay of this kind is that it is definitely in the public interest, as ministering to greater economic efficiency and opportunity, but it is also urged that it must have strict regard to financial principle, in providing for an adequate return on the public capital invested, for sinking fund or other device for repayment of the amounts borrowed, and for accurate form of accounts, with adequate statistical background.

THE ECONOMIC FUNCTIONS OF THE STATE

(*Continued from page* 184)

V

WHY SHOULD THE STATE INTERFERE ?

THE NEED FOR SOME CLEAR PRINCIPLE OF STATE INTERFERENCE

THE time has now come to raise the fundamental questions: "What is going to determine State action in the economic sphere ? (or indeed in any sphere). *Why* should this State interfere here and not there ? Is there any principle that determines the scope of those activities ? " It is evident that State intervention for its own sake as it were is meaningless. The State must have a definite reason for interfering—either that non-intervention would jeopardize some general interest it is bound to defend, or would leave undone things essential to general welfare ; or, on the other hand, the tendency of the State to undertake certain economic functions may be met with the argument that the desired end is best attained by leaving individual enterprise free at this particular point.

But in all those cases the course of action is determined by an appeal to some ultimate motive or standard covered by such terms as "general interest," "things essential," "bound to do something." What determines this interest ? Why is anything necessary ? We are thus immediately confronted with the problem of the ultimate purpose of society, and of the right function of the State as its agent ; we have to investigate its fundamental nature and aim. If you see mainly in the State a policeman, you will wish to see it act as little as possible. If you think that the State exists primarily to extend itself by conquest, that domination is the test of its true health, you will give it a free hand in all that makes for power economic or otherwise—(hence the blank cheque given to the State in war-time). If you believe with Bentham that the State exists to promote the material happiness of the greatest number, and that each individual is the best judge of his or her happiness, then you will follow Bentham in his opposition to State interference. If finally, you believe with Plato and Aristotle that the State is a moral organism, that its end is to make men good, and that this object can be achieved by legislation and authority, then again you must give it a free hand, just as would the believer in the divine origin of government—there is no department of human life which can be withdrawn from its influence.

GRADUAL DEVELOPMENT OF THE SCOPE OF STATE ACTION

Originally, the sole function of the State was to keep internal order, and repel attacks from outside. Taxation was limited to what was necessary for the upkeep of army and police. Gradually, the scope of governmental activity began to grow. The maintenance of order involved the building up of an elaborate system of justice, the control and upkeep of highways and other methods of communication. The protection of property from robbers led to various measures for the control of trade. The desire for internal unity tended in some cases to make the State try and enforce uniformity of religious belief. The danger to order from paupers and vagrants led to the beginning of poor relief. At a later stage the State took up the provision of education, the enforcement of hygiene, until it found itself a kind of universal provider.

This, of course is not to say that this growth of State economic activity has been constant and unbroken. There are whole departments of economic life in which the State once interfered and which it has now abandoned. The mediaeval state endeavoured to fix a "just price" and to regulate "usury" ; and, in spite of occasional legislation against profiteers, and measures against excessive interest, the modern state leaves prices and interest to be adjusted by the free play of economic forces. (This, of course, in normal times ; war-time control of prices belongs to a separate problem.) But, on the whole, the broadening of the economic activities of the State is one of the main features of our time. We have only to mention such things as pensions, factory legislation, labour exchanges, unemployment insurance, and education to remind the reader of departments of State activity which were unknown a century ago, and which few save the most obdurate opponents of State intervention would now suppress.

EMERGENCE OF MODERN SOVEREIGN STATE

It is only in modern times that the problem of State action in economic questions has really arisen, and this because of two very simple facts. First, that the State as a distinct entity, clearly separate from Society and Church, is a recent phenomenon, and, secondly, that there was no philosophy of individual rights with which to oppose State action.

In primitive agricultural societies there can be little scope for State economic action ; all the farmer asks for is protection against invasion and security of land tenure ; and there is consequently little State interference with economic life, except for the occasional requisitioning of all corn in times of emergency to prevent "corners" in wheat and other forms of food profiteering. The Government's economic policy was limited to the ensuring

of essential food supplies, a problem that became more serious in those parts of the ancient world where the urban population tended to grow too fast. Mediaeval society did not know either to any extent what State interference in its economic life meant. Social institutions and economic activities were, in fact, related to a definite conception of a social order expressed in religion. It was only when the religious and social unity of the Middle Ages broke up before the rise of the new sovereign secular State that the problem as we know it really took shape.

The fundamental weakness of the new modern State was that it had no very clear idea of its proper nature and end. There was no longer any fundamental mystical belief from which it received its authority and to which it had to conform its conduct; and yet it must somehow justify its existence, at least to those who thought of politics. Inevitably, unable to refer inquirers to a principle higher than itself, it had to take its own existence as its ultimate end: hence the rise of the theory of the divine right of kings, responsible to no one except to God, sole masters of the lives and resources of their subjects (a theory tried in vain by Charles I, but successfully used by the kings of France); or, as in England with Hobbes and his famous treatise, the *Leviathan* (1651), and in the early nineteenth century in Germany with Hegel, the setting up, in the name of social order, of the absolute authority of the Government of the day as the only bulwark against anarchy and chaos (it may be noticed that there is no answer in Hobbes to the obvious case of a revolution successfully establishing a new form of social order).

RISE OF INDIVIDUALIST PROTEST AGAINST SOVEREIGN STATE

It was evident, however, that no State could hope to command for long a general allegiance that came from no more positive principle than desire to avoid anarchy. The protests of those who found the rule of the State tyrannical were sure to make themselves heard —and their voices become audible first with the English Puritans in the middle of the seventeenth century, then with John Locke some thirty to forty years later, and with Rousseau from 1750 onwards. Each of them in his own way represented the protest of freedom against authority, the claim of the individual to assert his personal opinion and desires against the arbitrary decisions of an authority over which he had no control —and each of them was either the herald or the forerunner of the overthrow of such an authority. But here again there was no undisputed inner authority to which they could appeal, and we find them basing their claim, in different ways of course, on the " natural rights " of citizens, thus limiting the authority of the State by the formal consent of its individual members.

THE FRENCH REVOLUTION

This conflict of ideas was brought to a head in the French Revolution, which, however much it may primarily have been the revolt of a class—the bourgeoisie— and not of the whole people, was, nevertheless, a concerted attack against the doctrine and practice of royal absolutism as an end in itself, and gave birth to that striking, if often illogical and disconcerting document, the Declaration of the Rights of Man. This proclaimed the right of each one to worship according to his conscience, to move about the country, to trade freely. It affirmed the equality of all before the law (i.e. it denied the privileges of any individual or class), and generally speaking attempted to place what it considered fundamental liberties outside the reach of king, aristocracy, or oppressive corporation.

The Revolution was not destined to be as great a landmark in the development of individual liberties as its early champions had prophesied. Danger from foreign attack, traditions of State despotism, desires for unity expressed in uniformity - all these forces proved stronger than the liberalism of the declaration, and while political and judicial privileges were never officially restored, the net result was mainly but the transfer of virtually unlimited authority from a king, first to a series of revolutionary committees, and then to Napoleon; so that when the monarchy was restored in 1814, the battle for individual rights - in spite of declarations and charters —had still to be fought out, in France as elsewhere.

By the beginning of the nineteenth century the issue was thus fairly joined between the " individualists " and those who, for want of a better word, we may term the " authoritarians " or " statists." Each had got hold of an idea that was perfectly true up to a point but which needed the corrective of the other to be perfectly related to reality. The individualist rightly pointed out that there was no meaning in authority for its own sake, or in the quasi-deification of a State that was pursuing alleged interests unrelated to the welfare and desires of the individuals without whom it would have no existence. Its activities could not be ends in themselves; they must be the expression of some people's will, and those people must be not only the governing class, large or small, but all those who had conscious desires and interests which were affected by government action —that is, everybody. The individual, with his passions, hopes, desires, needs, must be the ultimate basis of the State; no society is healthy which ignores this and does not endeavour to translate through its agencies the passions, hopes, desires and needs of as many as possible of its members—what Bentham, Mill, and the great individualist utilitarians termed " the greatest happiness of the greatest number."

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

(*Continued from page 186*)

V

ORGANIZATIONS IN THE FIELD

(*a*) THE LEAGUE OF NATIONS

By H. R. Cummings

Economic conflicts and different economic interests are amongst the most deep-rooted dangers that threaten the peace of the world, and, while it is generally realized that the central purpose of the League of Nations is the preservation of peace, it is not sufficiently borne in mind that this clearly implies constructive and not negative obligations. The League's task is not merely the settlement of disputes as they arise from time to time; it is a more permanent task of so organizing peace as to eliminate as far as possible factors which may ultimately lead to conflict. Nations must work together in a whole series of questions—trade, transport, tariffs, economic and financial matters, and a host of others—if the necessities of the world of to-day are to be met, and if the elements of friction and conflict are to be reduced.

This steady and continuous effort upon which the League has embarked is not spectacular. Public opinion, in fact, is not much interested in it except where it is on a scale that happens to strike the imagination, as in the saving of Austria from utter famine and ruin, the succour and establishment of the hundreds of thousands of destitute refugees that poured into Greece after the Turkish hostilities, or the World Economic Conference. Even in these directions interest is still limited. But it is fundamental work. Progress has to be carefully and thoroughly prepared, for the League must take account of the interests of all its members. It is an inter-State not a super-State organization; it cannot impose decisions on States without their consent; its business is to discover and explore such common ground as exists. It has no power to impose a collective will, but only to elicit general consent. It is, in fact, the application of a system calculated to make the settlement of problems and disputes less difficult, and this is the method of regular conferences and continuous scientific study. There is a regular stream of international co-operation through conferences, committees, and groups of experts, undertaken with the collaboration of all sorts of international and representative bodies. But eventual action depends always on the decisions of *Government* representatives, who through all these committees and sub-committees are provided with the objective and technical elements for final decision. It is a highly developed, smooth-running mechanism.

For a clear understanding of the place of the *Economic and Financial Organization* within the League, it is necessary briefly to explain that the central organs are: (1) The Council, which is the chief executive body, meets regularly four times a year, and is composed of the representatives of fourteen Governments; (2) the Assembly, which meets annually, and is composed of the representatives of all Governments of States Members of the League (55), and (3) the Permanent Secretariat, which is an international civil service.

The many tasks devolving upon the League necessitated the creation of various auxiliary and advisory committees under the general control of the Council and the Assembly, but with enough independence and flexibility to make them effectively useful. Of these, the Economic and Financial Organization is one of the most important. It is divided into two sections—the Financial Committee and the Economic Committee. Each of them usually works independently, but they sometimes meet in plenary session to consider problems of common interest. The members are not official representatives of their Governments, but are chosen by the Council as experts, and include high treasury officials, directors of great private banks, banking associations, or banks of issue, heads of departments or directors in ministries of commerce, the president of an important co-operative society, a statistician, and so on. They all hold commanding positions in their own countries, and are competent to reflect currents of opinion in qualified circles.

The *Transit Organization* of the League is a little different in form, but similar in principle. There is a committee on freedom of communications and transit—composed of experts—which deals with matters concerning railway, maritime, and international waterway communications and arrangements, studies diverse cognate questions like international motor traffic, air communications, passport and visa facilities, calendar reform, transit through Customs, epidemics in ports (in collaboration with the League Health Organization), etc., and prepares the agenda for transit conferences, of which there have been several, for concluding international conventions. These all bear closely on trade and economic facilities in a variety of ways, and the method of approach is much the same as in the financial and economic sphere.

The Economic and Financial Section of the Permanent Secretariat and the Transit Section—both under one director—act as the respective secretariats of the two organizations.

One of the outstanding values of the League organization is its permanence, which makes progressive research and discussion customary and natural

month by month in the ordinary course of regular business. Not a week passes without a meeting of some kind, and the connecting link is provided by the permanent secretariat, who are the servants of all the States in the League, not representing their own Governments but engaged on a general international task. If a difficult problem like the equitable treatment of commerce– which it is a covenant obligation upon the States to secure and maintain—or if a complicated special problem like that of double taxation –which means the taxing of the same income in more than one country—cannot be solved at a given conference, the study of it still continues on an international basis; expert committees carry on and progress is made where matters are ripe for progress pending ultimate action on the problem as a whole. This makes for steadiness and thoroughness and by the existence of this continuous effort immediate lack of success does not of itself imply immediate failure. The prudent evolution which is thus made possible is well illustrated by the League's work on financial and economic problems.

One of the first steps taken by the League was to summon an international financial conference at Brussels in 1920, at which various financial principles were unanimously formulated. No obvious results appeared until 1922, when the League was asked to assist Austria. In doing so it was able scientifically to apply the principles of Brussels to the particular case of Austria, whose financial situation was restored, and when, at the end of 1923, a similar request came from Hungary the League was able successfully to adapt to Hungary not only the principles of Brussels, but the proved results of Austria. These steps were not without their influence in the settlement of the German reparations problem on the basis of what is known as the "Dawes Report," whose authors were able to avail themselves of the League's initiative and experience when they drew up their scheme for application to Germany. The same consistency of doctrine is to be found in the way the League has dealt with the financial features of the Greek and Bulgarian Refugee Settlement Schemes, with the scheme which enabled a loan to be raised for municipal and harbour works in Danzig, and in the several instances where other Governments have come to the League for financial help.

The way the League has handled economic problems is perhaps a still more precise illustration of seizing opportunity for progress at a given moment and pressing forward step by step to the main problems. Like the financial situation, which was chaotic at the end of the war, the economic situation was thoroughly disorganized, and the policy of the League had necessarily to be tentative, not only because of the state of feeling engendered, but also because many of the problems were comparatively new or presented themselves under unprecedented general conditions. Various aspects involved in the wide problem of the equitable treatment of commerce and in the direction of oiling the wheels of international trade have been dealt with stage by stage, alleviating conditions here and there in a great variety of ways until such time as the situation could be hopefully reviewed as a whole. Such a review would obviously have been impossible during the period before reparations were settled, while exchanges were wildly fluctuating, and while inter-allied debts were unregulated. Most of these outstanding obstacles have been more or less removed, and the League neatly timed the summoning of an International Economic Conference (4th May, 1927), which was virtually the earliest date at which such a meeting could have been profitably arranged.

That Conference provided a comprehensive survey of the world situation, and produced a body of doctrine which, like the Brussels Conference in the financial sphere, will lead to subsequent progressive action. The Conference was probably unprecedented in its scope, and the mass of preparatory documentation on every conceivable economic subject was the most complete that has ever been collected on an international scale. Governments, trade organizations, specialists, officials, and others from every part of the world have contributed to this documentation, which was co-ordinated by the Permanent Secretariat, and the unanimous conclusions reached by the Conference (described in detail elsewhere) are of great significance. The follow-up work has already begun, and a representative consultative Economic Committee has been formed to keep an eye on the progress made in putting the recommendations into effect.

Another characteristic of the League is the team work of its various advisory and technical bodies. There are a number of problems which have both political and technical features, and the technical committees of the League -financial, economic, or transit-- are called in to advise the Council. The Council holds in its hands the general bearings of a problem and is able to consider it in the light of the technical necessities which present themselves to the minds of the technical committees. There has been active collaboration on economic and other questions between the League and the International Labour Organization; and there is, in fact, within the framework of the League organization a wide range of consultation, of which use is almost regularly made.

This is an obvious improvement on impulsive and irregular efforts in international affairs. It is building up traditions and doctrines which give a stabilizing element to international life, is helping to avoid a multiplication of isolated and contradictory policies, and is centralizing effort and outlook in the new conditions of modern life.

STATISTICS

(*Continued from page 188*)

V

THE GRAPH

To prepare an area on which to plot a curve such as that mentioned in the last article, let us start from a point *O*, which we shall call the origin, and mark off equal distances horizontally towards

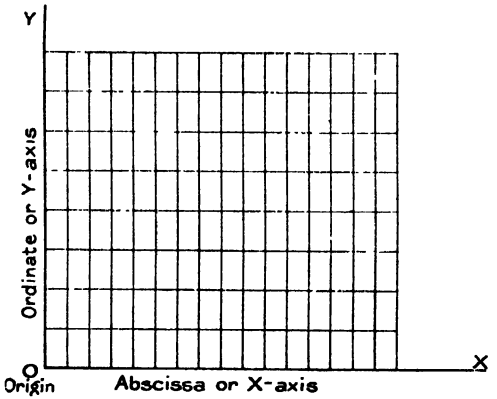


FIG 7

the right on a line *OX*. Returning to the origin, let us mark off equal distances on a vertical line *OY* at right angles to *OX*. These vertical distances, though they must be equal to each other, need not be equal to the horizontal distances; their relative length will be determined possibly on grounds of convenience, possibly on other grounds, when we know the nature of the facts to be plotted on the curve. If now from each of the points on the horizontal line *OX* lines are drawn parallel to *OY*, and from each of the points on *OY* lines parallel to *OX*, we get a squared area, on which any given points may be easily plotted. The horizontal line is called the *x*-axis or abscissa; and the vertical line, *OY*, the *y*-axis or ordinate. Jointly the horizontal and the vertical lines are the co-ordinates.

EXAMPLES

Suppose our purpose is to represent graphically the tonnage totals of the Clyde shipbuilding output in the last 50 years, the figures for which were given in the last article. Here we have two factors, namely, tonnage and date. Each factor shows variations, and is, therefore, called a "variable"; but one of them is made the basis of classification (in this case the years) and is, therefore, called the "independent variable," while the other is that whose values may be said to depend on the values of the other, and is, therefore, called the "dependent variable." Now, in nearly all cases, it is advisable to mark the values of the independent variable along the *x*-axis, and those of the dependent variable along the *y*-axis. In this case it is quite convenient to let each small horizontal division represent one year, and each small vertical division represent 25,000 tons. To plot the curve we run the eye

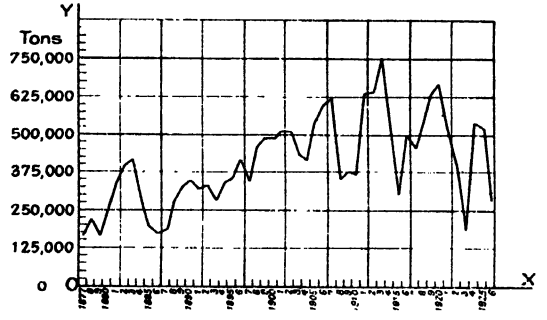


FIG. 8 SHIPBUILDING OUTPUT OF THE CLYDE, 1877-1926

up the vertical line, through the point marking the year in question, till it meets the horizontal line through the point representing the tonnage for that year; and place a dot on the point of intersection. If we do the same for each year and join the resulting dots, we get a curve representing the series.

It may be required in some cases to represent negative quantities graphically, as, for instance,

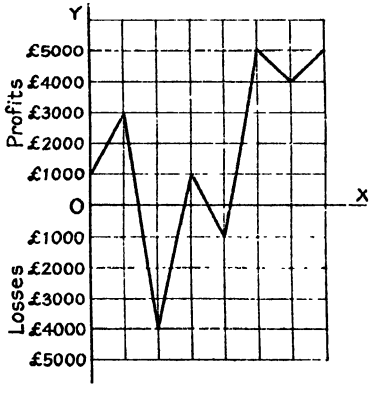


FIG. 9

losses on a profits chart. This can be done by marking off distances from the origin equal to those representing the corresponding positive

quantities, but in the opposite direction. Thus, if profits are marked upwards from the origin on the *y*-axis, losses will be indicated downwards from the origin on the *y*-axis, as in the figure on page 235.

ADVANTAGES

For the representation of a series the graph is superior to other pictorial or diagrammatic methods. It possesses the merits of clearness, accuracy, and simplicity, and it reveals the nature of a series in a way which no verbal or numerical statement can do. In the case of a long series it may bring out more than one feature, showing, for instance, the existence of long-period trends as well as short-period movements. This is illustrated in the above graph, which shows the movements in general prices in this country, as indicated by the chronological series of index numbers from 1850 to 1914 shown below. It will be seen that the graph brings out not only the year to year movements, but also the two distinct trends, downwards from 1873 to 1896, and upwards from 1896 to 1915. The index numbers of general prices are based on Jevons' index number from 1850-60, and Sauerbeck's index number, to base 1866-77, from 1860 onwards. The number for each year is reduced in the proportion required to make that for 1900 equal to 100[1]

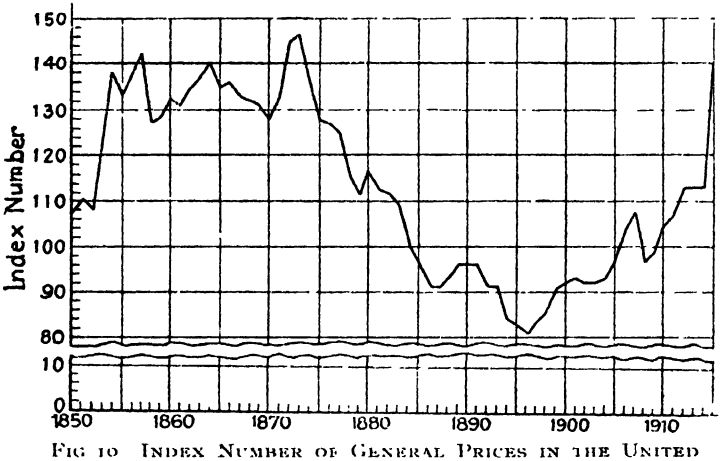


FIG 10 INDEX NUMBER OF GENERAL PRICES IN THE UNITED KINGDOM, 1850-1915

MISTAKES

The very force with which a graph impresses the mind makes it doubly necessary to take care that the impression is correct. Thus, in order that the fluctuations in the above series of prices should not be exaggerated, it is necessary to show the zero line. If, to save space, we cut the diagram off below the co-ordinate representing 80, the scale of the diagram is not apparent, and the fluctuations of prices are made to seem larger than they really are. If it is absolutely essential in any case to truncate the chart, the fact that this has been done should be clearly indicated, and this can be done by "breaking" it and showing a ragged edge.

For similar reasons care has to be taken in choosing the scale of the diagram to make it such as to bring out the character of the fluctuations to which attention is being directed. Too great a vertical scale will exaggerate the fluctuations, while one too small will make them inconspicuous. If the graphical method is being used to show the relations between two series, two vertical scales will have to appear, and it is then essential that the zeros of the two scales should be in the same position, otherwise the relations will be distorted.

The graph has a wide use in the representation not only of series, which alone have been mentioned in this article, but also of frequency distributions; but its use in that connection will be dealt with in its proper place.

Year	Index of general prices in U K.	Year	Index of general prices in U K	Year	Index of general prices in U K
1850	107	1872	145	1894	84
1851	110	1873	147	1895	83
1852	108	1874	136	1896	81
1853	123	1875	128	1897	83
1854	138	1876	127	1898	85
1855	133	1877	125	1899	91
1856	137	1878	116	1900	100
1857	142	1879	111	1901	93
1858	127	1880	117	1902	92
1859	128	1881	113	1903	92
1860	132	1882	112	1904	93
1861	131	1883	109	1905	96
1862	135	1884	101	1906	103
1863	137	1885	96	1907	107
1864	140	1886	92	1908	97
1865	135	1887	91	1909	99
1866	136	1888	93	1910	104
1867	133	1889	96	1911	107
1868	132	1890	96	1912	113
1869	131	1891	96	1913	113
1870	128	1892	91	1914	113
1871	133	1893	91		

[1] From Layton, *Introduction to the Study of Prices*, page 150.

STATISTICAL APPENDIX

(*Continued from page 192*)

OCCUPATIONS

THE term "occupied," as used in the Census reports to describe a portion of the population, is meant to signify those "normally occupied for gain." It thus excludes those who, like housewives, are occupied but not for gain, and, on the other hand, it includes those who are normally so occupied even if at the moment they may be unemployed. As we saw in the last section, the number so occupied in Great Britain in 1921 was 19,358,000, of whom 13,656,000 were males and 5,702,000 females. The occupied females therefore constituted 29 per cent of the total occupied population. At the Census of 1881 the corresponding figure was 30 per cent; in 1891, 31 per cent; in 1901, 29 per cent, and in 1911, 29 per cent. Again, of the total population of 10 years old and upwards, the occupied portion is 55 per cent; of the males of 10 years and over, 83 per cent are occupied, and of the females, 31 per cent. This latter percentage has fallen from 34 per cent in 1881 and in 1891.

OCCUPIED POPULATION AT DIFFERENT AGES

An analysis of the occupied males and females in different age-groups in Great Britain yields the facts shown in Table XXIX, and on the basis of the table the following chart (Fig. 8) has been drawn up. The table shows, for England and Wales, for Scotland and for Great Britain the number of males, the number of females and the number of both taken together who were occupied at different ages, and Table XXVIII shows the total numbers occupied and unoccupied in each of the age groups. The chart shows that the percentage of males (12 years and upwards) returned as being gainfully occupied varies from 5 per cent in the age-group 12-13 to 98 per cent at ages 25-55; and that thereafter it declines to 94·5 per cent at 55-65, 79 per cent at 65-70 and 41 per cent in the age group 70 years and over. Among females, 3 per cent in the age-group 12-13 have remunerative occupation; the percentage rises to a maximum of 76 per cent in the age-group 18-20, and thereafter diminishes rapidly to 33 per cent at ages 25-35 and 23 per cent at ages 35-45, after which the decline in the percentage is slow, falling to 7 per cent in the age-group 70 and over.

In the preceding part of this Appendix it was shown how the occupied portion of the population of Great Britain may be classified according to the industries in which they are engaged. From the national point of view that is the most important classification. It reveals the way in which the energies of the people are distributed in the raising or making of different products and in the performance of different services. From other points of view, however, it is of interest to know the kind of occupations in which the people are engaged, but a classification on the basis of occupation presents considerable difficulty. The Census authorities have at successive Census dates altered the basis of this classification. In the 1921 Census the principle employed is the nature of the work performed, but in the productive occupations the nature of the material worked upon is used to provide the primary grouping. Thus, there is the large group of workers in metal, with subdivisions according

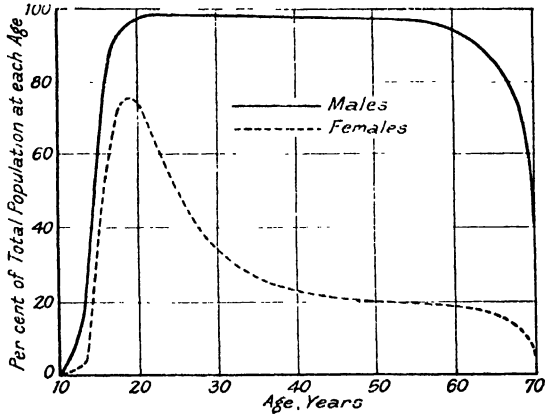


FIG. 8. GREAT BRITAIN—GRAPH SHOWING OCCUPIED PERSONS AS PERCENTAGE OF TOTAL POPULATION AT DIFFERENT AGES

to the nature of work performed, including employers, managers, etc., foremen, furnace-workers, foundry workers, etc., and other workers. This classification has many advantages, but it has the one disadvantage that it makes comparison with the figures in previous Census reports useless

OCCUPATIONAL DISTRIBUTION

Table XXX, compiled from the occupation sections of the reports of the Census of England and Wales and of Scotland for 1921, shows the classification by occupations of the occupied portion of the population aged 12 years and over. A comparison of this table with Table XXIV in Part IV of this Appendix reveals some interesting facts. The class-headings are similar, and the numbers in the several classes differ only slightly in the two cases. In most cases the numbers included in any class of occupation are smaller than those in the corresponding class of industry, but there are outstanding exceptions, the chief of which is transport. Here many people engaged

in a transport occupation (carters, etc.) are outside of the transport industry and appear under other industrial headings.

The last column in the table shows the proportions of the occupied population who are engaged in the main groups of occupation. It shows that about 50 per cent of the occupied population is occupied in raising and making things, growing crops, extracting minerals, making metal goods, textiles, houses, furniture, etc. Those engaged in clerical work make up 7 per cent of the total (the class "clerks," etc., has to be augmented by the clerical workers included under the heading Public Administration); 9 per cent are engaged in transporting things and people; 9 per cent in buying and selling, dealing in money, stocks and shares, in insurance, etc.; 11 per cent are engaged in giving personal service, and preparing food, etc., for others; 4 per cent are clergymen, lawyers, doctors, teachers, nurses, writers, and entertainers, and 2 per cent are engaged in defence.

GRADES OF WORKERS

It will be seen by reference to Part IV that of the total occupied population 76 per cent are wage-earners, 14 per cent salaried workers, 6 per cent independent workers, and 4 per cent employers, farmers, and professional workers. Further reference to the Census tables enables other comparisons to be made. The Census tables distinguish four main grades of workers in each group of occupations: (1) Owners, agents, and managers; (2) subordinate superintending staff, including foremen; (3) skilled workers, and (4) other workers. The lines between grades of skill are not so sharp as this classification would suggest, but, taking it as it is given, it yields results which are summarized, so far as manufacturing and mining industries are concerned, in the following table (Table XXXI). If we omit the owning and superintending grades and attend only to wage-earners, it would appear that about 80 per cent of the workers are more or less skilled and about 20 per cent unskilled. It is only the manufacturing and mining industries that lend themselves to this distinction between skilled and unskilled, but for the commerce and finance group a classification is made in Table XXXII (page 240). Accurate enumeration being impossible, the numbers are given only to the nearest thousand. The numbers do not include those in Government service, whether central or local.

The remaining table (Table XXXIII) shows the numbers employed in Government service, whether central or local, distinguishing the type of service.

TABLE XXVIII

POPULATION OF ENGLAND, WALES AND SCOTLAND, 12 YEARS OF AGE AND OVER, CLASSIFIED IN AGE GROUPS

Males

	12–	14–	16–	18–	20–	25–	35–	45–	55–	65–	70–
England and Wales	746,271	721,453	697,219	670,873	1,448,385	2,621,280	2,496,375	2,133,179	1,328,843	449,363	530,867
Scotland	100,363	98,021	95,127	94,271	202,930	327,466	295,944	261,275	172,410	56,849	66,199
Great Britain	846,634	822,474	792,346	765,144	1,651,315	2,948,746	2,792,319	2,394,454	1,501,253	506,212	597,066

Females

England and Wales	740,523	722,120	711,001	705,263	1,703,067	3,139,939	2,850,034	2,287,098	1,529,885	536,699	774,176
Scotland	98,946	96,527	95,291	95,130	225,851	386,812	336,564	273,225	189,536	66,520	102,340
Great Britain	839,469	818,647	806,292	800,393	1,928,918	3,526,751	3,186,598	2,560,323	1,719,421	603,219	876,516

TABLE XXIX

OCCUPIED PORTION OF POPULATION OF ENGLAND AND WALES AND SCOTLAND, 12 YEARS AND OVER, CLASSIFIED IN AGE GROUPS

Males

	12–	14–	16–	18–	20–	25–	35–	45–	55–	65–	70–
England and Wales	43,387	473,799	637,108	647,182	1,402,808	2,564,891	2,440,543	2,063,125	1,267,915	356,798	215,162
Scotland	489	58,042	87,443	91,359	198,199	322,123	290,901	254,384	161,034	47,372	31,026
Great Britain	43,876	532,441	724,551	738,541	1,601,007	2,887,014	2,731,444	2,317,509	1,428,949	404,170	246,188

Females

England and Wales	28,605	323,510	503,809	537,812	1,060,058	1,051,191	652,580	479,625	295,364	82,315	50,463
Scotland	271	42,523	70,070	73,760	143,387	133,618	72,254	51,710	33,020	9,103	6,316
Great Britain	28,876	366,033	573,879	611,572	1,203,445	1,184,809	724,834	531,335	328,384	91,418	56,779

TABLE XXX

CLASSIFICATION OF THE OCCUPIED PORTION OF THE POPULATION OF ENGLAND AND WALES, OF SCOTLAND AND OF GREAT BRITAIN, 12 YEARS OF AGE AND UPWARDS, ON THE BASIS OF OCCUPATION

Occupation	England and Wales	Scotland	Great Britain	Percentage of occupied population
Fishing	28,974	22,564	51,538	
Agricultural occupations	1,254,350	194,301	1,448,651	
Mining and quarrying and treatment of non-metalliferous mine and quarry products	1,092,812	156,314	1,249,126	
Makers of bricks, etc.	134,185	10,837	145,022	
Workers in chemical processes	74,983	11,783	86,766	
Metal workers	1,884,827	307,540	2,192,367	
Workers in skins, leathers, etc.	77,084	5,891	82,975	50
Textile workers	980,928	128,973	1,109,901	
Makers of textile goods and dress	836,686	80,026	916,712	
Makers of food, drink, etc	294,076	56,459	350,535	
Wood and furniture	523,395	85,386	608,781	
Paper makers, and printers	278,371	36,673	315,044	
Builders, etc.	505,278	65,336	570,614	
Painters and decorators	207,674	18,284	225,958	
Workers in other and mixed materials	182,774	34,596	217,370	
Gas, water, electricity undertakings	48,639	8,686	57,325	
Transport and communication	1,484,173	180,959	1,665,132	9
Commerce, finance, etc.	1,559,176	199,571	1,758,747	9
Public administration and defence	514,206	46,152	560,358	2[1]
Professional	666,812	87,348	754,160	4
Entertainments and sport	95,286	8,169	103,455	
Personal service	2,016,369	199,887	2,216,256	11
Clerks and draughtsmen	997,729	127,453	1,125,182	7[2]
Warehousemen, etc., and others	1,439,263	106,081	1,545,344	

[1] Defence only.

[2] Including the clerks, etc, in public administration.

TABLE XXXI

ANALYSIS OF THE WORKERS IN MANUFACTURING INDUSTRIES AND IN MINING AND QUARRYING IN ENGLAND AND WALES INTO GRADES

Grade	Manufacturing industries		Mining and quarrying	
	Number Thousands	Per cent	Number Thousands	Per cent
Owners, agents, and managers	270	4·5	8	0·8
Foremen and subordinate superintending staff	164	2·7	43	4·0
Skilled workers	4,572	76·1	783	73·5
Other workers (relatively unskilled)	1,002	16·7	231	21·7
Total	6,008	100·0	1,065	100·0

TABLE XXXII

CLASSIFICATION OF THOSE ENGAGED IN COMMERCE, FINANCE, AND CLERICAL WORK
ENGLAND AND WALES

Description	Commerce Thousands	Finance Thousands	Clerical Thousands	Total Thousands	Per cent
Owners, managers, directors	543	31	29	603	23·5
Advertising, canvassing	141	49	-	193	7·5
Salesmen in shops and elsewhere	757	—	—	757	29·6
Clerical	—	—	966	966	37·8
Miscellaneous	16	22	—	38	1·5
Total				2,557	100·0

TABLE XXXIII

NUMBER OF PERSONS IN THE EMPLOYMENT OF THE GOVERNMENT, CENTRAL AND LOCAL

	Males Thousands	Females Thousands	Total Thousands
CENTRAL GOVERNMENT			
Navy and Admiralty	109	2	111
Army and War Office	148	6	154
Air Force and Air Ministry	28	1	29
Post Office	133	56	189
Education	3	1	4
Shipbuilding and marine engineering	49	1	50
Other engineering	17	1	18
Aeroplane manufacture	2	-	2
Others (in factories)	15	3	18
Others (not in factories)	111	45	156
Total in Central Government	618	116	734
LOCAL GOVERNMENT			
Police	63	1	64
Poor Law	19	30	49
Education	63	161	224
Others	300	52	352
Gas works	27	—	27
Water works	16	—	16
Electricity supply	22	—	22
Tramway and bus service	60	2	62
Docks, etc	42	—	42
Others	4	-	4
Total Local Government	616	246	862
,, Central ,,	618	116	734
Total	1,234	362	1,596
Total occupied population	12,113	5,065	17,178
Government employees (per cent)	10·2	7·1	9·3

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page* 194)

VI

THE MIDDLE AGES: THE FEUDAL STRUCTURE

"Without these cannot a city be inhabited: and they shall not dwell where they will, nor go up and down: they shall not be sought for in publick counsel, nor sit high in the congregation: they shall not sit on the judges' seat . . . they cannot declare justice and judgment. . . . But they will maintain the fabric of the world. . . ."—*Ecclesiasticus*, xxxix, 32–4.

WHATEVER opinion we adopt concerning the nature of the forces which worked themselves out between the fifth and the tenth centuries we have to recognize the fact that they imposed a remarkable degree of uniformity on the institutions of Western Europe. This uniformity we call comprehensively "the feudal system." It was a blend of three closely related movements. First, there was the principle of securing and rewarding services—particularly those of military leadership—by means of grants in land. Second, there was the practice of obtaining personal protection by choosing a lord. Third, there was the tendency for the king to commit the discharge of administrative and judicial duties to local magnates. So the country was divided into great lordships. Within these the lord was to all intents and purposes a petty king (*subregulus*). Both his relation to the king and to his inferiors could be defined in terms of land tenure. He was himself a "tenant" who had to fulfil certain obligations; and in one way or another all those who held land within his sphere of influence came to owe him services. It followed that the private possession of land or the cultivation of it by self-contained groups could hardly survive.

THE SIGNIFICANCE OF TENURE

As the local administrator of justice the lord could force attendance at his courts on those who might in all other respects remain freemen. In fact, freedom became a rare thing, if by freedom is meant the right to the enjoyment of property without any limitations except those imposed by the State. In Northern and Central Germany, where feudalism was not so strong, communities did survive which were only subject to royal jurisdiction, and had their own courts over which a representative of the king presided. But in France and England the "fief" held by a lord became the rule. When William the Conqueror undertook a survey of his kingdom in 1086 it was tacitly assumed that the country was divided into holdings held directly or indirectly of the Crown. It was also assumed that the population could be divided into five categories—freemen, socmen, villeins, cottars, and slaves. Probably these assumptions did violence to the facts, but the results of the inquiry were incorporated in Domesday Book. Henceforth this official record provided a picture of a kingdom divided into fiefs held immediately of the king by tenants-in-chief, or mediately by sub-tenants to whom the tenants-in-chief had granted part of their estates. The rural classes were also supposed to fall within the five categories. But mediaeval governments could not work miracles and mediaeval lawyers were often content with fictions; so while the authority of Domesday Book was powerful, we must not suppose that it removed all anomalies. It defined what had formerly been vague. Any free village which may have survived tended to be identified with the unfree manor, and the uncertainties of personal status in the Old English period were no longer tolerated.

A NATURAL ECONOMY

Feudal society was one in which "natural economy" was dominant, i.e. payment in money for services was exceptional. Hence the importance of stating the relations between classes in terms of land tenure. The whole kingdom was an estate. The king held part of it in his own hand—the royal demesne—and from it he derived an income which enabled him to meet household expenses and part of the public charges of government for no distinction was drawn between the two. The rest of the land was granted out to tenants-in-chief on condition that they performed defined public services. For instance, the Norman kings developed a system of knight-service by which the tenant-in-chief was in the event of war under the obligation of providing so many knights for forty days at his own expense. Instead of taxing their subjects to secure a fund by means of which an army could be raised and trained, the kings burdened their grants of land with that obligation. The principle ran through the whole of the feudal structure. Tenants-in-chief provided for the discharge of their services by making grants of land to sub-tenants on condition that they would come forward when the king called for military service. Similarly, within the manor the lord held part of the land in his own hands—the demesne—and he provided for the cultivation of it by requiring his tenants to work on it so many days a week in return for the holdings they had outside the demesne. This was the essential character of villeinage. We gather from Domesday Book that nearly threequarters of the population were small cultivators (villeins and cottars) who held their land on such conditions. Regarded from a modern point of view, the lord paid wages for work on his demesne by giving the labourer a smallholding, or, alternatively, the labourer paid his rent by means of labour services on the demesne.

THE DEFINITION OF VILLEINAGE

This was a contract, it might be supposed, which did not involve an unfree status for the villein. Until it was possible to pay wages and rent in money, some such agreement was necessary. But, as a matter of fact, the relation between lord and villein was one in which the latter had no legal right against the former. He was by no means a slave in the sense that he was rightless; his bondage was relative, for as against all the world except his lord he was free. But he could not assert any right against the lord in the king's courts. It does not necessarily follow that he was ill-treated. The force of custom was strong in the Middle Ages, and most lords would probably feel themselves bound by it. But that the opportunity of oppression existed cannot be denied. The attempts of the lawyers to define the tests of villeinage go to show that there were frequent attempts to escape from its grip. It was, indeed, difficult to arrive at an infallible test which would satisfy the courts. An attempt was sometimes made to distinguish between services which were honourable and those which were sordid or servile. If a tenant owed sordid services then he was a villein in status If he had to pay "merchet" on the marriage of his daughter, or "chevage" if he wished to live outside the manor, or was subject to "tallage" at the will of his lord, or could not sell his oxen without his lord's permission, or was liable to serve as "reeve"—then he was a villein. The really decisive tests were whether the tenant was bound to the land, or whether he was unable to plead in the courts against his lord. But these presented difficulties. If a villein escaped and the lord sought a writ (*de nativo habendo*) to recover him, it was obviously unsatisfactory for the court to accept the lord's plea that the villein was bound to the soil as a proof that he was so bound. If a tenant accused his lord of evicting him arbitrarily, the court could hardly accept the plea that he was a villein because the fact of his arbitrary eviction proved it. These difficulties spurred the lawyers to find some objective test of villeinage which would be independent of the particular issue in a specific case. But they never found one.

ECONOMIC CHARACTER OF VILLEINAGE

The real character of villeinage was economic. No legal theory was likely to make the villein's lot quite intolerable so long as his labour was essential for the cultivation of the demesne. When his labour was no longer necessary, there was little interest in the question whether his status was free or unfree. So eventually villeinage disappeared; it broke down when the feudal structure of the State fell into decay. In other words, it gave way before a "money economy." After the middle of the fourteenth century "commutation"—as the conversion of services into money payments was called—became increasingly common. The growth of towns, which had attended the development of trade and industry, had created a new atmosphere inimical to feudal institutions. In some cases the extant records make it possible to trace the process. There is a steady diminution each generation in the number of villein families residing on the manor. Some have withdrawn, and at first, at least, pay "chevage," while others have escaped that charge. Some secure manumission by purchase, some as a condition precedent to being ordained, and some by living a year and a day in a chartered town unclaimed by their lord. With the changes in society villeinage is shed like a worn-out garment. In England the movement was attended with little violence, for the so-called Peasants' Revolt (1381) sprang from many causes, and was not confined to the peasantry. It exhibited, however, the strength of their demand to be free of all restrictive obligations in return for a payment of a rent of fourpence an acre.

THE INFLUENCE OF TOWNS

It has been suggested that the towns did not fit easily into the feudal structure. At first little more than extended villages under the control of a lord, they step by step won separate recognition. The greater towns were on royal demesne and enjoyed many privileges under the terms of their charters. They could elect their own officials, establish their own courts, and supervise their own market. Other towns, held by tenants-in-chief, whether ecclesiastical foundations or secular lords, were also anxious to secure charters. As occasion arose they sued for such privileges, and the lord was often willing to accept a present sum of money and forgo some of his perquisites for the future. Ecclesiastical foundations, however, were chary about making such bargains, because as perpetual corporations they valued a regular income more than the realization of their capital. But as towns grew in wealth they were less susceptible to control. Throughout Western Europe the townsmen were impatient of feudal privilege. At first the merchants and then the craftsmen formed associations of their own to assert their rights. In the Low Countries and Northern Italy they challenged their feudal lords to open battle and in the end overthrew them. But there the full effect of the commercial renaissance of the Middle Ages was felt. In England the towns were less powerful and the central authority came to exercise greater control. So their assertion of their rights was more restrained, though not less effective. The trade which they fostered must have supplied the means of undermining the natural economy on which the feudal structure rested.

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page* 196)

VI

EUROPE

OBVIOUSLY, then, the position in Europe is going to be difficult; and here, again, the conditions of production are very unsatisfactory, especially in Russia, where nearly every one believes that there is "untold wealth of timber." Much the same is believed about Scandinavia. But Norway has for years been "living on her capital," cutting fully 50,000,000 cubic feet more than the annual growth, and Sweden has been over-cutting by 100,000,000. About Russia we have no reliable information whatever, either about her population (probably equal to that of the U.S.A.) or about her consumption of timber; but even before the war she was *importing* timber via the Black Sea, and her consumption was probably 2,000,000,000 cubic feet *above* her annual growth. It is profoundly unlikely that the position is any better now, and almost certainly it is much worse.

ASIA

What is said about Siberia is still more dubious, and—from the standpoint of economic geography—much of it is merely nonsense. There is, of course, a vast area of forest—very nearly all of it Taiga, i.e. coniferous—in Siberia; but the only part that is capable of development at present is that in the Pacific hinterland, and even this is accessible only along the sea and the rivers, and very little is known of its extent or its quality. There are, however, obvious facilities for shipping, e.g. to Australia. In Central Siberia there is probably a large amount of good timber, but it is not marketable at present or likely to be so for years to come. In Western Siberia the actual area of forest is very great, but the conditions of both growth and transport are very bad, and there is probably little *good* timber at all.

The reasons for this are essentially geographical, and are worthy of consideration. The Ob basin was—not *very* long ago—a gulf of the Arctic Ocean, which was gradually filled up with alluvium brought down into it by the "Ob" rivers. After the gulf had been thus filled up, the swampy alluvial land was covered with ice during the great Ice Age; and thus the waterlogged soil was covered with a great sheet of frozen water. The result of all this to-day is that the area is largely a vast expanse of swamp, frozen for nearly half the year. Such land *cannot* produce good timber, not even good spruce. And, whatever is published as propaganda about this area, so far as the quality of the timber is concerned, is unquestionably false.

But this is not all the story. Owing to the great expansion of the area in latitude, spring comes much sooner in the south than in the north, and the rivers are actually in flood in the south while they are still frozen in the north; and the flood water, unable to get under the ice, pours over the banks, and spreads out for miles along both banks, to the great detriment of any forest. Even when the whole river system is free from ice, flood water continues to come down into it, from the Ural and the Altai mountains; and, as the land is almost dead flat—Semipalatinsk, 2,000 miles up the (Irtysh tributary of the) Ob, not being 400 feet above the sea!—the river cannot carry silt far, and so this is deposited in the bed and on the banks, raising both, until even the *bed* of the main stream is *above* the level of the land beyond its banks. This means, of course, that in many places it is impossible to *float* the timber from the forest *up* on to the river; and floating on melted snow is the only cheap way of moving timber. Thus, the quality of the West Siberian timber is bound to be poor, and the only cheap method of transport can seldom be used.

The total result of our survey seems to be that only in Finland, and possibly in the new Baltic States, is the cut of soft timber not greater than the annual growth, i.e. not a suicidal operation; and even in Finland the annual growth in the north is probably *less* than it is at present assumed to be, and the sawmill industry has been growing very rapidly—largely in response to British demands. The total exports of Finland to-day are double those of ten years ago, and about 60 per cent of the total is contributed by timber, and about half as much by paper and pulp, i.e. a forest export of nearly 90 per cent of the total trade. In the Baltic States the felling is very wasteful, and the replanting is quite insufficient, but the lack of capital is minimizing the exploitation of the forests.

AFFORESTATION

This survey of forest distribution is suggestive. It suggests the value of economic geography to a practical business man, the need for reafforestation of old forest areas, and the immense reward to the discoverer of any substitute for wood, e.g. for papermaking, and of any means of using hardwoods for "softwood" purposes. Either of these woods may be associated with some other distinct development, e.g. the use of jungle products for the production of industrial alcohol.

We may comment further on each of these three propositions. Economic geography lays down quite definite rules about the conditions necessary for the growth of good timber and for the cheap transport of any timber. If the conditions in any given area are adverse to quality

or cheap transport, no credit, still less any importance, should be attached to the assertions of politicians or the publications of Government offices to the contrary. They may be dismissed as merely propaganda. On the other hand, reafforestation became an urgent practical problem in many countries, especially Britain, during the war. Apart from the submarine campaign, the importance of food and the bulky character of timber alike minimized the amount of shipping that could be spared for the timber, even though immense quantities of timber were needed in the various theatres of the war. The obvious result was wholesale destruction of our home supplies, followed by a serious scheme of reafforestation—2,000 square miles of poor "unplanted" land to be forested within forty years, with a proper forest service; and this will presently give great encouragement to small holdings by providing work in the forests at a time when little or no agricultural or horticultural work is pressing.

Unfortunately, the cutting of the home supplies was largely entrusted to Canadians, as the most skilful cutters; but, however skilful as cutters, they were in no sense foresters, and their wasteful methods have left us with a very serious problem in many parts of the country that were well-wooded before the war. Things generally would have been much worse than they were, especially in the eastern theatres of the war, if it had not been for India. There has been an admirable forest service in India for fifty years, and the eastern theatres were largely supplied from India, but in normal times 85 per cent of the Indian export consists of teak.

Apart from the direct timber value of forests, especially in temperate climates, there are many other valuable products, especially in tropical climates, e.g. dyes and gums, oils and saps—various kinds of rubber being the most important; and leaf-mould and other "manures" are vital for the successful growth of many crops. Incidentally, too, there is a wide demand for labour—in actual administration, in transport work, and in the industrial conversion of the various raw materials, e.g. for tanning or chairmaking.

TRANSPORT

The bulky nature of most forest products and their relatively low value complicate the transport question; and, obviously, the most favourable conditions are found where heavy snow occurs in countries with great rivers. All such countries must be relatively near the sea, i.e. the source of all rain, or there could not be heavy snow; and this implies conditions favourable also to the growth of forest. It minimizes also the purely climatic value of the forest cover. Conditions, therefore, of growth are best where there should be also the best conditions of transport, and where there is no climatic reason for not felling the timber (cf. page 195). And thus regularity of supply is guaranteed—a vital point, and one which has been a main cause in England of our preference for "foreign" timber. Of course, in England, as in France, a large proportion of our forests has been historically "navy" oak, and this is not very useful. But the great drawback has been the smallness and the irregularity of the consignments reaching the market, contrasted with, for example, those of Weymouth (i.e. "white") pine or even of spruce and Douglas fir in Canada. Indeed, reckless destruction has stripped Canada of white pine almost as completely as goats have stripped large areas of the Mediterranean basin of almost every kind of timber.

FOREST CLEARINGS

Obviously, clearings bring a great deal more variety into forest life, especially in temperate climates. Clearings in tropical forest are generally covered—with inferior growths—in a very short time, and agriculture is done chiefly by women, and largely confined to the raising of such "forest" products as bananas. These grow almost without any care or labour, and certainly demand no steady effort to ensure an abundant supply of food. So-called clearings at the *edge* of the forest need rather more care, and produce such crops as maize and beans. In the temperate forests, especially in the higher latitudes—where, of course, the trees are seldom deciduous, except e.g. for birch and willow—many useful crops can be grown, and the long day compensates for the short season; but life is hard, and the food supply is precarious, sometimes including even "flour" made from bark, e.g. birch bark. The supply of animal food, from both land and water, is much larger and more wholesome than can ever be collected in wet jungle, and hardy grains such as rye, barley, and oats, are very nourishing, and mean a less precarious basis of existence. These crops are, however, like the jungle-edge crops, intended solely for local consumption—by labour occupied in other, especially in true forest, industries, and so they do not enter into commerce at all.

The main exception to this general rule is probably in the case of hardy fibres, i.e. flax and hemp, and hardy roots, e.g. potatoes and turnips, but even these are harvested with some difficulty, especially when there has been a late spring, and only the fibres are likely to enter into commerce. The need for ingenuity and for strenuous labour has helped in developing a very fine type of man in the forester.

PRODUCTION

(*Continued from page* 198)

VI

THE FACTORS OF PRODUCTION

(*continued*)

FROM another point of view, that of society as a whole, all houses can be regarded as capital. If the whole country were being sold as a going concern, their value would have to be taken into account. An evaluation of wealth, from the social as opposed to the individual standpoint, will often produce illuminating results.

Another example, which is frequently used to illustrate this same distinction, is that of the doctor's motor-car. A motor-car, like a house, is normally—if looked at from the point of view of the person who has most to do with it—a consumption good. (Like a house, too, it is an item in the aggregate of social capital.) But if it is used not for pleasure but *directly* in the production of further wealth, it must be regarded as capital. The motor-lorry, or omnibus, as opposed to the private car, is always a production good. The doctor's car is an ambiguous affair which can be included in both categories. When he is visiting his patients it is functioning as a production good; its utilities are being consumed that other exchangeable utilities may come into existence. But when, on Sunday, it takes the doctor and his wife and family into the country, the car has become a consumption good. Other examples of this same truth—that whether or not goods are to be regarded as capital depends, not only upon their past, but also upon their future, history, could be multiplied indefinitely. But it should not be necessary to elaborate the point.

CAPITAL AND INCOME

A distinction closely related to that which we have been considering is that between *capital* and *income*. To appreciate this distinction it is necessary (as also for many other purposes) to regard wealth, not as a *stock* or *fund* of exchangeable things, but as a *flow* of utilities. And it is indeed when wealth is looked at in this way that its true character is best appreciated. The term "wealth" has no significance save in relation to the human mind; if nobody wants a thing it is not exchangeable, and if it is not exchangeable it is not wealth. There is a well-known undergraduate statement of the notions of subjective idealism—

> There was a young man who said: God
> Must think it exceedingly odd
> When he finds that this tree
> Simply ceases to be
> If there's no one about in the Quad.

Whatever the truth about the tree, this does throw light on the character of wealth. If there is "no one about" who wants a thing, it "simply ceases to be"—wealth. In other words, wealth can be regarded as a "flow" or "stream" of utilities given off by exchangeable goods (somewhat, if a fanciful parallel is permissible, as emanations are given off by radium) and impinging finally upon some individual, who destroys or "consumes" them. It is the flow of *immediately* consumable utilities which constitutes income, and capital can be regarded as the main stream of utilities, available either for immediate consumption, or for conversion into utilities that are to be consumable ultimately, but in other forms. This conception of wealth as a flow of utilities enables us to appreciate better how it is that some wealth can be regarded, at one and the same time, as constituting both a production good and a consumption good. That wealth is a stream of utilities impinging upon human needs; there is a point at which it becomes definitely diverted from the main (productive) stream and devotes itself to the satisfaction of a particular (consumer's) need; but the line dividing the two is an arbitrary one, and it may be drawn, now at one point, now at another, according to the particular view of the circumstances which it seems most informative to take.

It follows from this analysis that the distinction between capital and income involves the notion of time. Income, whether individual or social, represents the flow of utilities along a defined channel during a defined period. In the process of consuming these utilities, other utilities will, indirectly, be produced; for example, I stop writing at this point and consume a whisky and soda, in the (very dubious) belief that I shall write rather better afterwards. The destruction or "consumption" of utilities is, in this sense, not final; they flow back to the main stream, and are diverted to other channels to become part of other incomes. Consumption and production react eternally upon one another. Here is the central theme of economics—the perpetual flux of utilities through the processes that make up human activity; the "wheel of wealth," as one distinguished economist called it, which is never arrested, and which we must learn to understand, as best we can, while it continues to revolve.

THE HUMAN ELEMENT IN PRODUCTION

(*a*) FREEDOM OF CONTRACT AS A DETERMINING CONDITION

Man, we have seen, is not a part of wealth as ordinarily we understand the term, for men themselves are not exchangeable goods. In a slave-holding economy the slaves would, of course,

be "wealth" The economic status of the American negroes before the Civil War was precisely equivalent to that of cattle; they were capital goods, bought and sold as such But in America to-day, as in all other civilized communities, every human being possesses, in theory at least, liberty and independence; he enjoys, under the Constitution, the rights and privileges of a free citizen: and, as a free citizen, he may lead, without interference, the sort of life that he wants to lead. Provided—and the proviso is no small one—that his so doing does not interfere with the rights and privileges of other citizens or with their notions of how civilized life should be led.

But with the continual extension of the privileges of citizenship the work of the community has still to be done. The freest of communities must get itself clothed and fed, housed, educated and amused, protected against the wrongdoer within its gates and the enemy without. The work gets done, however, in terms of *contract* –of free bargaining between individuals—not. as in a slave state, or as in the differently constituted societies of the Middle Ages, in terms of a distribution of responsibilities which is essentially non-contractual. There are still traces in our social organism of the principles and practices of the Middle Ages, when status, rather than contract, determined whose job it was to perform particular functions. The king, for example, reigns because he is the eldest son of the late king. Certain members of the Upper House of the Legislature are there legislating for a precisely similar reason. So glaring are the defects of democracy that we can still find good arguments for maintaining these seemingly idiotic methods of apportioning responsibility. In most spheres, however, as far at least as the theory of our society goes, people are free to do what they want to do, provided that they can satisfy such tests of their capacity to do it as law, or custom, or the rigours of competition, may impose. No one is compelled, as in a slave society, to do work of a particular kind, or excluded, as in mediaeval England, from all but a limited range of possibilities. The assumption from which we set out is then that of unrestricted freedom. The labours that the various members of the community perform are performed in each case by the free choice of the individual concerned—as exercised within that framework of social conditions which it is now our concern to study.

(*b*) Work or Starve

The first consideration is a fairly obvious one. Most people work because they have "got" to work—because implicit in this business of being alive is the business of getting a living. "Work or starve" has been for uncounted generations the well-understood condition of human existence. Its claims, moreover, have tended to become, with the progress of the centuries, not less, but more, insistent. For, with every increase in the aggregate of man-created wealth, population (as we shall see) has tended to increase, until the claims of human life upon the exiguous resources of Nature have become such as would constitute an intolerable burden were once the capacity or the will to work to undergo serious diminution. The structure of our complex and opulent society rests uneasily on the fragile assumption that that capacity and that will to work cannot thus deteriorate. But the events of May, 1926, when a "general" strike—that was very far from being "general," and that lasted for little more than a week—gave us a glimpse over the abyss, enabled us to realize, with some distinctness, that the foundations of our glittering and seemingly massive social order are by no means too secure. If ever · · as is conceivable—an industrial populace persuades itself that it can escape from the dilemma of work or starvation, and seeks to substitute for work some more attractive alternative, starvation will surely overtake it.

It is not, however, this consideration, important as it is in itself, that constitutes the mainspring of human effort. Men and women labour, not because the society to which they belong is dependent upon their exertions, but because it is by those same exertions that they themselves, and those dear to them, are supplied with the necessaries of existence. "Each for himself"—though the devil may have gone out of fashion—is still the guiding principle of social conduct. A child, once brought into the world, is maintained by his parents till he is old enough to fend for himself; thenceafter it is, in most cases, assumed without question that that is what he must do. Once he has reached adolescence, his working future becomes the central fact of his existence

BUSINESS MANAGEMENT

(*Continued from page 200*)

VI

THE SCALE OF ENTERPRISE (1)

THREE instalments have been devoted to the consideration of the factors determining the location of an industrial establishment. We now propose to attempt an answer to the question, What determines the most advantageous size of a new business? It is evident that before anyone embarks upon a new enterprise he should have decided not only the place in which he intends to conduct his business, but also the scale of operations.

There is, undoubtedly, at the present time a danger of exaggerating the importance of size. In the minds of many people bigness and efficiency are almost interchangeable terms. It is believed that an efficient business is necessarily large, and that a large scale business is necessarily efficient. It is worth while asking whether a business is large because it is successful or, alternatively, whether it is successful because it is large. To say that bigness is the result or the manifestation of success is not the same thing as to say that it is a condition of success. Most of the important industries of this country are fairly old and the large individual businesses which have survived and grown started on a much smaller scale. The latter owe their success to the qualities displayed by their owners, and it is appropriate to begin by emphasizing the importance of industrial leadership of the right quality. We may, therefore, introduce the discussion by giving the history of two firms which have enjoyed sufficient success to justify this reference to their experience, but have developed along entirely different lines.

FIRST EXAMPLE

About fifty years ago two engineers started business as partners, and to this day the firm which followed the partnership retains its private character. The partners started on a small scale, and at first they accepted a great variety of orders such as are usually placed with general engineers. As time went on they found that they were more successful in some classes of products than in others, and they concentrated their attention upon the former. The tendency towards specialization gradually became more marked; one line after another was abandoned until at the present time the firm concentrates practically all its attention upon one type of machine. The first establishment was situated in the heart of a large industrial city and was thereby able to utilize all the facilities which such a city provides: in particular, when the day of electricity arrived it obtained power from outside. In spite of the tendency to specialize upon a narrowing range of products it became necessary to enlarge the plant. But it was hemmed in by houses and factories, so that it could only be extended with considerable difficulty and at great expense.

At one time the firm made a number of accessories in its own establishment but, partly on account of the pressure of space and the need for extending the manufacturing plant, one after another of such accessories was purchased from other engineering firms in the district. The movement towards specialization and standardization was accompanied by growing dependence upon outside agencies even for products which were subsidiary to the main product of the establishment. In spite of this movement the establishment grew until it reached the limit of expansion, and it became necessary for the firm to divide the product into two main parts and to erect, on the outskirts of the city, an entirely new establishment in which one of those parts was made.

While specializing upon one class of machinery the firm made a close study of the industry in which such machinery was employed, and its success has been due largely to knowledge of that industry and its requirements. Specialization in manufacture has been accompanied by the development of a peculiar and highly efficient form of sales organization. A close study of the market has enabled it to become not merely a highly efficient manufacturing firm but also a competent adviser, in matters of policy, of the manufacturing industry which it serves. The firm may be regarded as illustrating a type of leadership for which this country became deservedly famous towards the end of the nineteenth century and in the early days of the present century.

SECOND EXAMPLE

The second example which may be submitted is that of a firm which has developed along entirely different lines. About sixty years ago a small shopkeeper started to make one of the products which he sold in his own shop. He naturally commenced operations upon a very small scale, but by concentrating attention upon quality he was able to extend the market for this product and to give up his shop. As his sales further increased he was forced to extend his plant, and to do so by adding one wing after another. He further extended his business by manufacturing allied products, which found a sale upon the same market. The extension of the establishment to meet the needs of a growing market meant that as a manufacturing plant it was never so well designed as it might have been, but in spite of this difficulty the manufacturer's business advanced by leaps and bounds. It was evident that

the owner possessed qualities of a very unusual kind which enabled him to adapt himself to changing requirements and both to overcome the disadvantages following upon the rapid extension of plant without the opportunity of planning out the whole, and to increase the number of products which he supplied.

In due course the one-man business became a family concern, though it remained under the control of the presiding genius. There arrived a time when the method of extending the old plant could no longer be pursued and it became necessary to build an entirely new establishment of a different order. Whereas the former was in town, the latter was erected on the outskirts. It was designed in such a way as to reduce manufacturing costs to a minimum and to allow room for development on economical lines. A further increase was made in the number of products supplied by the firm, while the establishment was made as self-contained as possible. It included a power plant and a large engineering establishment in which not only were machines repaired, but new special machines required in the manufacturing sections were designed and built. As the methods of production became more and more mechanized the importance of the engineering workshop steadily increased. Many other accessories were made on the spot, while the establishment contained a block of buildings devoted to welfare work, as well as a fire brigade. The raw materials were imported from abroad and an appreciable proportion of the final products was exported to other countries. Consequently a large purchasing and selling organization was developed and a large outside staff maintained.

THE CREATIVE IMPULSE

It will be noted that whereas in the first case the tendency was to discard all forms of expenditure which will later be called "overheads," in the second the tendency was to become more and more self-contained, and to increase thereby the overhead charges which the production departments had to maintain. In the first case the tendency was to simplify the costing problem, in the other to make it more and more complex and to render necessary the maintenance of a large costing department. In the first the tendency was towards simplicity and standardization, in the second it was towards complexity and multiplication of functions.

The second firm is now under the control of the second generation. The establishment is so well organized that the problem of the directors is largely administrative in character. But the head of the firm is essentially a creator. The normal extensions of business resulting from technical and administrative efficiency do not fully satisfy his creative impulse. He has found outlets for his initiative and energy by purchasing other businesses, not only in this country but also in other countries. To all appearance these remain independent, while their products compete with those of the parent firm. There were no obvious advantages to be secured by this policy of extension, which seemed to be but the expression of the personality of the supreme head. It is, indeed, possible that such extensions may, in the long run, prove to be an embarrassment rather than an advantage to the parent firm, but they do mean, for the present, that the subsidiary firms represent fields within which the leader may show the same qualities of constructive organization as have already been shown in the central establishment. And the industry happens to be one in which natural conditions play a far less important part than the human qualities of initiative and organization. In this case, at any rate, it may be said that bigness is not a condition of success, but rather the result of leadership of a high quality.

It is, therefore, appropriate that in any discussion of the desirable scale of enterprise the first place should be given to the influence of personality upon the success of any individual business. But, as has already been stated in an earlier instalment, the successful business man is not one who ignores the natural conditions which ultimately govern the place in which a business can be most successfully carried on, nor, it may now be added, is he one who ignores the factors which determine the most economical scale of enterprise. These are obviously closely studied, and it is by giving due weight to all the factors in operation that success is achieved.

FINDING CAPITAL

(*Continued from page 202*)

VI

PARTICULARS OF THE PRIVATE LIMITED COMPANY

CAPITAL OF THE COMPANY

We now consider the price that we shall have to pay for this capital, or, in other words, the terms we shall offer so as to attract the capital of our friends to the company. As regards the form of our offer, we have at our disposal a number of alternatives. It is one of the advantages of a limited liability company that the capital is divided into various classes of shares, varying among themselves according to the risk which their holders take in the business. Broadly speaking, preference shares are entitled to a fixed dividend each year, while the ordinary shares receive the balance, if any, of the divisible profits, while, in the event of the winding up of the company, the holders of the preference shares have a lien on the assets prior to that of the holders of the ordinary shares. The rate of dividend on the preference shares may be cumulative, that is, if sufficient profit is not earned in any year to cover the full preference dividend, the deficit may be carried forward to the next or succeeding years. The preference shares, besides being cumulative, may also participate, usually up to a fixed limit, in the profits after the ordinary shares have received an agreed dividend. Thus, we may have 7 per cent preference shares, participating in profits *pro rata* with the ordinary shares up to 10 per cent, when the ordinary shares have received 7 per cent. There are a number of other forms—preferred ordinary shares, founders' shares, and so on—but they are merely variations of the classification which we have described.

In determining the form of our offer, there are three main considerations. First and foremost, the profit-earning capacity of the business and its prospects; secondly, the continuity or otherwise of the management; and, thirdly, the fact that, owing to the restriction of the right of transfer of shares in a private company, an investment in such a company is not easily realizable.

The chief consideration is, of course, the profit-earning capacity of the business. We are not only selling to the limited company so much land, buildings, plant, machinery, stock, and so on; we are transferring to it a going concern which we have created in the past, which has had a success reflected in the profits earned, and which is capable of development and expansion. We have a solid basis at our hand for the calculation of its value in the profit and loss accounts, and we shall ask our auditor, or, if there has been no auditor, a reputable firm of accountants, to prepare for us a certificate of profits. The auditor will take the profit and loss accounts for a period of several years, usually five, or, if the business has not been in existence for five years, since the date of its commencement, and he will recast them so that he may obtain an average of such profits as the company on the same basis may expect to earn. The usual adjustments necessary in recasting the accounts are as follows—

Items To Be Added To Profits

1. Partner's salaries, interest on partner's capital, and income tax. Interest on borrowed money, including loans, bank overdraft, etc.
2. Any exceptional losses, e.g. damages for breach of contract, loss through burglary not covered by insurance, etc.
3. Capital losses.
4. Any capital expenditure charged to revenue, e.g. cost of plant, machinery, furniture, etc., charged against profits in any year.
5. Any excessive reserves, e.g. for bad debts.

Items To Be Deducted From Profits

1. Exceptional profits, e.g. on some contract, not in the usual way of business, unlikely to recur.
2. Capital profits on the sale of fixed assets, etc.
3. Income from assets which, under our scheme, are not to be taken over by the company.

In a word, we leave out of account profits, losses, and expenses that will not recur when the business is taken over by a limited company.

The auditor will then give a certificate showing the average annual profit, and indicating the basis on which it is calculated.

If it had been our purpose to sell the business to the company for cash, or partly for cash, and retire from the management, we should reckon the goodwill of the business at so many years' purchase of the average profits as above, according to the circumstances of the case and the nature of the business. The number of years' purchase would depend on a variety of considerations. A purchaser will weigh carefully such factors as the influence of the personality, now to be withdrawn, of the founders of the business, the length of time the business has been established, the extent to which it has acquired a monopoly or quasi-monopoly of custom—in other words, the nature of its connection—its locality, the number and relative amount of transactions in a year, the extent to which it may be affected by legislation. As, however, in the case under review we merely contemplate finding additional capital for expansion, the amount of the average profits is important, not so much from the point of view of giving us the

basis for the valuation of the goodwill as indicating the price we shall have to pay for the new capital.

The importance of continuity of management is self-evident. Unless in the case of outright purchase, the men who have built up the business will at least assist in the management of the company.

The third consideration to be borne in mind in formulating our offer is the relative disadvantage of an investment in a private company from the point of view of realizability. Owing to the limitations of the right of transfer of shares in a private company, these shares have certain definite drawbacks. If a shareholder wishes to dispose of them, he is faced with the difficulty, first, of finding a purchaser congenial to the company, and, secondly, of fixing the price of the shares. As there is no free market in them, it is usually left to the auditor to determine a price, but it is a question if this price can be obtained. Banks and kindred institutions, therefore, will not accept as security shares in private companies. It is of the essence of a security that it should be easily realizable in case of need, and an investor likes to feel that he can, if the necessity arises, deposit his shares with his bank as collateral.

If our profits have been rising, and the average is large enough to give ourselves a good return and, at the same time, cover a fair dividend on the fresh capital, we may think it sufficient to offer our friends preference shares carrying a substantial fixed dividend, say, of 7 per cent. But this is not enough. Our friends, for the reasons we have outlined, require more than a fair return on their money; they want to participate in the profits. The man who is content to-day with a fraction under 5 per cent on Government Bonds will not look at 7 per cent or 8 per cent or even 10 per cent in a private company. His capital is being locked up for an indefinite period, and—well! he feels he should come in like the sleeping partner in a firm.

We decide, therefore, to offer our friends preference shares and a proportion of the ordinary shares. At this point it may occur to us that, as our friends will receive preference shares carrying a fixed dividend for the capital they subscribe, there is no reason why we should not receive preference shares up to the value of the assets which we are transferring. This would put the capital which we bring to the company on an equal footing as regards a fixed return with the capital which our friends subscribe. Let us, therefore, agree that the capital of the company shall be divided into preference shares, a proportion of which will be issued as fully paid to ourselves as vendors and the balance for cash to our friends, and into ordinary shares, to be divided in agreed proportion.

There is no necessity for ordinary shares to be of a considerable denomination. Ordinary shares receive the whole of the divisible profits after prior charges, including the preference dividends, are paid. It does not matter whether they are of a nominal value of 1s. each or £5 each. In the United States, indeed, the theory is carried to its logical conclusion by the many companies who issue their ordinary shares as having no par value. This is not permitted under our Companies Acts, but in these days of high stamp duties, it is often advisable, especially in a case such as we are considering, to make the nominal value of the ordinary shares low. The proportion in which the ordinary shares will be divided must be arrived at in a balance of considerations. Although in form we are selling our business to a limited company, in fact we are inviting our friends to join us in the development of a good business. It is our initiative and personality that have established the business, and it is mainly on our initiative and personality that the continued progress of the business depends. We are merely changing our designation from partners of a firm to directors of a company. We feel, therefore, that, while our friends should certainly receive a fair reward, the bulk of the ordinary shares ought to come to us. This may be very true, but our friends look at the matter differently. We have drawn attention to some of the disadvantages of an investment in a private company, and we have not exhausted the list. Our friends must be given a solid inducement in the way of ordinary shares before they will join us.

The circumstances of every case differ, but, for the sake of example, we might find a compromise on the following lines: Our business is a wholesale one, and we are transferring net assets valued at £6,000. Profits for the past five years have been rising steadily and show an average of £1,500 per annum. We require an additional £8,000 or so for expansion.

The capital of the company will be £15,000, divided into 14,000 7½ per cent cumulative preference shares of £1 each and 20,000 ordinary shares of 1s. each.

	£
14,000 7½ per cent preference shares of £1 each	14,000
Of which 6,000 will be issued to the vendors fully paid	6,000
Leaving a balance of 8,000 for subscription .	£8,000
20,000 ordinary shares of 1s each . .	1,000
Of which 12,000 will be issued to the vendors fully paid	600
Leaving a balance of 8,000 for subscription .	£400

In this way our friends will subscribe for an equal number of preference and of ordinary shares, and they will receive two-fifths of the divisible profits after the preference dividends are paid. On the other hand, we receive preference shares to the value of the assets which we are handing over to the company, and we shall have the remaining three-fifths of the profits.

MARKETING

(*Continued from page 204*)

VI

THE DETERMINATION OF PRICES

In the organization of markets the daily determination of prices is important; this is a service of very substantial public value. Further, consumers and producers are guided largely in their future action by the publication of market quotations, and operators engaged in the market must have a foundation on which to estimate probable demand and supply. To minister to such needs an elaborate system of reporting on crops has gradually been built up. Reporting agencies collect information regarding the condition of growing crops; very often they give forecasts months before harvest of the possible yield and probable future supplies. In commodities of world significance, like wheat or cotton, markets plainly require all the facts regarding world production. This information includes reference to the supply forthcoming from the previous crop, the acreage and condition of growing crops, and such raw and finished products as may be in store or in transit. The returns also refer to present and prospective demand so far as these can be ascertained.

GOVERNMENTS AND PRIVATE AGENCIES

The agencies for the supply of this information vary, but there are two broad classes. The first is composed of Government departments, which for this purpose have now machinery in most countries of the world; the second are the non-official agencies, which are either maintained directly by market organizations for their own use, or are independent concerns, placing the fruits of their investigation at the disposal of all prepared to buy. Generally speaking, the reports on crops which are supplied by Government departments do not rest on actual inspection from farm to farm even where they include material affecting acreages and yields. The usual method is to unite a considerable number of estimates, or what may be merely personal judgments, and afterwards to average the conditions which are described. The more timely these reports the greater their value. The ordinary exhaustive census is costly, involves time, and its results, when available, are no longer of service in the market conditions which are now under discussion. For that reason markets must rely on crop reports collected in the manner described, and experience proves that they are broadly reliable and accurate, profiting always by the check which is provided periodically in the formal census returns

THE AMERICAN SYSTEM

Taking particular countries, the United States Department of Agriculture began in 1863 to collect agricultural statistics for general information and for reports. The system adopted is of special interest chiefly because Government agencies in other important agricultural countries have proceeded on somewhat similar lines. The foundation is obtained in the work of the bureau dealing with statistics and crop estimates in the Department of Agriculture. Every five years a census is taken by the United States Census Office, which covers acreage, total amounts of crops grown, numbers of live stock, and other details, all being ascertained by actual census count, the figures adopted referring to the previous year, and every farm in the whole country being visited on these occasions. In the succeeding five years the bureau employs these statistics as the basis on which they estimate changes in acreage and in numbers of live stock. In important crops the three main lines of inquiry are the area sown, an estimate which is made immediately after seed time; the condition of the crop, made monthly during the growing period; and the yield per acre, made at harvest time. Taking the estimated yield per acre and the estimated acreage together, a fair measure of total production is obtained. In reporting the acreage of a crop the agents of the bureau simply take the acreage of the preceding year, and then estimate the percentage increase or decrease. In this case the usual method is to adopt 100, called a "normal," as the base; by that word is meant "normal growth and vitality giving promise of a full crop being represented by 100." In fuller explanation of this term, it means such normal full crop as the farmer expects with his usual mode of farming, with normal weather conditions and without unusual loss from disease or other cause; in this way it is more than an average yield but less than the maximum possible yield. District variations, in keeping with the degree of fertility and the perfection of agricultural science, are characteristic of such reports.

DETAILED INVESTIGATION

Most of the authorities on marketing point to four classes of reports which apply to each crop: (1) from special travelling agents in the direct full-time employment of the bureau, each of whom in America is responsible for from one to four States; (2) from State agents, one in each State, usually a part-time official reporting for a State as a whole and maintaining a body of voluntary correspondents for the collection of information; (3) from township correspondents who voluntarily

answer questions regarding crops on printed schedules sent to them each month by the bureau; (4) county correspondents, who, like the township correspondents, are voluntary reporters but whose reports cover entire counties. To obtain a fair figure for a complete State a weighted average of these reports is worked out; in the case of each crop the weight is proportioned to the acreage planted. All four classes of reports are transmitted direct for purposes of summary to Washington, and the final report is published in the *Monthly Crop Reporter*. Other crops, wheat, maize, cotton, and oats, are known as speculative; for them the markets are highly organized. It is, therefore, necessary to take elaborate precautions in the preparation and publication of these reports to ensure that no person obtains unfair advantage from the possession of early information of the result. But, without going to very great expense, it is impossible to estimate the annual production of every product grown. The bureaux, therefore, confine themselves broadly to the most important crops, covering, however, the larger part of the acreage and of the total value of all crops. In America, and in most other countries, regular statements are also presented on some of the minor crops, generally regarding their condition of growth and percentage of full crop.

CANADIAN CROP REPORTING

The Canadian Government in 1908 undertook the issue of crop reports applying to Canada as a whole, but for some years prior to that special estimates of crop conditions and yields had been available. The Canadian authorities made an adaptation of the American method. It was in substance a numerical percentage above or below standard conditions, the latter being represented as 100. In this connection standard condition denoted a full crop of good quality. In England and Wales the Ministry of Agriculture and Fisheries, and in Scotland the Scottish Board of Agriculture and Fisheries, employs a staff of crop reporters. Information is collected from all parts of the country and published in complete form in the autumn of each year; but much statistical matter regarding the yield of agricultural land and the position of British live stock is now available in official papers presented to Parliament and used to an increasing extent in the agricultural community. Trade newspapers play perhaps the largest part in supplying information among the agencies which are not connected with Governments. For this purpose they rely on the methods adopted in the ordinary collection of news, having innumerable correspondents in all the agricultural districts; in the more reliable trade journals the statistical and other methods which are employed are similar to those adopted by Government departments in countries where official statistics are available. To these channels of information may be added the very large number of private reports, in most classes of products, provided by individuals and firms, and the exchanges themselves incur considerable expenditure in compiling statistics and publishing information, chiefly, in this case, for the use of their members.

INTERNATIONAL STATISTICS

In order to develop statistics regarding crops and crop development on the basis of world area, the International Institute of Agriculture has been established at Rome. A bureau dealing with agricultural statistics is one of its leading departments, the collection of data applying to practically the whole world. The information which is thus collected is supplied to the considerable number of countries which are parties to the scheme; as in individual cases, the details refer to acreages, the condition of crops, the total production, and other important elements, and they are usually obtained from the sources in each country which are most readily accessible. This Institute has already rendered valuable service to the grain trade in particular by preventing exaggerated statements regarding crop damage. In the intricacies of marketing such statements are often circulated by interested individuals or firms for undesirable ends. In assembling information much difficulty attends the maintenance of secrecy; the important point lies in securing secrecy until data are available simultaneously for all the parties who desire to use them. The school of opinion which suggests that it might be better to dispense with reports altogether has no strong following; the better course is to attempt such constructive reform of the system as will make the reports thoroughly efficient and reliable. Price quotations fulfil several functions, of which the chief are the supply of simple information of market values, a basis for fixing prices in contracts "settling price," and an indication to retailers or collecting agents of the price at which they may sell or purchase.

VALUE AND DISTRIBUTION

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38. PRICE-FIXING by organizations of producers is another development that has enormously increased in importance in recent years. There are very few articles purchasable in the shops, under what we think of as "competitive" conditions, into which some element of control by one or more price-fixing associations does not enter. This "control" may take many forms. It may range from the organization of production under "monopoly" conditions, such as in effect determines the price at which are sold tobacco, soap, and sewing-cotton, to loose agreements, unenforceable at law, but strictly observed in practice, as to the prices of all sorts of commodities. So effectively is the fact of monopoly, or partial monopoly, masked by a spurious effect of competition, that in many cases goods, the production of which is controlled by a single concern, advertise against one another in the public press. The illusion of competition is there; the consumer finds solace in it; but often there is much unreality behind it.

OBSTACLES TO FREE COMPETITION IN THE INTERNATIONAL SPHERE

39. Finally, it is perhaps worth noticing at this stage how considerable an interference there is with competitive price-determination by barriers to the free interplay of self-interest as between the nationals of different states. In the summer of 1927 an Economic Conference, convened by the League of Nations, and attended by representatives of all important states, was held at Geneva. That Conference was very largely concerned with two topics. One was the possibility of extending to the international sphere the regulation, by agreement, of certain aspects of economic activity; the length of the working day, for example, or the allocation of world-markets in respect of particular commodities. The other was the extent to which the production of wealth, looked at from the point of view of the civilized world as a whole, is interfered with by artificial barriers to freedom of exchange—barriers set up, whether mistakenly or otherwise, by the deliberate action of nation-states. Examples of such barriers may be found among our own legislative enactments. Certain goods—dyestuffs, for example, and a large variety of manufactured chemicals—may not be imported into this country at all; the foreign "producer" is not permitted to compete. This is the effect of our Safeguarding of Industries Act. Certain other goods are subject to special taxes on importation—they can only compete, therefore, on unequal terms. Such are, for example, foreign-made motor-cars and artificial silk. Again, under the Cinematograph Films Act, which became law in 1927, a certain proportion of the films which the British public "consumes" must be films of a particular kind—an enactment which is bound to have definite reactions upon a wide range of economic relationships. And if the home consumer is interfered with in these and other ways by the enactments of his own legislature, the British producer is far more hampered by those of foreign states. The theory that he is "competing" in overseas markets with producers in other parts of the world is subject to very extensive qualifications if all the relevant facts are taken into account.

40. When all is said and done, however, there remains, beneath layer upon layer of complications—of which, if its true character is to be understood, the economic complex must be stripped—the fact of competition in terms of individual self-interest. We are brought back again to the notion of *value*, and of *price* as the indicator of value, in communities having a monetary economy. How are prices determined? By the interplay of innumerable forces, which are debarred, in the various ways we have been considering, and in many others, from operating freely, and which yet operate sufficiently freely to render the great forces of combination and of state interference of no more than secondary importance. We shall, then, discuss price-determination and its bearing upon distribution in terms of the "principle" of free competition, and shall only introduce assumptions incompatible with the assumption of that principle as occasion may arise. It is in this way, perhaps, that we can best represent intelligibly the strength and direction of economic forces.

THE APPROACH TO A THEORY OF VALUE; MARKETS, SUPPLY AND DEMAND

41. The upshot of the world's economic activities, considered as a whole, is, as we have seen, that the products of different communities and climates are exchanged one against another, to the advantage of them all. The individual members of each of these communities are severally involved in this gigantic web of exchange-transactions. The mechanic, whose sole contribution to the production of what the world requires is the performance of one out of a hundred processes that go to the making of a pair of shoes, is enabled, through the operations of the exchange-complex, to command a range of commodities world-wide in their origin. He is a consumer, not only of the product of his own labour, but of that of uncounted millions of his fellow-men. We can visualize him indeed, as

putting forth, day by day, the specialized exertions of which he is capable, in return for an infinitesimal fraction of the product of the similarly specialized exertions of workers all over the world. Most of these, no doubt, will be members of his own community—there are practical, as well as patriotic reasons, for supporting one's home industries--but it is not fantastic to suggest that every time he operates his machine he is helping to create employment, not only for his fellow-citizens, but for workers of every colour and every creed from China to Peru.

42. Now, clearly, this complex of economic activity could not be carried on in terms of barter or of "direct" exchange. Its existence implies an exchange mechanism adequate to its subtilty, its complexity, its world-wide ramification. That exchange mechanism is represented by money and the elaborate structure of credit instruments which the development of a monetary economy has called into being. We shall not arrest our argument here to say much about money. Sufficient for our immediate purposes to explain what we mean by it. Money is a conventional good—a something concrete, portable, durable, and susceptible of division into convenient fractions, which, by law or custom, every member of a community will accept in return for whatever he wishes to exchange or "sell," on the understanding that he in his turn can "buy" with it whatever he may require. Moreover, it not only enables these exchange transactions to take place; it measures automatically the value or "price" that is set upon every commodity exchanged. The greengrocer, for example, sells a shillingsworth of potatoes. With that shilling he may buy a book, or a seat at the cinema, or a packet of cigarettes. The shilling facilitates all these familiar operations; it also serves to indicate that all these things, in the eyes of the community, are "worth" about the same. The shilling, in fact, is here performing the two functions commonly assigned to all money —it is serving (*a*) as a measure of value, and (*b*) as a medium of exchange.

43. We want, now, to make a first approach to the question: *Why* is this conventional measure of a shilling equated, at one and the same time, with so many potatoes, so many cigarettes, such and such a book, or (what comes to the same thing) why do these commodities, at one and the same time, equate themselves thus one with another? How is their value or price (which is their value in terms of money) determined? We can best begin by considering the exchange transaction itself and working backwards. To this end, then, we must introduce, at this stage, the notion of a *market*.

THE NOTION OF A MARKET

44. By a *market* the economist understands, not so much a particular locality—though frequently those physical entities known commonly as markets furnish an appropriate setting—as a particular *set of circumstances*. Wherever you get a framework of circumstances within which all those seeking to sell, and all those seeking to buy, a particular commodity or group of commodities are in contact with, and in competition with, one another, there you have a market. Examples will make the term clearer. The most obvious examples of markets, organized as such, are such "sets of circumstances" as obtain, say, on the Cotton Exchange at Liverpool, or on any similar produce exchange. Here you have some hundreds or thousands of persons, specially equipped with professional knowledge and with facilities that enable them to keep that knowledge up to date, engaged hour by hour in bargaining directly with one another. At a time when business is brisk, the conditions under which any specified commodity—cotton, let us say—changes hands are continually altering. Every new minute—every few seconds even—some new fact will come to light—some fact which, in the eyes of both buyers and sellers, affects the "ratio of exchange" as between the cotton which is being sold and the money which is being paid for it. Thus, the operations of New Orleans and of other American cotton centres are telegraphed to Liverpool and are recorded conspicuously in the Exchange itself, and every movement of American prices will affect the value that buyers and sellers of American cotton put upon it. Again, the transactions taking place in the Exchange itself, conspicuously recorded, will exert a continuous influence. As soon as it is known that a particular class of "futures" is being sold at, say, 9·50d. per lb., X, who is about to offer Y 9·52d., will reconsider his decision, and will offer, say, 9·48d., while Y, who was about to ask 9·54d., will promptly express a willingness to take 9·52d. (Cotton, it should be explained, is sold day in and day out in enormous quantities by dealers who never see it. It is standardized and elaborately graded, each grade being bought and sold by the pound at prices adjusted to two decimals of a penny. What is dealt in, moreover, is not only cotton in existence at the time of the transaction—"spot" cotton—but the cotton that will be coming forward, month by month, for the following twelve months. A continual competitive readjustment of prices over the whole range of grades and dates goes forward on the Exchange.)

CURRENCY AND BANKING

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VI

FORMS OF MONEY

(*continued*)

WE have seen that the effect of a charge being levied to cover the cost of minting coins is to create a difference between the number of coins actually minted out of a given weight of metal and the number actually received by the person who takes the metal to the Mint for conversion into coin. It is just as if a housewife took all the ingredients of a cake to a baker and paid him for his services by allowing him to keep so many slices of the cake. Under the existing Mint Laws in this country, 934 sovereigns and one half sovereign must be coined out of every twenty troy pounds weight of standard gold. Suppose now that the State charged £34 10s. for minting such a weight of gold, anyone who took gold to be minted would only receive £900 in gold sovereigns in exchange for twenty troy pounds of standard gold. Under these conditions it would not be worth while for anyone to take gold to the Mint for this purpose so long as the market price of standard gold exceeded £900 per twenty pounds troy. In other words, for every standard ounce of gold taken to the Mint 3·75 sovereigns would be received and 3·894 would be made. And, since a standard ounce of gold, as already indicated, is 11/12 fine, the market price of gold metal would have to be not more than 81/10 per fine ounce, if gold was to be forthcoming at the Mint.

Suppose now that the market price of gold metal was below 81/10 per fine ounce, there would be a definite inducement to take gold to be coined. Under that condition the value of the coin would be greater than the value of the metal contained in the coin by fully the amount of the seignorage. But the demand for gold for minting purposes would increase, and the market price of gold metal would rise until equilibrium was reached in relation to the Mint price of gold. On the other hand, if the market value of gold exceeded the value of gold as coin, gold coins would be melted down or exported. Such a position would occur if the market price exceeded 84/11½ per fine ounce which, as shown earlier, corresponded to 77/10½ per standard ounce, and which also represented the number of gold coins actually made out of an ounce of metal. But in this case, the melting down of existing coins would tend to lower the market price of gold until further meltings were unprofitable. In short, under the conditions given, the value of the sovereign as money would never fall outside the limits of its metallic value on the one hand, and, on the other, the value of its metallic contents plus the charge made by the State for minting. To sum up, if the market price of gold was below 81/10 per fine ounce, gold would be taken to be minted; if the market price was above 84/11½ per fine ounce, gold coins would be melted down. And the market price might fluctuate within those limits without occasioning any definite movements as regards the circulation of gold sovereigns.

EFFECT OF A SEIGNORAGE

The foregoing analysis is largely of academic interest in so far as the State bears the entire cost of minting gold coins. But it serves to bring out an important point in relation to the silver and copper token coinage. The effect of a seignorage or brassage is to raise the value of the coin above the value of its metallic contents by the amount of the brassage or seignorage. On the assumptions of the first paragraph, the sovereign would be worth $\frac{934{\cdot}5}{900}$ or $\frac{1869}{1800}$ of the gold metal which it contained. And the value of the coin is raised above the value of its metallic contents by the effect of the seignorage or brassage in limiting the supply of sovereigns.

BIMETALLISM

For several centuries there was a free coinage of both gold and silver, and the relative monetary values of the two metals were fixed by decree. That represented the double or bimetallic standard. But there was always the difficulty that the legal ratio of the values of the two metals might not coincide with the ratio of their commercial or market values. And whenever there was any appreciable disparity between the legal and the market ratios of the two metals one of the metals would be overvalued as money when compared with its value as metal, while the other would be undervalued as money. Under these circumstances the metal which was undervalued as money would tend to pass out of circulation; the good pieces would be melted down into bullion, and no supplies of that metal would be forthcoming to the Mint for coinage. On the other hand, the circulation would tend to become more and more dependent upon supplies of the other metal which was overvalued as money. It was, therefore, quite possible for the nature of the actual circulation to change as a result of changes in the relative values of the two metals. If, at one time, the legal ratio overvalued gold, silver would pass out of circulation; if, at another time, the legal ratio overvalued silver, gold would pass out of circulation, and be replaced by silver. Here, then, is another example of Gresham's Law that "bad money drives out good money." In

this case the "bad money" is the monetary metal whose value is falling, because under a bimetallic system, if there is no alteration in the legal ratio of the two metals, that metal whose value is falling will tend to be overvalued as money, i.e. it will be worth more as money than as metal; and the other undervalued metal will tend to be driven out of circulation.

The practical difficulties occasioned by bimetallism are of historical interest and need not be elaborated further. In this country, as elsewhere, these difficulties had been experienced for centuries. They were particularly acute in the seventeenth and eighteenth centuries Gold was overvalued as money and the silver currency diminished in quantity and also in quality through clipping The actual circulation was largely made up of golden guineas and defective silver coins, and in 1774 it was enacted that for sums greater than £25 silver would only be legal tender if calculated by weight at the rate of 5/2 per ounce. An important change, however, occurred during the last decade of the eighteenth century. Silver began to be offered at the Mint and there was a danger of gold being largely withdrawn from circulation and replaced by the inferior metal. The reason was that silver had fallen greatly in value and whereas, during the 'seventies one ounce of gold had been worth 14·64 ounces of silver, in the 'nineties it was worth more than 15·2 ounces, which was the legal ratio. In other words, as a result of this change in the market values of the two metals, gold was worth more as metal than as coin, and, therefore, the gold circulation was in danger of being melted down.

SILVER COINAGE

In 1798 it was decided to suspend the free coinage of silver, and the former condition has never in fact been restored. The practice which obtains is that the Mint will sell silver coins if these are required for purposes of small change, and will sell them at the rate of 20 shillings to the pound sterling. The supply is limited to the needs of business; it is not dependent upon the value of silver as metal; and this strict limitation of supply enables the token silver coins to pass from hand to hand at a valuation which is considerably higher than their metallic values. The same principle obtains with regard to copper coins. These token coins are only legal tender up to limited amounts; but that is not the point of first importance. There is a demand for token currency to meet ordinary commercial requirements in the way of small change. Provided the supply of these token coins is limited, their values will be maintained at fixed ratios to the pound. Suppose, for example, that silver token coins were issued in excess of commercial requirements. If the Mint did not "take back" the redundant supply nothing could prevent the values of these coins from falling below their nominal values.

GOLD STANDARD

The single Gold Standard is said to have existed in this country since 1816. Under this arrangement there was a free coinage of gold only, and the sovereign replaced the guinea as the standard coin of the realm. The position, therefore, was that the price of an ounce of standard gold was fixed at 77/10½, and with free mintage the market price of gold bullion could never deviate materially from the Mint price. If the market price exceeded 84/11½ per fine ounce gold coins would be worth melting down; if the price was below 84/11½ it would be worth while to have gold bullion minted. The essence of the Gold Standard, indeed, may be said to consist in the fixing of the price of gold. It makes no real difference whether we say that the gold sovereign of 113 grains of pure gold constitutes the standard of value and unit of account, or that one ounce of standard gold serves the same purpose. The one is merely a fixed division of the other. What happens is that the price of one commodity is fixed, that commodity being a given weight of gold.

In 1816 also it was decided that in respect of the silver coinage 66 shillings should be coined out of one troy pound of standard silver, and the supply of silver coins as already indicated was limited to the requirements of trade. For more than a century this meant that the nominal value of a shilling was greater than its metallic value. In the last decade of the nineteenth century the average price of silver was 34d. per ounce; in 1915 it fell to about 24d., but thereafter rose rapidly and reached 88d. in January, 1920. So long as the price remained below 66d. per ounce, the Mint, in manufacturing silver coins, could meet the requirements of trade and profit by it. But with this rise in the price of silver the metal in silver coins was worth more than the nominal values of the coins, and a definite inducement would have existed to melt down silver currency. Consequently, a Bill was hurriedly passed through Parliament authorizing the reduction of the standard of fineness of silver coins to one-half; i.e. one half of the weight of the new coins was to be alloy. The new coins issued under this regulation were notoriously inferior to the old coins and soon acquired a dirty yellow appearance. Though the Act has not been repealed, the defects are now less apparent through the adoption of new minting methods and the survival of large amounts of pre-1920 mintage. The problem itself quickly disappeared. The average price of silver in 1920 was under 62d. per ounce; in 1921 it was 36⅞d., and it has since fallen further.

INTERNATIONAL TRADE

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VI

THE FISCAL PROBLEM

TRADE represents the exchange of goods and services against other goods and services, and the course of economic development is in the main governed by the principle of specialization. In that respect foreign trade does not differ from ordinary forms of domestic trade. It has, in fact, already been pointed out that just as the localization of industry governs the economic organization of each country so can the territorial division of labour be extended to a group of countries with commercial relations. There appears, therefore, to be some prima facie case for the removal of all barriers and hindrances to the free exchange of goods and services as between such countries so that each may specialize in those types of production for which it is best suited. Such an arrangement is mutually advantageous to all the countries commercially related in this way. Nevertheless, protective tariffs have been imposed in many countries, and since the late war their number and importance have tended to increase. We have now to consider the elements in the fiscal problem and the economic consequences of protection.

GENERAL CONSIDERATIONS

At the outset there are several preliminary considerations which should be kept in view: (1) It has already been indicated that a simple reference to a country's visible trade balance provides no adequate picture of the real commercial position of that country. A complete statement must take account of the many invisible items which bear equally upon the final balance of indebtedness. In the case of the United Kingdom, in 1925 the total visible imports of merchandise exceeded the total visible exports of merchandise by £393,000,000; but the invisible exports were estimated at £449,000,000. Nor is this phenomenon peculiar to the United Kingdom. If we ascertain the total value of the visible trade of 157 countries of the world we find that the total of imports (special) exceeded the total of exports (special) by £330,000,000 in 1913 and by £401,000,000 in 1923.[1] This difference represents shipping charges, etc., the prevailing practice being to value exports f.o.b. and to value imports c.i.f. Such world totals, however, throw no light upon the position of individual countries.

(2) The usual statement that "imports and exports must balance" has clearly no meaning if applied solely to the visible items of trade. But it is of fundamental importance when applied to the total of visible and invisible items, and it is in that connection that we speak of a statement of the commercial balance of indebtedness.

(3) It is part of the theory of the foreign exchanges to explain the mechanism by which those international debts and counter-debts are settled, and to show how a temporary adverse balance of indebtedness tends to set forces in operation which will restore a true equilibrium. Here it may be noticed as a development of the general principle already enunciated that any check to imports must ultimately serve as a check to exports. Suppose, for example, that by means of exorbitant tariffs, a country A succeeded in excluding all imports from abroad. In that case foreign purchasers of A's exports would be unable to buy bills to cover their debts due to A and would be obliged to remit gold in liquidation of their debts. The great influx of gold into A would raise prices in that country, while the drain of gold from the other countries would lead to a fall in prices in these other countries, and before long it would be found that the prices of A's exports were too dear for foreign purchasers, and exports would cease. This argument is not affected by the supposition that a protective tariff might only be designed to exclude a certain portion of a country's imports.

REVENUE AND PROTECTIVE DUTIES

(4) A free trade policy is not inconsistent with a financial policy which imposes duties on imported articles. But the duties, if protective, will be imposed on different principles from similar duties which are intended merely for revenue purposes. In the financial year 1923–24 the net receipts from customs duties on beer and spirits imported into the United Kingdom amounted to £12,500,000; but the net receipts from excise duties on beer and spirits manufactured within the country amounted to £121,300,000. These former customs duties were not imposed as part of a fiscal policy but as part of a financial policy which aimed at securing revenue from the taxation of certain articles. There was no discrimination as between beers and spirits made within the country and beers and spirits made abroad.

(5) There is a further difference which concerns the amount of duty to be imposed under the two policies. A free trade country may for revenue purposes impose customs duties upon specific articles entering from abroad and excise duties upon the same articles produced at home. But if it aims merely at obtaining revenue it must so adjust the rate of duty that it receives the amount of revenue which is desired. For that purpose it will have to consider the elasticity of demand for

[1] *Survey of Overseas Markets*, 1925, page 667 (Committee on Industry and Trade).

the taxed articles. It might happen, for example, that by increasing the duty the consumption of the taxed article was so reduced that the net yield of tax was less than before. Similarly, it might happen that by lowering the rate of duty the net yield was actually greater than formerly. But in the case of a protective duty the position is different. Not merely must there be no equivalent excise duties on similar goods produced at home, but the customs duty will not be imposed primarily for revenue purposes. Logically, if a protective duty is imposed for the purpose of excluding all imports of a particular commodity the duty will only be completely successful if it yields no revenue. It is, therefore, misleading for protectionists to support their plea for a tariff by reference to the revenue which is to accrue to the Treasury. The point therefore emerges that a protective tariff must be imposed, if at all, on the basis of fiscal rather than of financial considerations.

SPECIAL CASES

It will, perhaps, have been evident from the foregoing that a particular fiscal policy must be judged in terms of the balance of advantage or disadvantage which accrues to the country. In that connection it may be observed that certain of the advantages to be gained from, say, a protective policy may not be primarily economic but rather political. A country might, for example, be largely dependent upon some foreign country for supplies of certain essential commodities, and in time of war or political disturbance these foreign supplies would be liable to be suspended. To that extent the first country may decide to encourage the domestic production of these essential commodities by imposing a protective duty upon supplies from foreign sources, even though the foreign producers were more favourably situated than the domestic producers for the production of the articles. Nevertheless, while there may be an economic advantage in a time of crisis from a political protective tariff of this kind, it is accompanied by an economic loss in other directions, since productive power in the country in question is being directed into channels for which it has no special aptitudes and in which it is at a comparative disadvantage.

There is another consideration which will be relevant to the subsequent discussion, viz., the nature of a country's demand for the products of other countries. Suppose, for example, that we have to compare two countries, one of which is large and rich and the other of which is small and poor. It will be evident that the poor country's demand for the products of other countries will tend to be confined to articles which it urgently requires. Its demand for these articles will tend in consequence to be highly inelastic, i.e. the poor country would be willing to give a large quantity of its own products for a given quantity of imports from abroad rather than do without them, and the terms of exchange will not greatly affect the demand of the poorer country if they should become less favourable. The rich country, on the other hand, will have a demand for many foreign articles which are not of the same degree of urgency to it, and its demand for these articles will tend in consequence to have a considerable degree of elasticity. In other words, a small change in the real terms of exchange will tend to have a more than proportionate effect upon the quantity of these foreign products which are demanded by that country.

COMPLICATING FACTORS

The problem, however, is complicated when account is taken of the fact that trade is conducted not exclusively between two countries, but with all countries. A rich country can, therefore, adapt its exports to the requirements and variations in the different foreign markets for them more readily than can a poorer country with less diverse resources. Suppose that a country A trades with B, C, and D, which have similar characteristics as regards wealth per head of population and that each desires the products of A. Suppose also that D is three times as large as C in respect of numbers while C is three times as large as B. If the conditions of demand are the same, it might be expected that D would import nine times as much as B of A's products and three times as much as C. A given variation in the demand for A's products will, therefore, be more important if it occurs in D than it would be if it occurred in C, and more important in C than if it occurred in B. In other words, the real importance of a particular foreign market for a country's exports depends not merely upon the quantity of goods absorbed by that market, but also upon the elasticity of that market's demand for the goods in question. The greater the elasticity of demand, the more influence can the importing country exercise upon the real terms of exchange.

During the early part of the nineteenth century, the United Kingdom enjoyed what were virtually monopolistic conditions for her export commodities, and even in later years the demand of many foreign countries for British coal was urgent and inelastic. But this peculiarly favourable position has greatly diminished. As the newer countries, together with the older but more backward countries, developed, other alternative sources of supply became available and there was no longer the same dependence upon supplies from the United Kingdom. With the growing wealth of the developing countries their demands for British products tended to become less rigid and inelastic, and the monopolistic advantage of the United Kingdom was in large measure destroyed. That consideration has an important bearing upon any current proposals for a general tariff.

THE TRADE CYCLE

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VI

THE PSYCHOLOGICAL THEORY OF THE TRADE CYCLE

BEFORE proceeding to consider the claims of what is usually known as the psychological theory of the trade cycle, we shall do well to apply our two tests to the composite theory already outlined.

The first of these tests was this: How is it possible to account for the fact that at times the demand for goods in general is sufficient to afford a satisfactory return to producers and at other times is not?

IS THE COMPOSITE THEORY AN ADEQUATE EXPLANATION?

There is no question that the composite theory as stated by Professor Wesley C. Mitchell makes an interesting, if not entirely conclusive, reply to this question. During prosperity, producers—employers and employed—are reckoning to receive *more per man-hour* than at other times. But, owing to the falling-off in labour efficiency and owing to the wastes and extravagance of a much harassed management, they are actually producing *less per man-hour*. Since the industrial community as a whole cannot receive more than it produces, it is evident that there is disappointment in store.

On the other hand, during depression, producers do not expect much more than a bare return for their exertions, but in actual fact they are producing more per man-hour than during the period of prosperity. If this continues for long, returns are likely to exceed expectations.

In the one case, therefore, producers tend eventually to get less than what they regard as satisfactory, while in the other case they tend eventually to get more than under the circumstances they would expect.

There are, in addition, the other stresses mentioned as likely to turn prosperity into recession: in particular, possible financial stringency and the encroachment of increasing costs on profit margins, more especially in public utility companies and other undertakings with rigid price schedules. In the upturn from depression to revival, also, there are other factors to be given consideration, as, for instance, the easy money conditions obtaining at that time, ready to facilitate an increased volume of trade.

This explanation of why the effective demand for goods in general is sufficient to afford a satisfactory return to producers at one time and not at another is not, perhaps, altogether convincing; and, in any case, there is no reliable statistical information as to the extent of the falling off in labour efficiency during prosperity, but there can be no question that this theory does meet our first test with some considerable degree of success.

APPARENT SHORTCOMINGS OF THE COMPOSITE THEORY

The answers given to the second test are less satisfactory. It might, perhaps, be allowed that the strong cumulative forces making for prosperity are more or less counteracted by the stresses developed, but what adequate explanation is forthcoming to account for the fact that, in spite of the strong cumulative forces making for deeper and deeper depression, trade invariably revives?

At this point, indeed, the theory is apt to lapse from explanation to description. It states, for instance, that "the demand for goods ceases to shrink and begins slowly to rise." This is, undoubtedly, a true statement of what is observed to happen, but the real question is: *Why* does demand cease to shrink and begin to expand? The fact that as the depression lengthens out the *need* for goods becomes greater is no valid reason. There is a need for goods all the time. The point on which we want information is why this standing need for goods takes the shape of increased buying after some two or three years of trade depression. How is it that the vicious spiral of shortage of buyers, unemployment, more acute shortage of buyers, greater unemployment, and so on, does not bring trade to a standstill? What force is generated during trade depression making for a revival of trade, which can be considered as comparable to this force tending to drive industry down into still deeper depression? There must be some such force, since there is the undoubted fact to be explained that trade does revive. But the composite theory would not appear to afford any indication of what this force is.[1]

THE SEARCH FOR A DOMINANT CAUSE

This does not mean to say that the composite theory is in any sense a failure. It is regarded by, probably, the majority of economists as coming nearer the truth than any other single theory, but it is not completely successful. In particular it does not indicate any persistent and dominating influence which, seeing the persistent and dominating nature of the trade cycle itself, would seem essential to an adequate explanation.

The remaining theories to be examined all represent attempts to identify this persistent and dominating influence. The composite theory has, so to speak, given us "Hamlet" complete except

[1] Further investigation into this stage of the cycle forms one of the outstanding features of Professor Mitchell's companion volume to *Business Cycles: the Problem and its Setting*, at present in preparation.

for the chief character. The problem now is to find the Prince of Denmark.

With this as the object of our search we come to the psychological theory of the trade cycle—the view that the state of mind of business men is the dominant cause of industrial fluctuation.

ERRORS OF OPTIMISM AND PESSIMISM

That business optimism and business pessimism play a part in the trade cycle nobody denies. The evidence is everywhere apparent. But, according to the psychological theory, these alternations of optimism and pessimism play not merely a part but a leading part.

The upholders of this theory include not only a large number of business men but also Prof. A. C. Pigou, of Cambridge, generally considered as among the most eminent of living economists. With such proponents the psychological theory demands all our attention.

Prof. Pigou, having first considered the possible effect of harvest variations upon the course of trade, writes—

> Harvests are not, of course, the only "accidental" fact by which the activity of industry is liable to be affected. There are also human inventions, the discovery of new mineral deposits, outbreaks of war, and many other things. Dominant over all these, however, so far, at all events, as the rhythmic wave-like movements of the typical trade cycle are concerned, is the state of mind of the leaders of industry and commerce. The attitude of these persons towards the signs of the times does not remain constant, but varies from period to period between errors of optimism and errors of pessimism. In good times they become overconfident, exaggerate their prospects, and expand their investments further than a true forecast of their profitableness would warrant. After a while, when the goods, for the production of which they have made preparations, are ready for the market, they find that the demand for them is less than they had looked for; they suffer losses, and these losses react on their state of mind, causing them now to underestimate the prospects of investment, just as previously they had overestimated them. If the minds of different business men moved independently of one another, their several movements would, indeed, tend to cancel out, and, though the different parts of industry might vary a good deal relatively to one another, industry in the aggregate would not vary much. As a matter of fact, however, the states of mind of different business men do not move independently; the swing from the one sort of error to the other is a common general swing—a sort of crowd movement. The reason for this is partly that states of mind are infectious, and that the people who control business live close together in cities; partly that, in the modern world, different business concerns are bound together by a network of orders and of credit relations. On account of these things, moods of optimistic error, and, subsequently, moods of pessimistic error tend to move in single waves over wide areas, thus bringing about those large changes in industrial activity generally which characterize modern trade cycles.[1]

TESTING THE PSYCHOLOGICAL THEORY

How does this theory shape in the light of the two tests we have just applied to the composite theory?

Its answer to the first question—Why does the return to producers sometimes fall below their expectations and sometimes rise above them?—would appear to many minds somewhat theoretical. Prof. Pigou takes the case where A and B, two producers imbued with the idea that trade prospects are good, both proceed to increase their output in anticipation of the expected increase in demand.

> The general laws of demand inform us that A will be prepared to offer a lower real price per unit for B's goods the larger the quantity offered becomes; and that B will stand in a like relation to A's goods. Hence, if A thinks that B is going to offer twice his normal supply of goods, A will reply by producing, not twice his normal supply, but, say, one and a half times his normal supply; and B, under the influence of a similar opinion about A, will act in the same way. Hence, both A and B, as a result of their false opinions, produce one and a half times their normal output. But, *ex hypothesi*, A is willing to give one and a half times his normal output in exchange, not for one and a half times, but for twice B's normal output; and B is in like case. . . . A and B are both disappointed, and both find that their expansion of output was a mistake. The situation is exactly similar if each of A and B falsely expects the other to contract his output, and contracts his own in consequence.[1]

Considerable faith in the purely deductive method of economic argument would seem necessary for this contention to exercise its full weight, but, given such faith, the validity of the explanation is undeniable.

When it comes to the question of how the cumulative forces making for prosperity, and, still more, how the cumulative forces making for depression, are checked and reversed, the psychological theory is less convincing.

Whether the error of business optimism generated in the minds of A and B is sufficient to reverse the cumulative forces making for prosperity may perhaps be regarded as an open question. But it is certainly hard to believe that the operation of the psychological factor is sufficient to reverse the cumulative forces making for depression. It seems only reasonable to suppose that, during the two or three years that A and B are finding out their error of pessimism, the effect of the vicious spiral set up by increasing unemployment will fully justify their worst fears, so that although their pessimism may have been erroneous at the time of the break in trade, it will no longer be erroneous when the time comes for trade revival.

All things considered, there can be no doubt that the psychological factor plays an important part in the trade cycle. But can it be said to play a dominant part?

NOTE. For those who wish to go further into this explanation of the trade cycle, *Unemployment*, by Prof. Pigou, in the Home University Series, and Prof. Pigou's paper in *Is Unemployment Inevitable?* may be recommended. The latter book is one of the best short works on the trade cycle published in recent years. Prof. Pigou's latest volume, *Industrial Fluctuations*, is for advanced students only.

[1] *Is Unemployment Inevitable?* (1924), pages 96–97.

[1] *Industrial Fluctuations*, page 78.

SURVEY OF INDUSTRIES

(*Continued from page 218*)

VI

IRON AND STEEL—(*continued*)

5. **Midlands.** The much older and, at one time, important iron producing centres of Northamptonshire and Oxfordshire are limited to iron production, being also located on an iron ore area. They are able, even with furnaces of relatively small capacity, to produce pig iron at low costs in spite of the fact that they require to import their coal from some distance, and they find a ready market for their products in the Midlands, and even as far as South Wales, again in spite of the heavy railway charges, which is substantial testimony to their low costs of production.

Staffordshire and the Black Country area were the real birthplace of the modern iron and steel industry, as it was there that Abraham Darby first effectively used coal for the smelting of iron ore at Coalbrookdale in the year 1730, and owed its origin to the coal and famous black band ore in the district. It was here that the large production of wrought iron by means of puddling furnaces was developed. It is the home of the puddled iron industry, and although the product of this industry has been so largely replaced by steel, it is still the principal centre of the puddled iron industry of the world, and it was there that was produced the material for the famous wrought iron structures of the nineteenth century, such as the Britannia Tubular Bridge, the Suspension Bridge over the Menai Straits, and many others. It is here also that are produced to-day the iron mooring chains and anchors for the great liners of the world.

6. **North-west Coast.** The north-west coast area, which includes the Barrow and Cumberland districts, developed owing to the rich deposits of hematite iron ore, which are still famous as producing some of the purest hematite pig iron in the world. Much of the coke necessary for the smelting of the ore is required to be transported from Yorkshire and Durham.

The relative importance of the actual production of these areas is shown in Tables IV, V, and VI together with the proportion of native and imported iron ore used.

So far as can be forecasted at present, it would seem that the conditions which led to their development still persist to a degree as to ensure the maintenance of the present distribution of iron and steel industries, as, even in those cases where the richer deposits of local iron ore are becoming exhausted, improved technique has rendered possible the economic use of leaner ores supplemented by importation where necessary of richer ores. These, together with the economic advantages which the different districts possess in the distribution of their resultant product, would seem to ensure their remaining the iron and steel producing centres for many years at least.

RELATIVE POSITION OF GREAT BRITAIN

The relative position of the iron and steel industry of Great Britain to the rest of the world may

TABLE IV

UNITED KINGDOM PRODUCTION OF PIG IRON AND CONSUMPTION OF IRON ORE, 1926

District	Production of pig iron	Iron ore consumed		Source of home ore consumed							Other iron ores[1]
				West coast hematite	Jurassic ironstone			Coal measure ironstone			
		Imported	Home		North Lincs	Cleveland	Midlands	N and S Staffs	Scottish	Other	
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
1. Derby, Leicester, Notts, and Northants	355,600	1,500	1,035,100	—	109,500	—	925,100	—	-	—	500
2 and 8 Parts of Lancashire and Yorkshire (including Sheffield)	166 600	39,200	278,400	2,400	115,300	—	145,000	9,000	—	4,900	1,800
3 Lincolnshire	215,400	24,400	717,700	—	592,500	—	145,200	—	—	—	—
4. North east coast	820,700	781,000	1,128,900	14,900	—	1,017,700	95,900	—	—	—	400
5 Scotland	188,500	276,100	39,000	20,700	—	—	—	—	12,700	-	5,600
6. Staffordshire, Shropshire, Worcester, and Warwick	166,700	64,800	296,000	—	—	—	199,700	84,700	—	8,700	2,900
7 South Wales and Monmouth	284,100	481,600	63,600	—	—	—	35,000	—	—	—	28,000
9. West coast	260 600	113.000	355.100	355,100	—	—	—	—	—	—	—
Total	2,458,200	1,781,600	3,033,800	393,100	817,300	1,017,700	1,545,900	93 700	12,700	13,600	39,800

[1] Includes Wales, Forest of Dean, Other English Occurrences, Ireland

NOTE.—The figures for 1926 are given as being the latest available. Of the 2,458,200 tons of pig iron produced in that year 2,143,100 tons were produced in the first four months, after which the industry was practically at a standstill for the period of the coal stoppage.

TABLE V

UNITED KINGDOM PRODUCTION OF PIG IRON, 1913, 1925, AND 1927

(Production in thousands of tons)

District	1913		1925		1927	
	Production	Per cent of total	Production	Per cent of total	Production	Per cent of total
1. Derby, Leicester, Notts, and Northants	1,166·1	11·4	1,010·9	16·1	994·5	13·6
2 and 8. Parts of Lancashire and Yorkshire (including Sheffield)	503·5	4·9	528·8	8·4	516·4	7·1
3. Lincolnshire	450·0	4·4	548·6	8·8	715·7	9·8
4. North-east coast	3,869·0	37·7	1,905·3	30·4	2,291·0	31·4
5. Scotland	1,369·2	13·3	430·0	6·9	692·7	9·5
6. Staffordshire, Shropshire, Worcester, and Warwick	850·7	8·3	416·5	6·7	464·9	6·4
7. South Wales and Monmouth	889·2	8·7	788·9	12·6	740·0	10·2
9. West coast	1,162·6	11·3	632·7	10·1	878·4	12·0
Total	10,260·3	100·0	6,201·7	100·0	7,293·6	100·0

TABLE VI

UNITED KINGDOM PRODUCTION OF STEEL INGOTS AND CASTINGS, 1913, 1925, AND 1927

(Production in thousands of tons)

District	1913		1925		1927	
	Production	Per cent of total	Production	Per cent of total	Production	Per cent of total
1 and 2 Derby, Leicester, Notts, Northants, parts of Lancashire and Yorkshire	411·6	5·4	442·8	6·0	443·5	4·9
3. Lincolnshire	241·4	3·1	410·5	5·6	533·5	5·9
4. North-east coast	2,031·1	26·5	1,468·5	19·9	2,233·7	24·5
5. Scotland	1,430·8	18·7	1,074·6	14·5	1,585·1	17·4
6. Staffordshire, Shropshire, Worcester, and Warwick	465·1	6·1	825·9	11·2	889·1	9·8
7. South Wales and Monmouth	1,807·3	23·6	1,962·8	26·6	1,927·9	21·2
8. Sheffield	878·7	11·4	1,015·5	13·7	1·238·7	13·6
9. West coast	397·9	5·2	184·8	2·5	247·4	2·7
Total	7,663·9	100·0	7,385·4	100·0	9,098·9	100·0

be best measured by the production of pig iron. In 1870, while the United Kingdom produced 6,000,000 tons, the remainder of the world together produced less than this amount. Therefore Great Britain was pre-eminent as a consequence of having been the birthplace of the iron and steel industry, but this position, owing to the adoption by other countries, possessing the iron ore and coal, of processes invented in Britain, was rapidly challenged, until in 1874 the total production of other countries exceeded that of the United Kingdom by 1,500,000 tons. In 1890 the production of pig iron in the United States exceeded that of the United Kingdom. In 1904 German production was for the first time slightly in excess of that of the United Kingdom.

In steel, however, Germany had overtaken Great Britain in 1893, largely as a result of the application of the basic Bessemer process invented in 1878 by Thomas and Gilchrist, which brought into production the highly phosphoric ores of Lorraine.

Thus, the position up to 1913 was, measured in terms of pig iron production: The United Kingdom, 10,260,000 tons; Germany, 16,490,000 tons, and the United States, 31,000,000 tons.

WAR EXPANSION OF THE INDUSTRY

The effect of the war period on iron and steel producing countries has been to substantially expand the pre-war productive capacity, but in the case of Europe to redistribute that capacity between different countries as a result of the Peace Treaty. The result is that the United Kingdom now has an effective productive capacity of 12,000,000 tons for both pig iron and steel, compared with the United States 46,000,000 and 53,000,000 tons respectively; Germany, 15,000,000 and 17,000,000 tons; France, 11,000,000 and 9,500,000 tons; Belgium, 3,750,000 and 4,000,000 tons; Luxemburg, 2,750,000 tons of both pig iron and steel, and the Saar, 2,000,000 and 2,250,000 tons respectively.

In 1913 Lorraine, Luxemburg, and the Saar were included in Germany, Luxemburg being now in the Belgian Customs Union and Lorraine and the Saar under French control. While the distribution of the productive capacity is different, the relative position of the United Kingdom may best be understood by stating that out of a total European production of 45,250,000 tons in 1913 Great Britain's production of pig iron was 10,260,000 tons while in 1927 the total European production was 44,200,000 tons and Great Britain's production 7,300,000 tons. This ratio shows Great Britain in a somewhat less favourable position than the real position, owing to the fact that the change in the amount of scrap used in steel making is now 50 per cent on the average as compared with 30 per cent pre-war and has resulted in less pig iron being used.

POST-WAR CONDITIONS

Post-war conditions have imposed upon the iron and steel industries of Europe a very severe strain, resulting from the redistribution of producing centres under different political control, which involved in many cases the separation of production from pre-war markets and the introduction of a tariff system between them, with the result that the production of Lorraine, Luxemburg and the Saar, which in pre-war days found an outlet in the German finishing industries, is now separated from them by German tariffs, and has to find an outlet in other markets for which they are not well placed geographically. A special Convention was signed between France, Luxemburg, and Germany at the time the International Steel Agreement was signed, providing for the importation into Germany of a definite small proportion of the German home consumption from France and Luxemburg approximating to 6½ per cent of the total German home consumption, and, in addition, 1,550,000 tons of iron and steel from the Saar. As a consequence of the attempt to adjust their economic necessities of maintaining operation of their industries and employment for their people to the new conditions, a degree of competition unparalleled in its intensity has been engendered, which competition has been artificially increased by the fluctuation in currency values of the different producing countries. So long as currencies were not related to gold it was impossible to regulate competition except by the process of natural exhaustion of the competitors.

Political considerations also entered into the desire of those countries which had acquired new territory for which they were responsible, to demonstrate their ability to secure economic prosperity for the peoples who had come under their aegis, and thus a struggle, inspired by a desire for political prestige, resulted in a complete collapse of values, which destroyed that confidence on which alone a sustained demand for the products of industry can be maintained.

THE INTERNATIONAL STEEL AGREEMENT

Efforts to find a solution of this difficulty have been made by the Continental producing countries by means of associations within their own countries to regulate internal competition. The international industrial treaty, known as the International Iron and Steel Agreement, which was signed in Brussels by Germany, France, Belgium, and Luxemburg on the 30th September, 1926, was designed solely to regulate production in the participating countries, but has not secured the result anticipated of a more stable price level. Discussions are now (January, 1928) taking place for a more positive regulation of the price level by means of selling agreements dealing with specific products, which, as well as limiting the production of the participating countries, will attempt to fix minimum prices.

The British industry is not a party to these arrangements. Being the first country to return to the gold standard, and the only country which has assumed to the full post-war liabilities as regards war debts, British industry has suffered severely in the transitional period that has elapsed since the termination of the war, and, as the price of fulfilling her war contractual obligations, has suffered both in the home and overseas markets, from competition strengthened by longer hours of work, lower wages than obtain in Britain, and debased exchanges; the results of which precluded participation in such international agreement on any formula acceptable to Continental countries which had not experienced the same limitations. British industry so far has not recovered the same relative degree of volume of production, and, consequently, of employment capacity as the Continental industries.

The United States of America must be considered as in a category apart, possessing as they do a large population and a vast territory containing all the natural resources requisite for their own development, and a degree of prosperity which made their war losses negligible in relation to the natural

wealth resources of the country. Their industries are protected by a tariff policy which precludes competition from outside.

PRESENT DIFFICULTIES DUE TO UNDER-CONSUMPTION

So far as British industry is concerned, the difficulties delaying recovery are still very great and cannot readily be overcome from within the industry, as they are so largely beyond its control; but the prospects of the iron and steel industries of the world are not unfavourable, since there is little doubt that in the post-war period the consumption of iron and steel has been much less than might reasonably have been expected had it not been for the dislocation of the pre-war channels of international trade and credit, and this may be seen from a consideration of the following table published in *Iron, Coal and War*, by E. C. Eckel.

PERCENTAGE INCREASE IN WORLD OUTPUT OF PIG IRON BY DECADES, 1810–1910 and 1913

Decade ending	World iron output, per cent of increase
1810	38
1820	33
1830	83
1840	71
1850	57
1860	72
1870	77
1880	52
1890	49
1900	46
1910	62

From this table it will be seen that the average increase in the absorption of pig iron in the world during each decade of the nineteenth century was 60 per cent. The original table only recorded up to 1910, but if the table were extended it would show that between 1910 and 1913 the rate of increase was 20 per cent, showing that the average rate of increase of 60 per cent per decade was still maintained. On this basis, if this rate of progressive absorption had been maintained uninterruptedly from 1913 the world demand for pig iron would have reached 149,000,000 tons in 1927, whereas the actual demand for that year was only 84,240,000 tons, and the estimated productive capacity of the world 107,000,000 tons.

PRESENT AND POTENTIAL WORLD DEMAND

The wide disparity between the potential and effective demand is largely explained by the complete dislocation of the pre-war channels of international trade and exchange. There is little doubt that the instability of the price level, which from 1920 has been practically continually falling with varying degrees of rapidity, depending on variation in exchange and competitive policies of European producing countries, has prevented new enterprises being undertaken either in the form of ships, structures, railways, or similar developments. This shows that the efforts which have been made by individual units, whether considered as individual producers or as countries, to secure for themselves a larger proportion of a limited demand, have actually defeated the object they desired to achieve. A policy both national and international, directed to the re-establishment of pre-war channels of trade, would have served the interests of all much better. A co-operative policy directed to the reconstruction of consuming markets would have made effective a much larger proportion of the potential demand during this period rather than have contracted existing demand to the needs of the moment, which has undoubtedly been the result of competition stimulated by political rather than economic motives.

The result of the competitive policy that has been followed (the process of exhaustion), coupled with the stabilization of the exchanges, has now produced a limited degree of stability in the competitive conditions and a greater realization of the necessity of stability of the price level as the first condition requisite to industrial recovery.

There is no doubt the coal, iron, and steel industries of the world must first be restored to a position of economic prosperity before normal conditions as to employment and the material well-being of the industrial nations can be secured. The material well-being of the world at large is of first importance to the British iron and steel industry, which is dependent for more than 50 per cent of its employing capacity on export markets, and of this amount rather more than half is absorbed by the British Empire.

TABLE VII

IMPORTS AND EXPORTS OF IRON AND STEEL INTO AND FROM THE UNITED KINGDOM, 1913, 1920-27

	Imports		Exports	
	Tons	Value £	Tons	Value £
1913	2,231,000	15,890,000	4,969,200	55,350,700
1920	1,107,600	29,016,800	3,251,200	128,907,400
1921	1,640,000	22,887,400	1,696,900	63,603,600
1922	881,300	10,419,400	3,397,200	60,861,700
1923	1,322,100	13,772,900	4,317,500	76,156,000
1924	2,429,400	22,387,100	3,851,400	74,534,100
1925	2,719,800	23,992,200	3,731,400	68,178,500
1926	3,740,800	29,535,400	2,987,700	55,076,700
1927	4,406,100	34,038,400	4,199,700	69,429,200

The relative position of British industry as governed by exports and imports in relation to

TABLE VIII

IMPORTS OF IRON AND STEEL INTO THE U.K. ANALYSED BY COUNTRY OF CONSIGNMENT
1913, 1920, 1924-27
(In thousands of tons)

From	1913	1920	1924	1925	1926	1927
Belgium	583·6	263·2	1,208·2	1,290·4	1,873·5	2,310·2
Luxemburg	1,197·7	29·7	206·0	205·3	168·9	83·4
Germany			334·5	367·0	451·0	416·4
France	37·0	61·2	435·7	596·4	594·7	767·1
Sweden	208·7	69·7	73·4	63·9	66·2	55·2
Netherlands	7·2	11·0	34·6	57·1	82·3	87·3
U.S.A.	154·1	495·3	63·7	60·2	25·3	21·8
Other countries and unallocated	42·7	177·5	73·3	79·5	478·4	664·7
Total	2,231·0	1,107·6	2,429·4	2,719·8	3,740·3	4,406·1

1913 is shown in Table VII. The remarkable feature of this table is the fact that in 1927 imports of iron and steel have exceeded exports. Table VIII gives the country of origin of the imports and shows that this excess of imports largely arises from France, Luxemburg, and Belgium. In the case of France and Luxemburg this is due to their necessity of finding a new outlet for the production which pre-war was absorbed by Germany.

CONCLUSION

In spite of the economic difficulties which the post-war period has brought to the British industry, the fundamental advantages which it enjoys by geographical position, in that the steel works in many cases are located on the seaboard in relatively close proximity to ore and coal, still remain, so that they are able to take advantage of imported ore and to export their finished products with the minimum of railway transport.

These advantages are to some considerable extent discounted by the very special railway rates which the Continental producers receive for their export trade, and the fact that the level of Continental railway rates is very much lower than obtains in this country, so that the disadvantages of the long distances for the assembly of raw materials and the delivery of the finished product are discounted where not entirely eliminated by the lower level of rates obtaining.

The effect on British industry of the conditions which have been enumerated is that the industry has been operating, for the most part, at between 60 and 70 per cent of its full capacity, a fact which in itself substantially increases production costs owing to the incidence of fixed overhead charges on a fixed production volume making such charges higher per ton of product than if the industry were working at full capacity.

That there is likely to be a British iron and steel industry for an indefinite period in the future would seem to be unquestionable, but the scale of the industry in relation to that of other producing countries and the fulfilment of the domestic needs of this country, is a matter that rests entirely on the political, financial, and industrial policy adopted by the country as a whole in the immediate future, and is not a matter which can be determined by the industry alone. The possibility of dependence of this country on foreign sources of supply for the needs of British industry and national defence is one which gives particular importance to the problem of restoring economic prosperity to what must be called the " basis of the British industrial structure."

THE STEEL INDUSTRY

By THE GENERAL EDITOR

To the student who is interested in the organization of capital the steel industry is one of the most fruitful subjects of study at the present time. Sir William Larke has shown how the industry has grown up in this country and to what extent it depends upon four distinct markets: shipbuilding, engineering, transport, and a group of miscellaneous finishing trades. Nearly all the steel firms of to-day are associated with one or other of the trades which utilize steel in its semi-manufactured form for the purpose of supplying the products required by the four groups of industries. The organization of the iron and steel industries was never easy to define, and under the complex conditions now prevailing it is almost impossible to give an exact outline. The following general statement can, therefore, only be regarded as a rough approximation to the truth. In nearly all the ironworks of this country the pig iron is allowed to run cold. It is sent in that form to the steel works, where it is melted down with scrap and converted into steel ingots. The ingot is in turn rolled to the form of a bloom, billet, or bar, which is known as the semi-manufactured product. This product is then sent to one of the finishing industries and converted into sheets, plates, rails, tubes, or other finished products. Pig iron which is not sent to the steelworks is converted into engineering castings or pipes or other iron products.

VERTICAL INTEGRATION

In the old days iron manufacturers competed with each other on the market for iron, and steel manufacturers competed with each other on the market for the semi-manufactured product. Each of the finishing trades was also highly competitive. Towards the end of the nineteenth century a process was started which is known in economics as "vertical integration." Manufacturers sought to be independent of the market by controlling the production of the raw material or by carrying the process of manufacture a stage farther. Thus in South Wales tinplate manufacturers acquired an interest in the steel manufacturing firms, or, alternatively, the latter bought up tinplate works. In other places steel manufacturers purchased ironworks and rolled down the steel which they produced. Some firms ultimately controlled all the stages of production from the blast furnaces to the foundry and engineering establishments; in a few cases they even owned shipyards. It was in this industry that the vertical trust made its appearance.

The vertical trust should be clearly distinguished from the horizontal trust, which seeks a monopoly. The former sought to make itself a stronger and more efficient competitive unit. It aimed not at the control of the market but at a sort of independence of the intermediate markets. By controlling the earlier stages of production it not only enjoyed greater security, but was also able to shape production to the final end, and thereby achieve a real economy. But its power was restricted by the fact that it represented an amalgamation of existing business units; not only so, but those units alone were available which were willing to merge themselves in the larger whole. The amalgamated company might not even be in control of the most appropriate group of producing establishments from the technical point of view. Under the conditions which then existed it was frequently only a second best.

CONDITIONS OF EFFICIENCY

Since the iron and steel establishments of this country were erected new methods of manufacture have been discovered which cannot be employed in those establishments. From the technical point of view it is an advantage to erect the steel furnaces near the blast furnaces and to pour the iron in a molten state into the former. In this way a great deal of the heat which was wasted under the old system is conserved and a considerable economy thereby effected. Other technical economies have also become available, with the result that a modern plant is of an entirely different character from the kind of plant which is to be seen in most parts of this country.

Modern plants which offer all the metallurgical and engineering economies known to scientists are common in Germany and the United States of America. The construction of such plants in this country would involve the scrapping of the great majority of existing plants. For this reason the British vertical trust is not strictly comparable to the German or American steel firm which possesses such a plant. The most recent plants erected in this country are built on the foreign model, but even they are smaller than the largest German plants. In Germany it is held that the most economical unit of production is one which contains a blooming mill and a billet mill capable of producing half a million tons of semi-manufactured steel per annum, with furnaces and by-product plant of appropriate size.

TRUSTS AND SYNDICATES

Again, both in Germany and in America, the process of vertical integration, which is physical

or technological as well as administrative or commercial, is supplemented by the growth of horizontal trusts, that is to say, the merging of units which were once competitive. Thus the greater part of the supply of steel and steel products in Westphalia is under the control of the Ruhr Steel Trust. The United States Steel Corporation represents an amalgamation of a group of trusts, each representing the manufacture of a particular product, such as hoop, wire, tinplate, etc. Further, the competitors of the United States Steel Corporation are themselves large trusts which are rapidly tending to merge into a comprehensive trust capable of challenging the supremacy even of the Corporation itself.

In all the steel producing countries of Europe there are syndicates which control production and sale for their respective countries. Thus in Germany the Ruhr Steel Trust, which is itself a giant enterprise, is a member of the German Steel Syndicate. These Continental syndicates have now, as Sir William Larke points out, become members of a European Steel Syndicate which virtually controls the production and sale of steel throughout the continent of Europe.

DIFFICULTIES OF BRITISH INDUSTRY

The difficulties of the British steel industry will readily be appreciated. It continues to be, in the main, a highly competitive industry. There are to be found within it agreements which, in certain sections such as steel rail manufacture and the manufacture of plates, modify the force of competition. But the influence of these is not so far-reaching as that of the Continental syndicates. Again, as already stated, the industry contains a few large and powerful amalgamations, and it is possible that within the next few years competition will be replaced by co-operative control. For the present, however, it remains true that the industry, taken as a whole, is highly competitive.

Moreover, the establishments show a greater variety of efficiency than in the newer countries, where all the chief establishments are of more recent construction. It is probably true that in the manufacture of certain classes of steel, where the standardized methods of Continental producers are inapplicable, the efficiency of some British establishments compares favourably with that of the best establishments in other countries. Nevertheless the British industry is handicapped by the existence of a long tail of old and relatively inefficient plants. Moreover, even the most modern plants devoted to the manufacture of ordinary steel are smaller than the most modern Continental plants. A steel works recently erected under the most favourable conditions is said to have a producing capacity of 300,000 tons per annum as compared with a production of half a million tons per annum in the type of plant which finds approval in Germany. Which of the two is the more economical unit of production is a question upon which experts differ. Even if it be assumed, however, that the smaller is at least as efficient as the larger, it remains true that it represents a standard of efficiency which is reached in very few cases.

THE FUTURE

It would be folly to attempt to forecast the future organization of the steel industry of this country. The changes that have taken place in other countries cannot leave our own industry unaffected. It may be that ultimately a national organization will be created which will be able to represent the industry as a whole and to negotiate agreements with the Continental syndicates; but, apart from the deep-seated love of freedom among British industrialists, the industry is so complex that such a consummation is hardly to be expected. Less unlikely, perhaps, is a development towards organization on a regional basis. The steel industry of South Wales is closely connected with the tinplate and galvanized sheet industries. The steel industry of Scotland and of the North-east Coast is closely connected with heavy engineering and shipbuilding. The formation of regional organizations would make possible a measure of standardization and the introduction of economies which are not at present within reach. One of the costly items in production has been the frequent changing of rolls in order to meet the great variety of orders placed with individual firms. So much has this been the case that the plants have had to adapt themselves to the necessity for frequent changes. During and in consequence of a change of rolls the crew is idle, the ingots do not proceed in steady rotation from the soaking pits, while the rolled materials do not proceed in similar rotation to the finishing and packing departments. Thus it may be stated that costs might be reduced in many places by the formation of larger administrative and commercial units and the consequent standardization of production.

There are, of course, limits even to such co-operation and standardization. A number of steel works are employed in the manufacture of steel of special qualities designed to meet the needs of particular markets. But, after allowing for such diversity, the advantages of co-operative effort are now realized more clearly than in the past, and even if regional units are not formed it seems evident that changes in control will take place which will raise the level of efficiency and make the industry a stronger competitor with its foreign rivals.

LABOUR ORGANIZATION

(*Continued from page 219*)

VI

THE EFFECT OF THE INDUSTRIAL REVOLUTION

THE Industrial Revolution created the modern working class. There was, as we have seen, a permanent wage-earning class long before 1780, but until that time Britain was still a predominantly agricultural country, with craftsmen and town-dwellers in a minority.

The swift growth of new factory towns, iron and steel districts, and thickly populated mining areas, completely altered the situation. Wage earners were now aggregated in large bodies, living and working together. They developed a common outlook, a common feeling of insecurity, a common desire to resist exploitation—or to raise their standard of living. In short, they *became* the working class because they shared a permanent economic status, and, as they grew conscious of it, developed common ideas and habits of mutual aid peculiar to their class. There came into being a working-class movement, many-sided, but in all its aspects expressing a common social outlook. We are here concerned directly only with the industrial side of the movement—the friendly society side. Consumers' co-operation, and the political side will be dealt with elsewhere. But the period of seventy years from about 1780 to about 1850 marks a new era in trade union history. It coincides with the period in which modern industrial capitalism established itself and finally destroyed the old economic order. For convenience, we shall subdivide the period into two: (*a*) 1780 to 1824, the period of repression of trade unions; (*b*) 1824 to 1850, the period in which trade unions, having again become legal associations as a result of the repeal of the Combination Acts, worked out by a process of trial and error a *modus vivendi* within the new order. This latter period (1824-50) is also the period in which, by the creation of a railway system, and the improvement of other methods of transport, the new industrial system completed the outlines of its structure. We choose 1780 as our starting point because, firstly, by that time the Industrial Revolution was sufficiently advanced to produce noticeable changes in the life of the working class. The factory system had begun to extend rapidly in the cotton industry (spinning section), and was soon to extend to other industries. Watt's steam engine had now made the use of steam power practicable. Secondly, the making of roads and canals was going on rapidly, thus facilitating communications. Thirdly, the rise of the coal-fields was creating a new section of the proletariat, which was to become, along with the textile workers, an aggressive force in trade unions. Fourthly, the publication, in 1776, of Adam Smith's *Wealth of Nations* provided an ideological basis for the economic revolution, and a theoretical justification of the enterprise of the capitalist. Further, its exposition of natural liberty, and the advantages of what later came to be called *laissez-faire*, greatly helped the rapid transformation which was taking place in the attitude of the governing class to economic questions and in particular to such matters as the regulation of wages. Lastly, in the midst of the dislocation and unrest caused by the industrial changes, there came the French Revolution of 1789, with all its aftermath of war and political unrest.

THE GENERAL COMBINATION ACTS

In these circumstances, the trade union movement during the last twenty years of the eighteenth century, forced as it was to resist the pressure of the new economic machine, inevitably became aggressive. The trade union, in fact, becomes a new thing. It ceases to be predominantly a club of journeymen, stressing the friendly society side of its activities, and with a horizon limited by its own trade. It becomes a militant organization, more and more conscious that its function is to fight for the economic interests of its members, and much more aware of its kinship to other unions. We have already seen that aggressive combinations had existed since the beginning of the century in the highly capitalized trades, e g. in the London clothing trades and among the wool-combers of the West of England Such turbulent unions had been duly proceeded against by specific Combination Acts, but active organization of unions primarily for collective bargaining now became general, and this, combined with the fears of a governing class somewhat panic-stricken by the course of the French Revolution, produced the General Combination Acts of 1799 and 1800, which made all forms of trade unionism, and even employer's associations illegal. The passing of these celebrated Acts illustrates the change that had taken place in the attitude of the Government during the previous twenty years. This was due partly to the growing political influence of capital, partly to the new economic ideas which accompanied that growth, and it was also due, in great part, to the war conditions. It has been suggested that both the Corresponding Societies Act of 1789, which suppressed Radical political societies, and the Combination Acts were really the equivalent of the Defence of the Realm Act during the Great War of 1914-18. Be that as it may, it was obvious that the tolerant attitude of the House of Commons to workmen's combinations had gone. Up to

1780, the old principle that the State had an obligation to regulate industrial relations, and, in particular, to see to it that the labouring and artisan classes should have " a convenient proportion of wages " (that is, wages appropriate to their social status), still kept its hold on the House of Commons. But, as England became industrialized, this paternal attitude of the old governing class rapidly vanished. And whereas in the early eighteenth century particular trade unions were legislated against because in attempting by strikes to regulate wages they were held to be arrogating to themselves the functions of government, at the end of the century *all* trade unions are legislated against because combination is contrary to the canons of *laissez faire*, and trade clubs are considered to be almost a species of revolutionary society. In other words, neither industrial combinations, nor even the State itself, must interfere with freedom of contract between employers and employed. It is true that combinations to enforce the Elizabethan Statute of Artificers, which gave magistrates the power to fix wages, were tolerated until 1813, when the wages clause of that statute was repealed. But this, and the repeal of the apprenticeship clauses in the following year, were only the formal recognition of a view of the State's relation to industry which had already held the field for more than thirty years.

TRADE UNIONISM PERSISTS IN SPITE OF OPPOSITION

The student might expect to find that after 1800 trade unions were in all cases ruthlessly suppressed —the more so as they were generally suspected to be tainted with the Radical doctrines which the Government, the better to carry on its struggle with Napoleon, was ruthlessly suppressing in the political field. But, as a matter of fact, though prosecutions under the Combination Acts were many, trade unionism continued to exist throughout the whole period 1800-24, and in many towns with little or no interference by the Government. This is to be explained by the fact that it suited employers, particularly in the older crafts, to settle wages and hours of work by negotiation with employees' organizations; but also by the fact that in the new factory and mining areas where the conditions produced by the Industrial Revolution were most intolerable, combinations and strikes were organized in spite of the terrors of the law. These latter combinations were mostly unsuccessful, however, and were usually put down by systematic prosecution, particularly in the textile districts of Lancashire and Yorkshire, and such mining areas as Northumberland and Durham, where any form of mass action was interpreted as being revolutionary in tendency. In the older towns of the Midlands and the South, however, much collective bargaining went on, and many small local strikes took place without application of the Combination Acts. Here in small scale industry there was no fear of revolutionary intent. Even in the case of one of the most militant unions there is an interesting example of the Government's refusal to apply the Acts. In 1812, when the Woolcombers' Union arranged to hold a congress at Coventry, the Home Office was informed. Now, the woolcombers were a militant union, and had, in fact, been made illegal nearly ninety years earlier. Moreover, they were thought to be Republicans. In spite of this, the Government did not prosecute, because the law officers of the Crown were lukewarm about the matter. " These combinations," they said, " are mischievous and dangerous. But it is very difficult to know how to deal with them." The truth was that wool-combers were a highly skilled craft, whose economic position was still so strong that their combination could not be put down. The introduction of woolcombing machinery after 1825 did more than all the Combination Acts to destroy the woolcombers.

Instances where the Government took the contrary line of ruthless repression, are, however, much more common. One is the miners' strike in Northumberland and Durham in 1810. The reply of the Government to this was to imprison the leaders, and, by a show of military forces, to compel the men to return to work. The union which conducted this strike was apparently, however, a temporary combination of delegates from each pit. In the same year, in London, the compositors of *The Times* were heavily sentenced for combining, and in 1812 came the famous case of the Scottish weavers' strike, where the men, after negotiation with the employers, appealed to the magistrates to exercise their legal power to fix a wage scale. It required legal proceedings to force the magistrates to do this, and they retaliated by refusing to compel the employers to pay the scale. The men were thus forced to their last expedient of a strike, whereupon the Government ordered the arrest of the strike committee, who were sentenced to imprisonment under the Combination Acts. These measures effectually destroyed this union. The general effect of the Combination Acts was to make all trade union organization unstable, and, in many cases, to drive it underground. But the administration of the Acts was uneven, ineffective, and, except in the turbulent new industrial areas, where the authorities were ever on the qui vive, sporadic.

METHODS OF REMUNERATION

(*Continued from page 222*)

VI

COMPARISON OF BONUS METHODS—(*contd.*)

OP_1 (or R_1A) is the standard output, for a day of 8 hours say, OP_2 and OP_3 being outputs of double and treble the standard respectively. OR_1 (or P_1A) is the rate paid for the standard, say 8s.; so that the point A in the diagram represents the production of the standard output and the payment of the specified amount on any one of the methods which have been described. The lines which represent the various methods are as follows: Straight piece-work (pure, i.e. without time guarantee)—the straight line $OABC$; straight piece-work with time guarantee —the two straight lines forming R_1ABC; Halsey premium (or output) bonus—with ½ time saved—the two straight lines forming R_1ADF; Rowan premium (or output) bonus—the straight line and the curved line forming R_1ADG. Consideration of the preceding descriptions of the different methods indicates why in one case the line of representation begins at O while in each of the others it begins from R_1; in these latter the time rate (8s. for the 8 hours) is guaranteed irrespective of output, and the point in the diagram at which the piece method of payment begins to be represented is A, but in the first there is no guarantee, and for an output less than OP_1 the amount paid will be less than OR_1 (e.g. OT paid for output equal to OQ). The curved line ADG continued to the right approaches nearer and nearer to, but without reaching, a horizontal line drawn through R_2; this represents the fact already mentioned that it is impossible on the Rowan method to earn double the rate. Facts represented in the diagram (or a continuation of the diagram) are indicated arithmetically in the accompanying table.

The points in the diagram corresponding to the third line of figures in the arithmetical table are B and D, i.e. output represented by OP_2 or R_2B, and earnings by P_2B and P_2D, according to the method of payment.

VARIABLE FACTORS

The reader should not rush to conclusions about the merits or demerits of the various systems of payment from a consideration of these arithmetical illustrations. The actual operation of any one of the systems is affected by a variety of factors. In particular, it should be noted here that the above arithmetical comparisons are made on the assumption that the time allowed (or the output demanded before bonus begins to be paid) is the same on each system. Only on such an assumption can the principles be compared; in actual practice, however, the assumption may not hold, and a difference in time allowances may have the result, for example, that the average earnings per hour in one factory from a Halsey premium bonus are greater than those for similar work paid on straight piece-work (with a time guarantee) in another.

The consideration of certain other forms of payment by results may be postponed to a later stage. It is clear, however, that any number of differences in output or premium bonus can be obtained by variation of the bonus rate. If we choose to call the premium or output bonus method piece-work (with a time guarantee), then, as contrasting with straight piece rates, the term "decreasing piece rates" may be applied. (*Degressive* is sometimes used in place of decreasing.) The rates, not the earnings, decrease with the output. The rate, however, may increase as output increases. For example, the rate may be 3½d., say, for output in excess of the standard output—3¾d. per piece for the 33rd, 34th, 35th . . . piece in the example already used (see the second paragraph, page 221, under Output or Premium Bonus); again, the rate might be increased to, say, 4d. for output in excess of 40, or it might

TIME ALLOWED = 8 HOURS

Time taken	Time saved	Output in 8 hours	Earnings in 8 hours			Labour cost or "piece rate"		
			Straight piece-work	Halsey (½)	Rowan	Straight piece-work	Halsey (½)	Rowan
			s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
8	0	1	8 –	8 –	8 –	8 –	8 –	8 –
6	2	1⅓	10 8	9 4	10 –	8 –	7 –	7 6
4	4	2	16 –	12 –	12 –	8 –	6 –	6 –
2	6	4	32 –	20 –	14 –	8 –	5	3 6
1	7	8	64 –	36 –	15 –	8 –	4 6	1 10½

rise continuously with the output. On these methods, put in premium bonus terms, the worker is paid for more than the time saved. The rates are "increasing piece rates" (sometimes called *progressive* piece rates). Both the rate and the earnings increase with the output. On the diagram given on page 222 the methods would be represented by lines, straight or curved, drawn through *A* but lying *above* the line *ABC*. All these methods might be considered as output or premium bonus methods or as piece rates (with a time guarantee), the piece rates decreasing, increasing, or remaining constant as the output increases. The name, premium bonus, however, is, in practice, more or less strictly confined to the forms already described—the Halsey and the Rowan forms. The reader may be reminded that the number of possible bonus methods makes an exact classification an impracticable task.

APPLICATIONS OF PAYMENT BY RESULTS

It is well known that in some trades there has been prolonged discussion, sometimes resulting in open disputes, over the question of the establishment of piece-work or payment by results or over the particular form to be employed. The explanation of the various forms has shown that one principal distinction among them is made by the presence, or the absence, of a time guarantee. This distinction will be found to correspond—not at all completely, but sufficiently to suggest a connection—with another distinction. This other distinction is made by the presence, or absence, of price *lists*. Often where price lists are in operation there is no guarantee of a time rate, though (see above) a piece-work basis rate, as distinguished from a guarantee time rate, may be used. On the other hand, where piece-work is employed in circumstances in which the work is constantly changing, and no piece price lists (even shop lists—see below) can be established, a guaranteed time rate is often found. This varying application may be best considered in reference to particular trades.

PRICE LISTS

Roughly defined, a piece price list is a schedule of operations or pieces of work with the corresponding prices—rates of piece wages—to be paid to the workers performing the operations. In some trades they are the most conspicuous element among the regulations and working conditions agreed between employers and workers, and have a long history. Important examples are the piece-work lists of the cotton trade, the pit lists of the coal mining industry, shipbuilding lists, London compositors' lists, and boot and shoe making lists. The lists may have varying degrees of application. Thus, certain sections of what is very nearly the whole of the cotton trade in this country (that is, the trade carried on in Lancashire and the neighbouring countries) are completely or very nearly covered by uniform lists—one list, or a very small number of lists, each covering many firms. On the other hand, in many trades the lists are shop lists; that is, each firm has its own list. This distinction between trades with uniform lists (they may be uniform over a large district including many towns, or over all the firms in one town) and trades with shop lists is explicable partly by the technical differences among trades and partly by other historical reasons. Shop price lists were used long before collective bargaining, as we now understand the term, developed as the principal means of regulating the relations between employers and workers. The earliest shop lists would be a matter of bargaining between the employer and his workers, even before the workers began to organize in shop clubs. As organization spread, shop lists were replaced in some trades by lists for small districts; these, in return, have been replaced by lists for wider districts. Steps in this historical process can be seen quite clearly in certain trades. For example, the substitution of the uniform weaving list or one or other of the uniform spinning lists for more localized lists in the cotton industry; a more modern example can be seen in the application, under the Trade Boards Acts, of general minimum piece rates to, among others, the boot and shoe repairing trade and parts of the chain making trade. (The term general minimum piece rates is that used in the Trade Boards Acts. It corresponds with what is here referred to as uniform piece price lists. The Trade Boards Acts, it may be noted, also permit of the fixing of *special* minimum piece rates. These, which have been fixed in a very few cases by Trade Boards, correspond with what we have called shop lists, but fixed by a Trade Board and enforceable at law. Many firms in trades coming within the Trade Boards Acts make use of shop lists which are not special minimum piece rates but which have to satisfy *piece-work basis time rate* conditions—see above, under Straight Piece-work.) In other trades, however, where collective bargaining has developed so that agreements are made, on wages and other matters, to apply to wider districts, the lists of piece prices may remain shop lists; one of the most important examples is the coal mining industry, where the lists for hewers, or other piece workers, are, as they have long been, pit lists. The example given will suggest why, in some trades at least, uniform lists—in the sense in which up to the present we have used the term, namely, as meaning the application of the same schedule of prices to a district—have not been adopted; the conditions of work—for example, the different physical features of the seams in the coal mining industry—vary so much from establishment to establishment that one list for all is impracticable. The many shop lists in one trade may, nevertheless, show a large degree of uniformity in results.

UNEMPLOYMENT

(*Continued from page 224*)

VI

DISCONTINUOUS EMPLOYMENT AND CASUAL LABOUR

THE CASUAL RESERVE

UNLIKE cyclical and seasonal unemployment, casual labour is essentially chronic. Discontinuous employment is to some extent an inevitable result of industrial conditions, which cause the amount of work to vary from day to day. Thus, some men obtain only a certain number of days in the week or weeks in the year. The least fortunate are definitely under-employed, getting only a few days' work a week and never getting sufficient earnings for a decent living. In other cases, jobs may last for weeks or even months, but there are breaks between them, which, if sufficiently numerous and prolonged, mean serious unemployment.

The ultimate consequences of discontinuous employment are far more serious. A reserve of labour is necessary in any case, since sufficient men must be " waiting for work " in slack times to do the work of busy periods. But the actual organization of some industries, as described below, swells the total reserve out of all proportion to real needs and creates the problem of casual labour.

DOCK LABOUR

Dock labour is typical of day-to-day employment. Conditions of weather and tides affect arrival and departure of ships and necessitate speedy loading and unloading. Hence, the numbers employed fluctuate from day to day. In the London docks, for instance, they varied in March, 1913, between 11,728 and 14,437, whilst in individual docks and wharves the variation is far greater, and the irregularity correspondingly increased. Further, trade conditions cause very short spells of brisk work in dealing with particular products—grain, wool, timber—followed by slack periods. The irregularity is increased by seasonal and cyclical influences.

THE BUILDING INDUSTRY

In less pronounced form discontinuous employment is common in the building industry, largely because of the practice of engaging men for particular jobs only. A building firm's work may vary continually and require different classes of men for each contract. A church restoration, for instance, needing mainly bricklayers and masons, may be followed by the fitting of an hotel, employing mostly joiners, plasterers and decorators. Again, in big towns different contracts may be long distances apart, and thus a firm will engage most of its labour locally. Some men will follow a particular firm, but most will not. " You are simply taken on to do a job and, when that is finished, you leave and find another." Men call round from job to job till a vacancy is secured and may often be unemployed for some time. Thus, where jobs are short, they may suffer from considerable unemployment. Much work, moreover, especially with small repairing firms with little capital, is definitely casual and cannot afford regular employment. Not infrequently a man will say that he has been employed " off and on," meaning now a few weeks regular, now a few days a week, now off entirely. Seasonal fluctuations aggravate the position and there is some definite under-employment, especially during trade depressions.

OTHER DISCONTINUOUS WORK

Discontinuous employment is also found in various other trades. Squads of riveters in ship repairing in particular suffer from irregularity, for reasons similar to those affecting dockers. Work must be done quickly as ships come in, and spells of heavy work, with much overtime, alternate with slack periods. The work, however, is mostly skilled and the workpeople well organized, and thus actual casualization is less marked than in the docks. Printing, again, has some definitely discontinuous work, especially in connection with weekly publications. " On Thursday or Friday a number of extra men will be called in. Some of these outsiders—' grass hands '—may also be at work at other offices, but in many cases these two days represent their entire week's work. . . . There is a wholesome tendency to reduce this irregularity by concentrating in one office the printing of journals published on different days."[1] Such discontinuity, however, is limited and the amount of employment available more definitely known. " Jobbing " work in printing is also sometimes discontinuous and the discontinuity is aggravated by the need of extra labour in one or two very busy months.

THE CASUAL FRINGE

Moreover, nearly every trade has an under-employed fringe of casual labour, partly because even regular industries need some reserve of labour to meet rushes, and partly because there are workmen, " whose irregular mode of life," in Booth's words, " will not allow them to retain a permanent position."[2] Casual work, indeed, tends to create the casual worker, who, from being irregularly employed, loses will and capacity for regular work, and this is one of its most serious features.

[1] Booth, *Life and Labour of the People in London*.
[2] *Ibid.*

THE EXTENT OF CASUAL LABOUR

Thus industrial conditions render some discontinuous employment inevitable, but the organization of industry seriously increases it. Here, again, the docks are typical. In spite of partial reorganization, notably in London after the strike of 1889, the work of many dockers is most irregular. Each dock or wharf maintains its own reserve of labour and attempts to keep sufficient workers available for its busiest times, and even a larger number than this in case of special emergencies. Since the busy days are different in different docks, the numbers seeking employment exceed, and, in fact, far exceed the total employed on the busiest day. Moreover, the docks attract the failures of other trades, who thus further increase the surplus of labour competing for inadequate amounts of work. In 1913, an exceptionally brisk year, the late Mr. Orbell, of the Dockers' Union, estimated[1] that of his total members only 5,000 obtained full work throughout the year, 9,000 obtained three days a week or less, and over one-third (6,000) two days or less. Since the war things may even have been still worse. Piecemeal reforms, moreover, whilst benefiting the permanent and preference men, have left a diminished amount of work for others.

HOW CASUAL LABOUR IS CAUSED

Thus, failure to organize labour renders employment unnecessarily casual. Separate reserves for each firm make it necessary to employ large numbers casually, when, by transfers from firm to firm, smaller numbers could get regular work. A few central reserves could balance the busy and slack days of different docks and reduce irregular employment nearly to the limits set by general industrial conditions. In the figures quoted for March, 1913, over 13,000 men out of about 14,500 might, with such organization, have got work for three days a week or more, compared with 9,000 out of 16,000 in Mr. Orbell's estimate. A trade union official, quoted by Messrs. Lascelles and Bullock, estimated that 50 " calling-on " stands would be adequate for the Port of London, instead of the existing 500, and this would make possible a large measure of decasualization.

Conditions are somewhat similar in building, certain branches of which, like the simpler painting, tend to attract failures from other trades. Discontinuous employment, and the fact that individual foremen are responsible for engaging labour, involve irregularity for many individuals. " When men follow up a foreman and he dies or retires, new ones are taken on who are followed by a lot of new men." Thus, each foreman tends to get his own reserve and before the war the trade had much casual labour. The complaint was also common of a habit of rushing contracts, which increased unemployment; and such rushing is facilitated when considerable reserves of labour are available. The post-war shortage of labour has eased the position, and measures like the establishment of the Central Building Trades Employment Exchange in London are a step in the right direction.

RESULTS OF CASUAL LABOUR

The consequences of casual labour are serious. Labour is wastefully employed and men are kept, to an unnecessary degree, in partial employment who might otherwise be fully employed. Large sections of the population are in chronic distress and their families are not adequately maintained. The casual worker cannot afford to put his children to anything better, and so casual labour grows from generation to generation. The effect on industrial efficiency is serious. The physique of the men is injured and, as already described, the desire and capacity for regular work are apt to be lost. Moreover, not only casual labour, but ordinary discontinuous employment, as in building, encourages slack work and ca' canny. Men know that when a job ends they will be out of work, and naturally make it last as long as possible. Again, casual labour involves high wage rates which, whilst insufficient for adequate maintenance, increase costs and hamper industry. Finally, the casual is a definite source of industrial unrest. Thus, Mr. Ross-Johnson, Manager of the Bristol Docks, wrote in 1923: " It is always the interest of the submerged fringe of dock labour to foment trouble and disturbance. These men are the greatest trouble to the union officials as well as the employers, the most active and loquacious at mass meetings, who terrorize their steady and peaceful mates, carry mutinous resolutions, and provide the membership of Strike Committees."[1] They also oppose measures of decasualization, since the most casual are likely to be crowded out altogether by it.

THE REMEDIES REQUIRED

Thus the present system has most serious effects and urgently requires remedies. Three things are needed. There must be decasualization to reduce reserves of labour to a minimum. Provision must be made, through unemployment insurance or otherwise, for adequate maintenance during periods of idleness of those whose work is still irregular. Finally, training or alternative employment must be available for the men displaced in the process of decasualization.

[1] Lascelles and Bullock, *Dock Labour and Decasualization*, page 49.

[1] Lascelles and Bullock, page 162.

BOY LABOUR AND APPRENTICESHIP

(*Continued from page 226*)

VI

WORKSHOP TRAINING

THE methods and conditions of training have so far been considered. Of equal importance is their detailed application in practice. A good method may have bad results, if the detailed training is inadequately provided for, and an apparently bad method may be made by good organization to work well. Training under modern conditions, moreover, has increasingly to utilize the school as well as the workshop, the technical or trade school for the apprentice and the ordinary continuation school for the boy labourer.

THE REQUIREMENTS OF TRAINING

What training actually involves may now be briefly considered. First, the boy has not merely to be taught, but to learn. His employer, the foreman, and the men in the shop take their parts in teaching him, but part he must learn for himself. Training misses one great opportunity, if confined to teaching the boys without showing them how to teach themselves. This is far harder; but the power, once acquired, of knowing how to learn is of high value, and in particular gives adaptability to changing circumstances, which was never more essential than to-day. Further, training is not only directly imparted, but is often unconsciously acquired, the boy in the works learning from working with and among skilled men and seeing what they do. These things, therefore, form a growing part of training, especially with the tendency to substitute "opportunity to learn" for more direct teaching.

But they in their turn are not complete without definite instruction and adequate care and supervision. Modern conditions, indeed, often make it more easy and more necessary for a boy to teach himself, but to do this successfully he needs guidance and supervision, to show him the true path and set him right when he goes wrong. Otherwise he may fall into errors or lose sight of his proper end, with the result of failure, or, at best, imperfect training. The ideal, therefore, must combine definite teaching and supervision with reasonable independence and responsibility in the boy himself.

THE EMPLOYERS' OBLIGATIONS

Moreover, the type of training must necessarily take account of the conditions under which it is given, and the obligations the employer has undertaken. Obviously, these will be smaller when he is paying full, or nearly full, value for the boy's work than when the boy receives only small apprentice wages. Even with the more definite training contracts, indeed, apprentices' wages are now more nearly equal to their value as workers than in the past. This largely accounts for any increasing tendency to leave the boy to do his best for himself. It must be taken into account both in considering existing conditions and in putting forward suggestions for the future.

FIRST MONTHS AT WORK

Certain problems of workshop training may now be considered, and, to begin with, how a boy spends his first few months in the workshop. Usually, he is set to run errands and make himself generally useful. Some good firms prefer to put him straight to the bench; but others equally good favour the other arrangement and under reasonable conditions it seems beneficial. It gives a boy better general ideas of the trade and its tools and materials than if he went straight to the bench. It affords greater variety, whereas to sit all day at a bench proves monotonous to boys straight from school. It avoids some employment of unskilled boy labour. Finally, the boy is doing work useful to the firm, which can thus pay a better starting wage. But the boy must be kept under careful supervision, so that the time is not wasted, and the period on this work must not be unduly prolonged. It is a possible weak point in the arrangement that he may be kept too long on the errands without learning anything of value.

APPRENTICE SHOPS

Certain large firms establish an apprentices' shop with a skilled instructor, into which apprentices are drafted for the first part of their time, or devote a special part of the workshop to the purpose. Where practicable, such arrangements are excellent for providing careful supervision for the boys, when least able to look after themselves, and ensure skilled teaching. But they should not remain too long in the apprentice shop, in order not to lose the valuable training acquired by working among skilled men.

HOW BOYS ARE TAUGHT

Training in the later stages is often subject to no definite arrangements. Details vary from trade to trade, but certain general practices can be distinguished. Some trades allow a boy to be put through a more or less definite gradation of jobs; and in them, e.g. in metal turning, he goes first to a very simple machine and works up to more and more difficult ones. Other trades do not allow of this and the boy is instructed in the work as opportunity offers, and often, as in joinery and cabinet-making, works with a man till fit to work by himself. In the former case responsibility is

mainly on the foreman, in the latter largely on the man with whom the boy works. Such teaching is usually regarded as part of the ordinary duties of foremen and time-workers, but some allowance is made to piece-workers. The criticism is advanced that foremen and men have not the time, or sometimes the will, to teach. The foreman's lack of time can be a real difficulty, but apparent unwillingness in the men to teach is frequently due rather to lack of ability or to the boy's own fault. Care, therefore, is needed in selecting the man with whom to place a boy. There is also danger of the boy being kept too long on simple work. But the advantage of this to a firm is often limited. Frequently it pays better to push him on rapidly to secure a high output during his closing years. Where, however, there is no definite agreement employers may be deterred, by fear of the boy leaving, from bringing him on in this way.

DEFECTS IN METHODS

The lack of system is more serious where the boy works for wages and teaches himself, and various disadvantages result. The boy must earn his relatively high wage, and thus is largely left to himself. From lack of guidance he may acquire bad methods of working, or for the sake of immediate high wages may restrict himself to what he can do well, and thus become, not an all-round workman, but a specialist liable to displacement by slight change of process, or to recurring unemployment when his particular skill is not in demand. Moreover, these conditions, as already described, sometimes affect adversely regular apprentices, making them discontented and liable to feel, often unjustly, that their employers are making an undue profit out of their work. Some even break their apprenticeships to go as improvers and "soon find they are not worth as much as they thought." These conditions also tend to create, both in learners and apprentices, as their training progresses, a desire for high wages which they did not originally have. This further sacrifices training to immediate earnings.

Thus modern conditions suggest two serious problems, of establishing regular and definite training, and of reconciling this with the desires of apprentices and learners for good wages.

TRAINING AND WAGES

The latter may be considered first. Provision for it would help to meet the competition of highly paid unskilled labour. The boys, too, wish to earn as well as learn, and parents, whilst willing to make some sacrifices, often cannot afford a "nominal" wage. But, if the apprentice is to secure wages approaching the value of his work, he must spend longer at each stage of training to recoup the employer for the cost and trouble. Modern conditions, however, often permit actual manual training to be given more quickly than in the past, and this fact seems to provide the solution desired. There is evidence, too, that under favourable conditions good wages can in fact be paid during training. A shortened apprenticeship, indeed, is sometimes favoured, but, on grounds of welfare, its continuance to 21 is probably desirable.

REVISION OF METHODS

Moreover, such a solution does not seem incompatible with regular conditions of engagement and training. Already, even in the more regular apprenticeships, much of the responsibility for training rests with the boy himself. Whilst definite care, oversight, and supervision are essential, and should be more adequately provided for than at present, to make the boy feel that his progress largely depends on himself stimulates his initiative and self-reliance. On these lines, therefore, a more systematic organization seems desirable and practicable, which would also secure a living wage to the apprentice and encourage more boys to enter skilled trades. But, for such arrangements to be successful, the whole course of training must be reconsidered, and definite schemes worked out for each trade, regulating the time at each stage, and providing the necessary guidance and supervision. For accepted and uniform standards are required to guide boys and employers alike. Such a reorganization, indeed, is essential, whether based on the arrangements just indicated or on older and more formal methods.

SEMI-SKILLED WORK

The lower grades of boy labour need only brief reference in this connection. With them, with less to learn, even for semi-skilled work, things are left far more to chance. Promotion is haphazard and little is done to prepare the boys for it. The necessary organization for giving the boys suitable preparation for their life's work has already been sketched in dealing with boy labour.

LEADERSHIP IN INDUSTRY

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VI

WELFARE

It might be said that the social aim of our industrial methods is by no means clear. On the one hand, we might argue that if we could arrange to pay in the form of wages for work done and to pay in no other form, it would encourage the workers in their understanding of what money means, and what it can obtain. On the other hand, there is what we may call the "social" theory. Social help is given to wage-earners on a fairly extensive scale. They are helped with the education of their children, with medical advice for their children, and in some cases with food; they are aided in respect of the insurance against sickness and unemployment. There are thinkers who propound an advanced theory of this type of help until it might go so far as to provide all the necessities, leaving the stimulus towards work to be found only in the desire for luxuries and comforts. Matters have gone too far in England to revert to the method of simple financial reward. It is to be noticed that even in the United States, where remuneration is more closely confined to the financial reward and where there are, strictly speaking, no State-provided or State-aided social services, there are continuous pleas for the introduction of these social services. If we translate these arguments to the territory of immediate industrial administration, we shall find very similar issues. There are the industries which consider that their responsibilities are fulfilled when they pay a reasonably liberal wage. There are others where the responsibility for "welfare" work is accepted; where the health of the workers is specially cared for, where housing and medical aid are provided, at least in part; where education and sport are encouraged. It may be that there is a place for a discussion as to whether or not this is ultimately wise, but the fact remains that it is undertaken precisely where the moral responsibility is felt. It is clear that if nothing is to be done for the worker beyond paying the bare wages, the standard of wages will need grave reconsideration.

THE RESPONSIBILITY FOR WELFARE

So we may accept the position with the best grace possible and admit that we have moved a long way from the Victorian age, and that industrial leadership nowadays does and must include some responsibility for welfare. Indeed, we may go farther and say that we have been brought to a position when industrial welfare, as a responsibility of the industrial leader, must include aspects in which it may go beyond the limits of the appreciation of the worker. It has come to be accepted that, especially in respect of sanitation and standards of health generally, the type of encouragement which is given by the industrial welfare movement will build up a standard of appreciation and demand. Here, therefore, we have a clue to the purpose of industrial welfare. It is not to be a substitute for individual action, nor is it to be allowed to confine individual liberty. Rather its function is to teach, by means of corporate and directed action, lessons which may be learned for private life.

LIMITS TO ORGANIZATION

At the same time, the leader must remember some of the natural qualities of human kind. It is not only that it desires to do something itself for its own welfare, but that there are limits to the perfection of organization which it can tolerate. The parallel with machinery is very close. Friction is the enemy; efficiency demands some friction. We might imagine a vast organization without jealousies or misunderstandings or grievances. We may plume ourselves on having a "contented personnel." Let us be quite sure that it is not apparently contented because it is inarticulate. At the same time, we must not so construct our scheme as to be ever expecting grievances. I dread the idea of "grievance committees" or "grievance boxes." To be ready to deal with a grievance honestly and frankly is one thing; to organize for the constant appearance of grievances is a totally different thing. The works committee can be occupied to much better purpose in dealing with the efficiency of the day-by-day work. A grievance is a disease if it is so constantly present to the minds of those in the industry that there must be machinery to deal with it. So we come to a sort of paradox. Never assume that there are no grievances; never assume that there are grievances. And when we have made our improvements and striven to provide a healthier atmosphere, let us take great care that we have not substituted one tyranny for another. The tyranny of the sententious maker of grievances can be as evil as any other tyranny. Under the guise of holding a representative position he may exercise an authority which offends the common sense of the industrial community; though they bear it in silence, it acts deeply upon them. The task of the industrial leader has its own Scylla and Charybdis, but it is worth while to strive to steer an even course. It really comes down to healthy encouragement of individual expansion, and to achieve something in that direction is the surest way to welfare.

PUBLIC FINANCE

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VI
DISTRIBUTION OF PUBLIC EXPENDITURE

PUBLIC expenditure is distributed between that of a central or federal government, a provincial or State government, on the one hand, and that of local authorities on the other. This distribution is largely the result of historical conditions. The old system of poor law relief in England, for example, was purely local; to-day practically the whole of the expenditure attributable to the assistance of the poor falls upon local rates.

NATIONAL AND LOCAL FINANCE

Conditions vary greatly in different countries. In Germany in pre-war times direct taxes belonged mainly to the individual States which made up the German Empire; the Empire itself had to rely on indirect taxation. Many of the reviews of war-time finance have urged that this delay on the part of Germany in framing the Imperial Budget to meet the needs of changing conditions forced that country to depend on enormous loans. But for that position Germany might have met a higher proportion of the outlay on war from immediate taxation. In Great Britain the historical factors in the distribution between central and local expenditure are also pronounced. The modern history of rates, i.e. burdens imposed upon the locality, is usually dated from the poor rate of 1572, 1598, and especially 1601; these rates were imposed in terms of the annual value of property subject to such a burden. Nor did the important reforms of 1834 make the assistance of the poor a national charge. The recommendations adopted at that time provided rather for a more complete and efficient regulation of the local administration, mainly by the appointment of special central control. In this sphere, and indeed in all others, there is notable absence of uniformity when other nations are considered. Take, for example, the wide diversity in the distribution of public duties in France and in Germany. Before the French Revolution of 1789 France had a highly centralized system of administration, generally associated with an absolute monarchy, which definitely restricted the possibilities of development by the local authorities. Germany, on the other hand, had a greater division of State power; but that division undoubtedly delayed the attainment of national unity.

CENTRAL AND LOCAL CONTROL

All economists pay tribute to the advantages of strong central government for the purpose of general control; but they also concede that in financial administration considerable schemes of decentralization are essential. The importance of central, provincial, and local expenditure varies in different countries. War conditions in Great Britain completely altered the relative proportions of central and local expenditure; prior to the war they stood in the relationship of 4·6 to 5·4; but in the period immediately following the war over 70 per cent of the public expenditure was central and less than 30 per cent local. Recent tendencies have to some extent redressed the balance. But in practically all countries the larger part of the public expenditure is borne by the central government. Precise demarcation is impossible; as a rule, it is suggested that the central government has a trained secretariat and official assistance which local authorities do not ordinarily possess; further, that certain classes of expenditure are much more readily and efficiently controlled by a central authority. Expenditure on defence, for example, is almost always retained by the supreme or central government; and it also covers customs, including tariffs, shipping, immigration, and foreign relations, and other suitable subjects of central or federal expenditure. But where minute supervision is required, as in the case of local lighting, or in the administration of poor law relief, the local authorities are plainly a much more efficient instrument. Anything affecting local self-government, on the other hand, such as the constitution of municipalities, or the general organization of district boards and kindred bodies, is, of course, appropriate material for State or provincial expenditure; as already indicated, the growth of the percentage system in Great Britain and corresponding methods in other countries make clear division virtually impossible.

EXPANSION OF LOCAL GOVERNMENT

Professor Bastable pointed out that the nature of the American State and local governments had been affected by the circumstances of the colonial institutions from which they sprang, and added that historical conditions were often the result of deeper forces, the physical features of territory, the character and sentiments of the inhabitants having a close bearing on the determination of the constitution. He alluded to certain distinct tendencies in discussing the leading principles of the distribution of powers between local and central organs. In political evolution there was no direct movement towards a definite goal, but rather a series of efforts following the line of least resistance at any given time. In his view, in early societies the originally autonomous city was ultimately reduced to take commands, down to the smallest detail, from the emperor and his

officials; mediaeval society showed a movement towards the revival of local privileges; in all European countries cities succeeded in acquiring a large measure of freedom in dealing with their own affairs; and in some countries, such as Italy, they almost reached independence. But nothing could resist the process under which there was a definite curtailment of provincial liberty and the growth of rule which involved particularly uniform rights and duties. The relations of administrative organs, as he indicated, became more complex as the States increased in size. Along with other economists, he quotes Mr. Goschen's opinion that the outcome in England was a chaos as regards authorities, a chaos as regards rates, and a worse chaos than all as regards areas. This development is usually attributed to the irregular and almost haphazard course of the expansion.

CENTRAL SHARE IN CONTROL

Looking more closely to the financial results, the central authority or the State has undeniable claim to deal with the larger part of the aggregate public revenue. Not only is it representative of the nation, but it must in all circumstances take the wider view, and all general interests are plainly its function. Too much need not be made of the superior skill which is regarded as usually at its disposal. There is agreement that duties like the provision of justice, the organization of police, and the arrangements for defence belong either wholly or largely to central government. But in local expenditure education, water supply, sanitation, lighting, roads, and similar services occupy an important place. Under the system which combines a grant from the national exchequer with the produce of local rates for such purposes the control of the central government is usually general supervision within the appropriate Acts of Parliament; that condition satisfied, the local authorities have considerable responsibility. Recent reviews of the system of percentage grants in Great Britain have often suggested that where a fixed State contribution is adopted, the dual control, or duplication of audit, in many cases might be greatly reduced, if not wholly abolished; but such a controversy raises important issues of the duty of the State in making perfectly certain that these contributions to local expenditure are used precisely in terms of Parliamentary intention as represented by the statutes in force.

DEGREES OF LOCALIZATION

To the circumstances which have been summarized may be traced the almost universal devolution of parts of the administration to the locality. It is also regarded as expedient to entrust to smaller bodies certain public duties which call for diversity rather than uniformity of treatment. There are many forms of public action which are unsuitable from the point of view of adoption of uniform pattern. In education, for example, elementary training is regarded as more closely related to separate localities than higher or secondary education, which, in the judgment of many critics, does not admit of the same degree of localization. The division of economic duties within the State has often referred to the principle of general or particular interest. What applies to society as a whole should be undertaken by the central government; what is specially needed by the locality or by a minor part of the country should be undertaken by the locality. There are, however, some additional reasons for particular forms of distribution; for example, particular duties are often given to or withheld from local bodies on the ground that they are well suited, or unable, as the case may be, to bring the cost of the service home to those who benefit by it. Further, there is frequently ground for limiting local duties in view of the existing division of general and local taxation. Where local revenues are confined within narrow limits additional duties, requiring extra cost, can hardly be imposed upon a local authority. In both national and local expenditure comparisons are sometimes made between the State machinery and the local authority, on the one hand, and that of the private industrial company on the other. Such comparisons, however, are probably of little value in the study which is immediately in mind. The ordinary private company has a voluntary basis, whereas the powers of both central and local governments are defined in a long series of Acts of Parliament, and are overwhelmingly compulsory in character.

THE ECONOMIC FUNCTIONS OF THE STATE

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VI

THE REPLY TO INDIVIDUALISM

FALSE ASSUMPTIONS OF INDIVIDUALISM

To this statement of individual rights it was easy to reply that it was true enough as far as it went, but that it started from wrong assumptions and arrived at unwarrantable conclusions. Individualism presupposed a "plump and solid" individual, who could entirely be separated from other individuals, capable both of knowing and pursuing to a successful issue his own interests apart from State or society, with unlimited "rights," which could not be touched without his consent, whatever use he made of these; it assumed that you could distinguish "pure self-regarding actions," in John Stuart Mill's phrase, in which the community was in no wise interested, from those in which all were concerned. It tended to see in the State a tyrant, instead of realizing that State action could be a liberation from the tyranny either of a privileged class or of traditions more tyrannical than any laws.[1] It forgot, and perhaps this was its chief defect, that powers wielded by the State were not necessarily filched from the individual, that services of all kinds might be rendered by the State which no individuals could ever obtain by their own unaided efforts. It neglected the facts of economic and spiritual solidarity. It constructed an unreal world—unreal in its conception of an individual unrelated to his fellow men and to the various groups (other than the State) through which human activities have play, unreal in its view of an external State against which the individual had to be on a perpetual defensive.

But more than wrong thinking was involved. It assumed, as we said, that the individual had "rights" which were his in virtue of his being alive, and which could in no wise be infringed without his specific consent. Now, such a doctrine could be—and was, indeed, at first—a doctrine of liberation, but it could, and did, become a doctrine of tyranny. In the name of individual rights many shackles were shaken off, many an old-standing abuse removed. Arbitrary imprisonment, religious persecution, censorship of Press and book, economic and political privileges, were swept away in country after country, and man emerged into nineteenth century with far more real freedom of self-expression than ever before in his history.

THE PROBLEM OF PROPERTY AND THE ADVENT OF SOCIALISM

There was, however, another side to the picture. Among the sacred rights claimed by the individual was another, apparently equally natural, but more capable of abuse—that of property, and it soon became apparent that it would soon reduce all others to subordination. Those in whose hands property lay when the century opened were still a comparatively small class of landowners and manufacturers, and, virtually, any advocacy of the rights of other classes involved a limitation of their rights, particularly of the right to do as they pleased with what they termed "their own." It was, therefore, inevitable that theories should arise challenging those assumptions on which the unlimited control by the individual of what he happened to possess was based. This was one common basis of all the various theories called "socialistic." They all denied this absolute right of private property, while differing widely from each other as to the manner in which society would control the property removed from private hands.

Socialism was thus a reassertion of the right of the State to interfere—but it differed from the "State philosophy" of a Hobbes by claiming as the guide for such interference, although using other terms, the old individualistic principle of the greatest happiness of the greatest number.

THE OLDER PARTIES AND STATE INTERFERENCE

The advent of this new political philosophy, soon embodied in a new organized party, rapidly led to a reconsideration by the two older parties of their attitude towards State interference. It cannot be said that either of them had even formulated an abstract theory as to the efficacy or fatality of such action. The Conservative party had been traditionally the party of intervention and despotism, the Liberals of individualism and non-interference. This was logical. As long as the State was, to a large extent, the King, it was inevitable that resistance to royal absolutism should entail resistance to State interference as such. It was natural that seventeenth and eighteenth century Tories should resist the doctrine of individual rights and its culmination in the French Revolution, and equally natural that this doctrine should be welcomed by the Whigs and the manufacturers of the Industrial Revolution, the newly expanding manufactures only asking to be left alone (and resisting factory legislation) while decaying agriculture demanded the support of the Corn Laws.

In the later years of the nineteenth century, the situation began to alter. The non-propertied classes began to realize that freedom may include freedom to be exploited as well as to expand, and protective legislation was demanded, while both

[1] Cf. Matthew Arnold's indication of the State as the guardian of true aristocratic traditions in an ultra-democratic age (Essay on *Equality*).

Liberals and Conservatives retaliated by declaring that matters must be settled by the " free play of economic laws." At the same time, new industrial conditions created a demand for " Protection "—i.e. State regulation of imports and exports, while the growing complexity of social life was causing increased State intervention in many matters, mostly economic—which had so far been left by both parties to individual enterprise, each party asking for State intervention along some lines, while resisting it along others.

SOCIALISM AND THE OLDER PARTIES

The advent of Socialism had very different effects on the two parties. It threw the Conservative party sharply back on its traditional defence of established rights, causing it to scrutinize with much keener suspicion many possible measures involving State action on the grounds of their being " socialistic " and destructive of property rights. On the whole, it tended to solidify and strengthen the party. On the Liberals it had an opposite effect. It attracted those Liberals who were radical reformers rather than individualists, and drove into the Conservative camp others whose liberalism was more a traditional jealousy of State action than a positive creed. It is too early to say at present how soon and to what extent the party will regain the unity and power it once possessed.

Much depends, of course, on the development and evolution of Socialism itself. We have presented it in the lines above as a single force, and in this country it has appeared so far as one political party, with no less cohesion than its rivals. It would, however, be idle to deny that " Socialism " covers a great variety of standpoints and of policies ; and that even if the distant goal be the same for all Socialists, the roads thereto and the methods of travel are vastly different. English political parties have displayed hitherto an amazing power of maintaining a united outward front while being rent asunder by divergencies of principles and violent personal quarrels ; and English Socialism has so far followed the tradition. But we may not forget that even in this country the cleavage is acute between orthodox Labour and Communism, while on the Continent the unity of Socialist forces has been the exception, not the rule. The disruption of Socialism might throw back into a party of " Socialized Liberals " many of the old Radicals and of the young Socialist " bourgeois intelligentsia." But political prophesying is not our present concern.

We shall have to return to many points to which we have only just alluded in these pages, and only wish to draw some general conclusions from this rapid sketch of the attitude so far taken by parties and thinkers to the question of State interference in the economic— or any other—sphere. First, that no party or class has so far evolved a clear, coherent philosophy of State interference. The tendency has been to advocate or reject it, according to the personal advantage, at the time, of the spokesman, whether party leader or political philosopher. " Power is useful in my hands, or in those of my friends, dangerous in those of my enemies " is our natural thought, and most of us have echoed at times the sentiment expressed in *Diana of the Crossways* : " Oh, for a dictator ! a dictator to do our own bidding ! " Secondly, that this absence of clear thinking has been due to the disappearance of any clear theory as to the nature of the State, and in particular of any agreed common purpose by which State action could be determined. Thirdly, that the circumstances of the modern world have been too strong, both for the old individualism, that believed the individual could be really isolated from society, and for the old " authoritarianism " that believed in " the State in itself," and thought it could be isolated from its individual members, or, for that matter, from its fellow States outside. Extreme nationalism, like extreme individualism, both spring from the same root: the forgetting that solidarity is the reality on which all society is built.

NEED FOR A COHERENT THEORY OF THE STATE

The time-honoured distinction between " liberty " and " authority," between " individualism " and " State interference " cannot therefore take us very far. If we wish to build up a coherent theory as to the proper function of the State in the sphere of economics, we shall have to discover some starting point more in harmony with the real facts of social life than either an individual, armed with natural rights which he brought with him from a time when society did not exist, or a State existing for an ill-defined purpose entirely unrelated to the welfare of the mass of its individual members. We shall be forced to formulate some political theory that will take into consideration a mass of apparently contradictory facts—that the individual has no existence worth the name apart from some social whole, and yet has a personal life that must find some measure of self-expression if life is to be worth living ; that the State must exist as the agent for the co-ordination of individual lives into some coherent unity which is essential to life, and yet must never allow itself, in the name of some sacred common purpose, to deprive its members of their no less sacred self-expression. The search for that synthesis and its application in the economic sphere will be our next task.

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

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VI
ORGANIZATIONS IN THE FIELD
(*b*) THE INTERNATIONAL LABOUR ORGANIZATION

By J. H. RICHARDSON, M.A., PH.D.

Origin and Objects. When the war ended a general demand was made for the removal of all causes of friction between nations. In considering how to satisfy this demand, the authors of the treaties of peace recognized that the existence of conditions of labour involving injustice, hardship and privation to large numbers of people was one of the greatest menaces to the peace of the world. They agreed that an improvement in labour conditions was urgently required, and also that the failure of any nation to adopt humane conditions of labour was an obstacle in the way of other nations which desired to raise the standards in their own countries. For example, the competition of goods produced under "sweated" conditions abroad endangers the maintenance of a reasonable standard of living at home. A ten-hours day in one country hinders the adoption of an eight-hours day by its commercial rivals. The Peace Conference, therefore, decided to set up the International Labour Organization, the object of which would be to contribute to the establishment of world peace by—

1. Promoting the general adoption of satisfactory conditions of labour.
2. Preventing unfair competition between nations which results from the failure of certain nations to adopt humane labour standards.

The constitution and powers of this organization, which are outlined briefly in the present article, are given in Part XIII of the Versailles Treaty.

It is evident from the foregoing that the purposes for which the Organization was set up are almost entirely economic. All labour problems and many aspects of international competition are involved. Part XIII of the Treaty makes specific mention of the more important of these problems. They include regulation of hours of work, particularly the establishment of an eight-hours day and the adoption of a weekly rest of at least twenty-four hours, payment of an adequate living wage according to the standards of the different countries, abolition of child labour, prevention of unemployment, and protection of the worker against sickness, disease and injury arising out of employment. These and other economic problems affecting labour are the field of activity of the Organization. Before the war such problems had been dealt with almost solely on a national basis. But merely national solutions are of necessity incomplete. International reactions must be considered since, through international trade, the labour problem is a world problem. The Organization provides the means of international co-ordination, which is essential if a general solution is to be found.

Membership and Financing. In order to secure the best results it would evidently be desirable that the Organization should include all the nations in the world. Actually, fifty-six States are members, the only great States outside being the United States of America and Russia. All States which are members of the League of Nations are automatically members of the Organization. Also, certain States not members of the League have been members of the Organization; for example, Germany has been a member of the Organization since 1919, although not admitted to the League until 1926.

Since its membership consists of the various States, and its constitution is laid down in the Peace Treaty, the Organization is essentially official in character. It is necessary to emphasize this, as much misunderstanding exists and there are still people who confuse the Organization with various International Trade Union, Socialist or Communist groups.

The money required for its maintenance is voted each year by the Assembly of the League of Nations, and is contributed by the Government of each State Member out of public revenues; the contributions of the different States vary according to a scale based on the relative importance of each State. Although financed through the League Assembly, the Organization is autonomous, having full power to determine its own policy.

The International Labour Conference. The Organization consists of a General Conference and an International Labour Office.[1] The Conference is composed of delegates called together from each of the States which are Members of the Organization, and must meet at least once a year. These regular Conferences, and also the annual meetings of the League of Nations Assembly, represent a definite advance in the development of international relations over the pre-war practice of occasional and often ill-prepared meetings between States.

Each State is represented at the Conference by four delegates; a small State, e.g. Cuba, has, therefore, voting power, though not influence, equal to that of a large industrial country such as Great Britain or Germany. Of the four delegates

[1] The Conference is convoked by the International Labour Office, which may be regarded as the permanent civil service of the Organization. The Office and the Conference form the subject of special articles later in the present course.

of each State, two are Government delegates; the other two are representatives of employers and of workers chosen by the Government in agreement with the most representative organizations of employers and workers in the country concerned. This method of representation is a striking departure from the usual diplomatic practice, according to which a State is represented by Government delegates only.[1] Each delegate votes individually. Naturally, the two Government delegates from any country vote together, in accordance with the instructions given them by their Government; but the employers' and workers' delegates are independent, and may, therefore, vote either with or against the Government delegates of their country.

Draft Conventions. The chief work of the Conference is to endeavour to adopt draft conventions, a two-thirds majority being required. The draft conventions adopted by the various Conferences are described in later articles of the present course. For the purpose of illustration, however, one of those adopted by the first Conference, Washington, 1919, may be taken, namely, the prohibition of the night work of women. The passing of this draft convention did not imply that night work of women was immediately prohibited in all the States Members of the Organization, or even in States the Government delegates of which had voted for the convention. To have given the Conference power to pass laws which would then have become automatically operative in each State would have involved surrender of national sovereignty in labour matters. The Organization would have been a super-State with full powers to enact labour legislation. There were those at the Peace Conference who advocated the granting of this power to the Organization. However, the more general view favoured the preservation of national sovereignty.

What, then, is the value of a draft convention? What happens to it after it has been voted by the Conference? In accordance with the provisions of Part XIII of the Peace Treaty the Government of each State Member must bring draft conventions before its Parliament or other competent legislative authority within a year, or, in exceptional circumstances, within eighteen months of their adoption by the Conference. The national authority is free to accept or reject any draft convention. National sovereignty is, therefore, safeguarded, the rôle of the Organization thus being not one of control but of co-ordination and co-operation with the national parliaments. The obligation to submit each draft convention to the national legislatures ensures that public opinion in each country shall have an opportunity of pronouncing on standards of labour conditions which have been accepted as reasonable by the Conference. The adoption of draft conventions by the Conference thus provides a stimulus to the application in different countries of uniform minimum labour standards.

If the national legislature of any country agrees to apply a draft convention, it sends a formal notice of ratification to the Secretary-General of the League of Nations. A draft convention which has been ratified by several States is really an international treaty by which the States mutually agree to maintain specified labour standards within their respective countries. With a view to the control of application, States which have ratified a convention are required to make an annual report to the International Labour Office indicating the measures they have taken to apply it. If a complaint is made that a State is not applying a convention satisfactorily, and inquiry proves that the complaint is justified, measures of an economic character may, as a last resort, be taken against the defaulting Government. Probably, however, such measures will be rarely, if ever, adopted. The examination of the annual reports and the criticism directed against defaulting States will be likely to ensure application.

[1] The League of Nations Assembly follows the usual diplomatic practice.

SUMMARY

Such, then, in brief outline, are the constitution and powers of the Organization. We have seen that it is an official institution working through Government channels and maintained out of public revenues. Its object is the establishment of social peace by promoting the general adoption of satisfactory conditions of labour. Its Conference consists of representatives of the three groups primarily interested in labour legislation—governments, employers, and workers. Draft conventions adopted by the Conference require ratification by the national legislature before coming into operation in any country. National sovereignty is thus preserved. The obligation to bring draft conventions before national legislatures ensures that public opinion in each country shall have an opportunity to express itself on texts which have commanded at least a two-thirds majority at the Conference. Thus, the Organization provides an effective stimulus to labour legislation in the different countries and contributes to the establishment of world peace on the foundations of social justice.

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STATISTICS

(*Continued from page 236*)

VI

TABULATION

LET us now see what means are offered by statistics for finding an answer to a question involving quantity. Suppose that someone has asked us what is the size of the family income of the working-classes in a certain district; how can we set about giving a reasonable and useful answer to that question?

We shall ignore in the meantime the problem of collecting the data on which our answer must be based. That will include the problem of defining "family income," and of finding a reliable sample of cases representative of the whole of the working-class families in the district; and it will include also such practical questions as the best form of questionnaire, and the testing of the reliability of our information. For the present we shall assume that we have in our possession a considerable number of returns, and wish to use them in order to answer the question set.

It will be advisable in the first instance to arrange the family incomes in order of size. This will be useful for reference and for checking later classifications. We may then proceed to tabulate the data; and care must be taken to make the table accurate and clear. We must first define to ourselves exactly what we want to show on the table; and this should be expressed in the main heading--so that it is not necessary to wade through paragraphs of preliminary explanatory matter or refer to large numbers of irritating footnotes. We have then to consider into what number and size of groups to arrange the incomes. For general guidance it may be said that the groups should not be so narrow as to contain too few instances, nor so wide as to be unilluminating; the particular decision will depend on the facts with which we are dealing. Let us decide in the present case to group our incomes by 5s. intervals. The description of the groups will then be not "20s. to 25s.," "35s. to 40s.," and so on, as this would leave us uncertain about the instances at the margins, but "20s. and under 25s.," "35s. and under 40s." In most cases, this makes it quite clear into what group any particular income should go. Sometimes the choice of particular starting and stopping places for our groups will affect the accuracy of the result. If, for instance, our data consist of statements of individuals as to their earnings, the fondness of people for round numbers must be taken into account. Earnings of 39s. or 41s. will frequently be given as £2, so that if we classify earnings as "30s. and under 40s." and so on, many items are likely to find their way into the wrong group. This can be avoided by making our wage groups include the round numbers, as in "25s. and under 35s." In the particular case of family incomes which we are using as an illustration, this possible error does not arise, since aggregate family income is the sum of several items which the investigator has himself added together.

SINGLE TABULATION

The result of such a distribution, then, might be as shown in the following table, which groups the results of an actual investigation into working-class family incomes in an industrial area on the Clyde in a week in March, 1925.

TABLE I

CLASSIFICATION OF AGGREGATE FAMILY INCOMES OF 252 WORKING-CLASS FAMILIES IN "A," FOR WEEK ENDED MARCH 7TH, 1925

Aggregate family income (week)	Number of families
Under 20s. . . .	3
20s. and under 30s. . .	12
30s. ,, ,, 40s. . .	22
40s. ,, ,, 50s. . .	30
50s. ,, ,, 60s. . .	50
60s. ,, ,, 70s. . .	38
70s. ,, ,, 80s. . .	17
80s. ,, ,, 90s . .	23
90s ,, ,, 100s . .	15
100s. ,, ,, 110s . .	13
110s. ,, ,, 120s. . .	6
120s. ,, ,, 130s . .	5
130s. ,, ,, 140s. . .	4
140s. ,, ,, 150s. . .	6
150s. ,, ,, 160s . .	3
160s. ,, ,, 170s . .	1
170s. ,, ,, 180s . .	3
180s. ,, over . . .	1
Total families . .	252

This is an example of single tabulation, suitable for answering the type of question with which we set out, namely, "What is the size of the working-class family income in 'A'?" To that question the reply of the table is "There is no one answer, because, in fact, the incomes differ. But it is shown how the incomes are distributed in several groups, in what groups most incomes are to be found, and within what limits all the incomes lie." That is, the "frequency distribution" and the "spread" of the families are shown, and this gives a first approximation to an answer to the question. Alternative methods of answering the question, and the devices by which it can be made fuller and more precise, will be followed out later. In what remains of this article, we shall look at other types of tables.

OTHER KINDS OF TABULATION

The survey of family incomes might be extended to other districts than "A," and the results tabulated together so as to bring out comparisons and relations. This is done in Table II, which includes the results of similar surveys of two other industrial districts in the same area. This is an example of double tabulation, which answers two separate questions: first, the distribution of families according to incomes, and second, how the distribution varies from one district to another. To save space the groups have been widened and reduced in number.

When, in the same table, two or more variables are tabulated, connections, or *correlations* as they are called, may be suggested between one and another. A neat example of this is to be found in a table in the *Report of the Royal Commission on the Coal Industry* (1925), which is reproduced below. In this table five sets of variables are compared, namely, size of undertaking (first column); second, the tonnage raised by each group of pits, stated as a percentage of the total (col. 4); third, the output per man-shift (col. 5); fourth, the proceeds (col. 6), and, fifth, costs (col. 7). From the last two the profits from each group are derived. What appears from the tabulation is that the bigger the undertaking, the greater is the output per man-shift, the smaller the costs and the greater the profit (or the less the loss). While the table does not prove anything, it reveals facts so striking as at least to be suggestive of a connection and to warrant close investigation.

TABLE II

CLASSIFICATION OF AGGREGATE FAMILY INCOMES OF WORKING-CLASS FAMILIES IN THREE INDUSTRIAL DISTRICTS ON THE CLYDE, FOR WEEK ENDED 7TH MARCH, 1925

Aggregate family income (week)	Number of families in			
	A	B	C	Total
Under 20s. . .	3	9	17	29
20s. and under 30s. .	12	22	29	63
30s. ,, ,, 40s. .	22	14	28	64
40s. ,, ,, 50s. .	30	29	30	89
50s. ,, ,, 60s. .	50	49	36	135
60s. ,, ,, 70s. .	38	28	26	92
70s. ,, ,, 80s. .	17	28	15	60
80s. ,, ,, 90s. .	23	17	11	51
90s. ,, ,, 100s. .	15	20	5	40
100s. ,, ,, 110s .	13	5	4	22
110s. ,, ,, 120s. .	6	3	6	15
120s. ,, ,, 130s. .	5	4	4	13
130s. ,, ,, 140s. .	4	4	2	10
140s. ,, ,, 150s. .	6	—	1	7
150s. ,, ,, 160s. .	3	—	1	4
160s. ,, ,, 170s. .	1	1	1	3
170s. ,, ,, 180s. .	3	2	1	6
180s. and over . .	1	5	1	7
Total . . .	252	240	218	710

TABLE III

WORKING RESULTS OF COLLIERY UNDERTAKINGS OF VARIOUS SIZES
Great Britain. January to June, 1925

Yearly output of undertaking, 1,000 tons (1)	Number of undertakings (2)	Tonnage raised: Total 1,000 tons (3)	Tonnage raised: Percentage of total (4)	Output per man-shift (5)	Proceeds (6)	Costs (7)	Profit (+) or Loss (−) (8)
				cwt.	Shillings per ton	Shillings per ton	Shillings per ton
Less than 5	10	32	- -	12·78	23·51	32·01	−8·50
5 and under 200	307	27,360	12·7	16·22	19·02	20·23	−1·21
200 ,, ,, 400	126	36,394	16·9	17·05	18·43	19·21	−0·78
400 ,, ,, 600	72	35,118	16·3	18·34	17·90	18·04	−0·14
600 ,, ,, 800	28	19,132	8·9	18·86	17·58	17·82	−0·24
800 ,, ,, 1,000	20	17,992	8·4	18·68	17·52	17·65	−0·13
1,000 ,, ,, 2,000	42	56,280	26·2	19·66	17·77	17·49	+0·28
2,000 and over	8	22,744	10·6	19·76	17·39	17·11	+0·28
All	613	215,052	100·0	18·32	17·98	18·23	−0·25

STATISTICAL APPENDIX

(*Continued from page 240*)

COAL

STATISTICAL material relative to production is scrappy. The difficulty of measuring the output of industries in terms either of quantity or of value is great, and it becomes greater the higher we go in the scale of production.

The most complete enumeration of the nation's industrial output was given in the *Report of the Census of Production* taken in the year 1907, which was published in 1912 (Cmd. 6320). Another such Census was taken in the year 1924, but up to the present only certain of its results have been published in preliminary tables, and the final report is not likely to be produced for some time.

But the searching scrutiny to which the coal industry has been subjected has thrown a flood of light on the conditions and production of that industry, and the only difficulty is to select from the mass of available material. The few tables and diagrams which our space permits are chosen to illustrate the absolute and the relative production of this basal industry.

The first figure (Fig. 9) shows the annual output of coal in tons and the numbers of people employed in the industry in the United Kingdom from 1900 to 1925. (For the years 1922–25 the figures for the Irish Free State are excluded.) The curve of production shows an upward trend up to the year 1913, when the maximum output of 287·4 million tons was reached. Output fell persistently during the war period except in the year 1915-16, and in 1921 the long-continued strike reduced the year's output to 163·2 million tons. Thereafter there was a temporary recovery in 1923 to 276 million tons, to be followed by a fall during the period of the coal dispute 1926, which lies beyond the period covered by the figure.

Throughout the earlier part of this period a rough similarity in trend can be traced between output and numbers employed. But in the years 1916–20 the numbers employed showed a considerable increase, rising to a maximum of 1,226,885 in 1920, while, at the same time, the output declined. In the diagram the two curves cross at 1917 and never regain their original relative positions. The fall in output per person employed thus indicated is shown in detail in Table XXXIV.

Comparative curves showing output per miner in different countries over the period 1874–1925 are given in Fig. 10, which is taken from the *Report of the Royal Commission on the Coal Industry* (1925). Some remarkable features appear in this figure. The American miner's output, always relatively high, rose sharply from 505 tons to 698 tons in the period 1879-1913. In the same period the output of the German, French, and Belgian miner was lower than that of the British miner, but while the former remained practically steady, the latter declined from 319 to 257 tons. By 1913 Great Britain was at the German

COAL MINING—UNITED KINGDOM

NUMBERS EMPLOYED AND ANNUAL OUTPUT OF COAL, 1900–1925

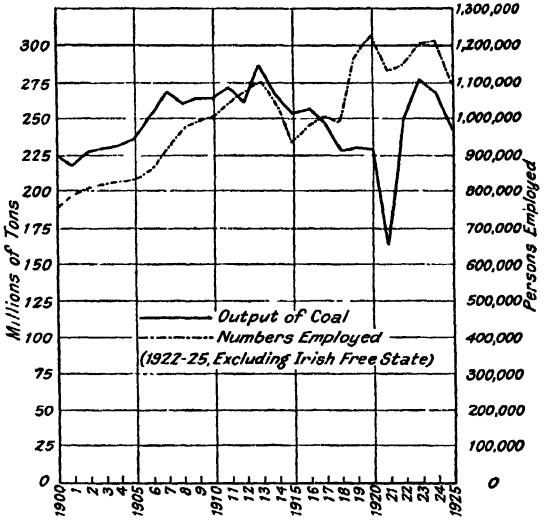

FIG. 9

YEARLY OUTPUT OF COAL PER MINER

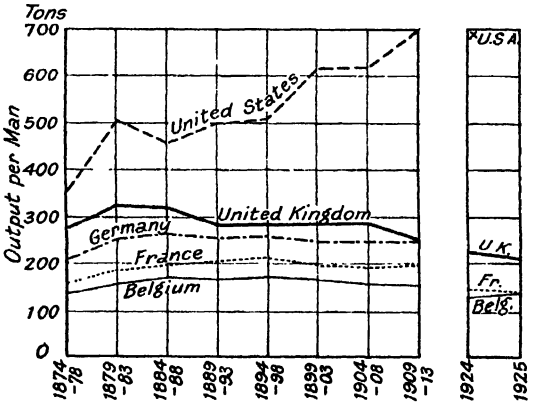

FIG. 10

level. It is at the time of writing below it, but the actual figures are not available for comparison.

These figures, indicating the decline in output per employee, help to account for the declining importance of the British coal industry in the world's coal production, the figures for which are given in Table XXXV.

While the decline in the comparative output of British coal is of importance from the national standpoint, it is also a serious matter from the point of view of the miner himself. To emphasize the point, it is necessary to translate the miner's output from quantities to values. These figures will show, for each year, how much his output will exchange for at the price prevailing in the year in question. If we then make allowance for the changes in prices over the period in review (taking, say, the period 1909-13 as the base) we can trace the changes in the real value of the miner's output. The figures are as shown in Table XXXVI.

The annual value of the miner's output has, however, to bear not only the miner's wages but

TABLE XXXIV

TOTAL OUTPUT, NUMBERS EMPLOYED, AND OUTPUT PER EMPLOYEE IN THE UNITED KINGDOM, 1911–25

(Compiled from data in *Statistical Abstract for the United Kingdom*, 1927)

Year	Output in millions of tons	Numbers employed (thousands)	Output per person employed (tons)
1911	271·9	1,045	260
1912	260·4	1,069	244
1913	287·4	1,105	260
1914	265·7	1,050	252
1915	253·2	935	271
1916	256·4	981	261
1917	248·5	1,002	248
1918	287·7	990	230
1919	229·8	1,170	196
1920	229·5	1,227	187
1921	163·3	1,132	144
1922[1]	249·6	1,149	217
1923[1]	276·0	1,203	229
1924[1]	267·1	1,214	220
1925[1]	243·2	1,103	221

[1] Excluding Irish Free State.

TABLE XXXV

THE WORLD'S OUTPUT OF COAL (LIGNITE INCLUDED)

(In millions of tons avoirdupois)

Country	1890	1895	1900	1905	1910	1915	1920	1925
United Kingdom	181·6	189·7	225·2	236·1	264·4	253·2	229·5	250·0 (est.)
British Dominions, etc.	9·2	12·9	18·7	28·8	42·2	50·4	59·1	
Total British Empire	190·8	202·6	243·9	265·6	306·6	305·1	289·0	310 (est.)
U.S.A.	140·6	172·1	240·6	350·6	447·8	474·7	587·7	
Germany	87·2	102·2	147·3	170·9	218·6	231·0	239·3	239·3
Other countries	84·7	95·3	123·5	138·8	172·3	164·5	181·0	
The World	503·3	572·2	755·3	925·9	1145·3	1175·3	1297·0	1320·0 (est.)
United Kingdom output as percentage of world output	36·1	33·1	29·8	25·5	23·1	21·4	17·7	18·9

TABLE XXXVI

REAL VALUE OF MINER'S YEARLY OUTPUT IN GREAT BRITAIN

(From *Report of the Royal Commission on the Coal Industry*, 1925)

Annual average	Yearly output per head (tons)	Nominal value at prices of the day (£)	*Statist* index of wholesale prices (1909–13 = 100)	Value at prices 1909–13 (£)
1879 83	319	95	105	91
1884 88	319	81	88	91
1889–93	282	104	88	118
1894–98	287	88	78	114
1899–03	289	126	87	144
1904–08	283	112	90	125
1909–13	257	112	100	112
1914–18	252	189	173	109
1919–23	195	239	217	110
Year				
1913	260	132	106	125
1924	220	208	173	120
1925	217	178	109	106

TABLE XXXVII

PROFITS OF COLLIERY WORKING 1889 TO 1925

(From *Report of Royal Commission on the Coal Industry*, 1925)

Period	Annual tonnage commercially disposable (million tons)	Annual profits earned		Wages, shillings per ton	Profits, shillings per ton (1909–13 prices)	Wages, shillings per ton (1909 13 prices)
		Total (million £)	Shillings per ton			
1889–93	162	7·4	0·91	5·04	1·03	5·73
1894–98	178	4·4	0·49	—	0·63	—
1899–1903	205	16·0	1·56	5·98	1·79	6·87
1904 8	228	11·5	1·01	—	1·12	—
1909–13	246	12·8	1·04	5·99	1·04	5·99
1914 21	212	22·7	2·14	14·49	1·05	7·14
1922	227	11·0	0·97	12·15	0·60	7·45
1923	253	27·5	2·17	12·35	1·36	7·72
1924	244	14·3	1·17	13·24	0·68	7·65
1925 (6 mths)	226	loss 2·1	loss 0·19	12·99	loss 0·11	7·51
1922–25	237	12·7	1·07	12·69	0·64	7·60

profits and all other charges. Table XXXVII indicates how over a period of years wages and profits shared in the value of each ton of commercially disposable coal. The table, which is taken from the *Report of the Coal Commission* (1925), gives actual profits and wages, and also these figures corrected for 1909–13 prices by the use of the *Statist* index number of wholesale prices.

To take an example: In the year 1924 the output per miner according to Table XXXIV was 220 tons, and its value at the prices of 1909–13 was £120. Of this wages received 7·65 shillings per ton, or £84·3, and profits 0·68 shillings per ton, or £7·5, leaving less than £30 for other charges.

The loss of coal markets by Great Britain since the war is shown in Table XXXIX, which compares Great Britain's exports to various destinations at three dates, 1886, 1913, and 1925. The table is compiled from data in the *Memorandum on Coal* (Vol. II), published by the Economic and Financial Section of the League of Nations. It shows that the exports to the Baltic have fallen to almost one-half of the pre-war quantity, that the North Sea exports have been reduced by one quarter, those to the Western Mediterranean by one-third, to the Eastern Mediterranean by one-half, and to South America by more than one-third.

TABLE XXXVIII

DISTRIBUTION OF OUTPUT OF COAL IN 1907, 1913, 1923, and 1924 AMONG VARIOUS INDUSTRIES AND SERVICES

Purpose for which used	1907 tons thousands	1913 tons thousands	1923 tons thousands	1924 tons thousands
Mining and quarrying	18,799	18,169	16,850	16,574
Miners' coal	4,730	5,670	6,474	6,573
Railways (loco. use)	12,923	13,821	13,326	13,512
Pig iron	21,120	21,224	15,277	15,000
Steel production	12,490	14,677	16,964	16,700
Gasworks	15,400	18,000	17,202	18,104
Electricity	3,800	5,000	7,236	7,750
Domestic	32,800	35,000	34,000	33,750
Other industries and purposes	60,128	59,017	40,902	58,550
Total inland	182,190	190,578	177,231	186,513
Coastwise (bunkers)	2,150	2,402	1,162	1,265
Total home consumption	184,340	192,980	178,393	187,778
Exports of coal	63,601	73,400	79,450	61,651
Bunkers for foreign-going vessels	18,619	21,032	18,158	17,689
Total raised	266,560	287,412	276,001	267,118

TABLE XXXIX

EXPORTS OF COAL FROM GREAT BRITAIN
(In millions of Tons)

Destination	1886	1913	1925
Baltic Region	4·2	15·9	8·2
North Sea Region	7·4	25·9	18·7
Western Mediterranean	5·1	17·2	11·6
Eastern Mediterranean	1·7	5·6	2·9
South America	1·1	6·9	4·5
North and Central America	0·8	0·2	1·0
Africa	0·4	0·7	0·5
Asia	1·4	0·8	0·6
Other Regions	0·0	0·1	0·2[1]
Total	22·1	73·4	48·3[1]

That the reduction in Britain's coal exports is largely due to the displacement of British by other coals is shown in the following table, taken from the same source, and showing at two dates, 1913 and 1925, the percentage of the coal consumed in various countries which is supplied by Great Britain.

[1] Excluding shipments to Irish Free State.

TABLE XL

Country	Percentage of consumption supplied by Great Britain	
	1913	1925
	%	%
Russia and Secession States	9·6	Not available
Norway	92·9	85·1
Sweden	85·9	74·9
Denmark	91·5	88·2
Netherlands	20·5	11·6
Germany	5·2	2·3
France	18·0	13·2
Belgium	8·6	7·4
Italy	85·8	57·2
Spain	41·8	29·0
Portugal	99·1	94·8
Egypt	90·0	92·8
Algeria	58·0	87·8
Chile	32·2	20·3
Brazil	84·0	68·7
Argentine	93·0	84·6

Other aspects of the coal industry will be dealt with in their proper place. Table XXXVIII is given in order to show to what extent other industries and services depend on coal, and is preliminary to the treatment of some of these industries in succeeding sections of this appendix.

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page 242*)

VII

THE MIDDLE AGES—THE MANOR

"The manor is an estate surrounded by tenures. It is a combination of ruling and dependent, working and military classes. It is a unit of local government." SIR PAUL VINOGRADOFF, *The Growth of the Manor*, page 307.

"The manor was an economic unit, organized by itself. . . ." —WILLIAM CUNNINGHAM, *Growth of English Industry and Commerce*, Vol. I, page 230.

PROBABLY nine out of every ten persons lived on the land in the Middle Ages. Consequently, to understand economic conditions it is necessary to pay particular attention to rural organization. In Western Europe generally this took the form of the manor, which was the estate of a lord, or a self-contained part of the estate, for a lord might have several manors in different parts of the country. Since the lord was careful to preserve records of his interests, we have a wealth of documents which throw much light on the manor as it existed in England from the thirteenth century. Extents or surveys give details of the arable, meadow, pasture, wood, fishponds, mills, etc., and of the classes of tenants and their obligations in the form of money rents, services, and payments in kind. Inventories taken on special occasions describe the buildings, equipment, and stock. Account-rolls indicate the payments in money or in kind received by the lord's officials and the disbursements they made on his account. From the court-rolls we get a picture of everyday life, of the sons succeeding their fathers in the holdings, of the sins of omission and commission to which the villagers were prone and of the general enforcement of customary rules. Our knowledge of the manor is, therefore, fairly complete on the administrative side. It is much less so on the agricultural. There is, indeed, a danger of confusing the administrative with the agricultural and of thinking that the breakdown of the former accompanied a change in the latter. But the decay of the manor did not necessarily mean that there was an alteration in the methods of cultivation. They often survived for centuries.

A UNIT OF PRODUCTION

Each manor was from the economic point of view a unit of production. Unlike a unit in a modern industry, it was primarily organized to supply its own needs. Normally it was identical with the village and consequently it had social and administrative aspects as well as economic. Its method of working had its roots in the past and was strongly governed by custom. It was a community. Generally a sharp distinction was drawn between the lord's demesne and the land outside the demesne. The demesne was that part of the land which the lord kept for his own use. It was not necessarily compact; some of it might be intermingled with the land held by the tenants. A considerable proportion of the land outside the demesne was held in villeinage, the occupiers of it having to render labour services according to the custom of the manor. By means of these services the lord had his demesne cultivated To ensure that the tenants discharged their obligations he employed a bailiff, who supervised the agricultural work in his interests. If he had a number of manors he had a steward who made periodical visitations to see that rents and services were paid and custom duly observed. Our earliest treatise on agriculture—that of Walter of Henley, which was written in the thirteenth century—seems to have been intended to instruct the lord how to safeguard himself against fraud on the part of his tenants and servants. The customary court, presided over by the lord's officer, also played an important part in discipline. The petty officials—hayward, swineherd, shepherd—were appointed there and they were fined if they did not perform their duties properly.

A VILLEIN'S HOLDING

The lay-out of the manor is best indicated by taking the holding of a typical villager or villein. He generally had a "yardland" or "virgate" of customary land. It was thirty acres of arable. These were scattered widely in the great open fields of the village. The open fields were "open" in the sense that they were not enclosed except temporarily when the crops were growing. Then it was necessary to protect them from the sheep and cattle by means of fences. Each great field was subdivided into sections, variously called "shots," "lands," "furlongs," etc., which consisted of a number of acre strips lying side by side and separated from one another by a "balk" of unploughed turf. The acre strips were usually twenty-two yards wide and ten times that in length; in other words, they were a furrow long (furlong). Why the strips of a particular villein were scattered over the arable fields is a question to which no completely satisfactory answer can be given. It probably represents an older arrangement which was stereotyped by the formation of the manor. Thirty acre strips provided the villein with the yield of twenty acres a year (for one-third was fallow) of such crops as wheat or rye, barley or oats. To cultivate these strips and maintain his family he had to have other resources. These were supplied by the rights of common. The chief of these was common of pasture, which enabled him to maintain his plough-ox, a cow or two and some sheep. Common of estover gave him the

right to place pigs in the woods and to cut timber for his use. These and other common rights were "stinted," i.e. their use was limited by custom, and those who attempted to exceed the number of beasts they might put on the common would find themselves answerable in the court. To sum up, a villein had a bundle of rights together forming a holding on which he could make a living for his family, but his rights were inextricably bound up with those of his fellows.

THE FIELD SYSTEM

It has been mentioned that one-third of the villein's strips would be fallow in any particular year. This is to assume the three-field system, which was, as a matter of fact, general in the English Midlands. The arable was divided into three great fields (or a multiple of three), and each field passed through a regular cycle of wheat, barley, and fallow in the course of three years. So in any given year there would be one field bearing wheat, one bearing barley, and one fallow. The crops mentioned are taken for the sake of simplicity. There was more variety. But the general principle was that in the fallow year the field was ploughed twice to rid it of weeds and to promote its fertility, and then a winter crop (wheat or rye) was sown. In the next year it bore a spring crop (barley, oats, beans), and after harvest was allowed to remain fallow in order to recuperate. Then the same process began again. It will be seen that this method of cultivation was a solution of the problem of maintaining permanent fields of arable. In earlier times or in more primitive conditions the arable was constantly moved as the land became exhausted. In our own days the necessity for the fallow year has been eliminated by adopting a rotation of crops (roots, grasses, and cereals) with heavy manuring. In the Middle Ages, roots and artificial grasses were unknown, and only the most primitive methods of manuring were possible. When the harvest was in, the great fields were thrown open to the stock of the village to get what they could and, incidentally, to manure the ground. Similarly, the meadow was enclosed for natural hay in the spring and after it had been cut was thrown open to the cattle. By these means the resources of the permanent pasture were slightly augmented. Grazing on the arable (*Michaelmas grass*) and on the meadow (*Lammas grass*) constituted common of shack and was shared like other rights of common.

COMMUTATION OF SERVICES

The cultivated area which clustered round the village was merely the nucleus of the manor. There was much unimproved waste beyond. As population increased this was taken in (*assarts*) and the symmetry of the organization tended to break down. The lord made grants to freeholders on condition of the payment of rent. As time went on, indeed, he became more favourably disposed to receiving rents in lieu of service from his customary tenants. The manor as an administrative unit depended on the maintenance of the relation between the land in villeinage and the cultivation of the lord's demesne. When that connection was broken, the internal economy was completely changed. The acceptance of money instead of service—commutation—was followed by the leasing of the demesne to a tenant. The lord became a rent receiver with respect to both the demesne and the customary land. There are cases of commutation in England as early as the thirteenth century—and a few isolated examples even earlier—but it did not become a general and settled practice until the second part of the fourteenth century. Step by step obligations were commuted into money payments. The villein had been required to make payments in kind, such as a capon at Christmas, eggs at Easter, and honey in the summer, as long as the lord and his attendants came round to consume the dues or the monastery collected them; but these payments were often the first to be commuted because the lord, or institution, preferred the greater range of choice which money provided. Week-work, the two or three days a week the villein had to work on the demesne, was commuted when the demesne was leased or when the lord, if he resided, saw that he could manage better by hiring labour and paying for it out of the fund yielded by commutation rents. For customary labour is somewhat inflexible as compared with hired labour. As to the villeins, they were glad to have all their time for their own holdings, especially if improvement of the waste made it possible for them to rent more land. The cottars, who had some five or ten acres at most, and the sons of the villeins probably provided a labour supply which the lord or the farmer of the demesne could easily employ. But it must not be supposed that these internal changes immediately reacted on the external appearance of the manor. Land was still cultivated on the open field system and tenants continued to enjoy the rights of common in meadow, pasture, and wood. The personal relations were different. The villein was becoming a copyholder, holding strips in the open field and possessing rights of common in return for payments and under the conditions with regard to inheritance which were set down in the roll of the manorial court. In the fifteenth century copyhold was recognized by the king's courts, but the lords were often able to extinguish it without going beyond their undoubted legal rights. So that the breakdown of the manor did not give the peasantry that hold upon the land which they have secured in other countries by revolutions in modern times.

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page 244*)

VII
GRASSLANDS

THE greatest of all vegetational contrasts is that between forest and grassland. The forest tree is the longest-lived, the grasses are the shortest-lived, of all plants; and forests are associated specially with abundance of moisture, and that more or less evenly distributed throughout the year, while grasses are associated specially with deficiency of moisture, the available supply being usually concentrated in a single season. There is likely, therefore, to be a certainty in the forest environment and an uncertainty in the grassland environment; and in each case we may expect the particular factor to affect the lives of any inhabitants of the particular area.

Except in real desert, hot or cold, there are no regions where there is too little warmth or too little moisture for some grasses to live. Quite a little of both is sufficient to germinate the seeds, and quite a short time is sufficient to make the plant grow, flower, ripen, and drop its seeds; and when it dies, its rotting leaves and stalk cover over some at least of the seeds, and preserve them safe for the next combination of warmth and moisture.

The amount of moisture needed depends on the average temperature. When the temperature is high, and so evaporation is rapid, more moisture is needed. On the other hand, where the temperature is low, the ground is sure to be hard-frozen in winter; and then the spring thaw may give quite enough moisture to start the plant growing, even without any rainfall.

At the same time, all rain must come ultimately from the ocean, and be carried by wind; and the farther we get from the ocean, or the more we are cut off from the ocean in any way, the less rain we shall have. We shall find grasslands, then, naturally in the heart of large areas of land or even in small areas which are somehow or other cut off from all rain-bearing winds. We should expect, therefore, to find the vastest grasslands in the hugest continent, i.e. Asia, but we may find large grasslands where a high range of mountains cuts off rain, as in North and South America. Africa, as coming next to Asia in size, probably also has vast areas of grassland.

KINDS OF GRASSLAND

But, though all these areas are properly called grasslands, they are not the same kinds of grassland; the kind alters with latitude and with altitude, and the right name changes with the kind. Nearly all the grassland in Asia is low and in temperate latitudes, and all of it is called—much of it rightly called—steppe. Nearly all that in Africa is high land and in tropical latitudes, and it is called savanna; it might be called, as in tropical South America, campo in the higher parts and llano—or even pampa—in the lower.

Unfortunately, the word steppe has come to be used improperly. Even the late Professor Herbertson quoted that it denoted "unwooded tracts in middle latitudes, of considerable extent, and covered with useful vegetation"; and he added that it was "a convenient term to describe those lands whose treelessness is due to great extremes of climate, produced by their remoteness from the ocean." Even though every word of this explanation is true, both the description and the explanation are rather misleading.

The Russian word *stepe*, or *stapi*, really denotes "waste," and was originally almost certainly applied to the vast areas in Russian Asia where the conditions are semi-desert! These areas are in middle latitudes; they are treeless; they are of great extent; they are "covered" with vegetation that is of some use—even if only for camels; they are far from the ocean, and, therefore, they have extreme climates. *But* there are greater extremes within the limits of the Asiatic Täiga; Verkhoyansk with an average of $-60°$ F. for three consecutive months, and with extremes below $-90°$ F., is surrounded by the coniferous Täiga. The steppe, therefore, can scarcely be due directly to extremes of climate.

STEPPE CLIMATE

To what, then, is it due? To two factors—wind in the dry winter and lack of moisture in the hot summer. Between the two seasons there is a short spring, when the thawed soil is damp, and before the heat becomes too great; and in these few weeks—or almost few days—a perfect "forest" of grass covers the best watered areas, growing sometimes four or five feet in height. In less favoured areas the crop is far less in every way. It is important, therefore, to differentiate, and we may do so by speaking of rich steppe and poor steppe, the rich, naturally, in the damper northerly latitudes near the limit of the forest; or we may boldly borrow a word from similar good grassland in North America, and call the rich steppe "prairie," keeping the word "steppe" for the poorer land. This poor grassland passes equatorwards into scrub and desert, as the rich grassland passes poleward into parkland and forest.

The savannas are really due to the same two causes, but working in rather a different manner. There is always enough warmth for growth, and

the wind is never cold; but trade winds are normally dry, i.e. far from saturation, and the rain comes only in a very short season. The long dry season is a real "winter" for the plant, but the combination of heavy rain and great heat results in a flush of growth -for *short-lived* grasses.

The scenery in these steppes is monotonous only because of the immense distances and the uniform vegetation: in relief they show a good deal of variety of plateau and plain, highland and lowland.

Climatically, the extremes of temperature are associated naturally with low humidity, which means clear skies and bright sunshine; and, though the humidity is too low for heavy snow, the greatest danger to man and beast comes from wind-driven snow during the buran. As the land is cultivated, evaporation increases and radiation decreases, and quantities of water accumulate in the subsoil. The unploughed sod is, naturally, covered with a thin carpet of frozen snow, which melts a little every day in early spring, but freezes again every night; but on ploughed land the melted snow gravitates down into the furrow, and is not left on the surface to be frozen again at night. The surface of tilled land, therefore, gets both dry and warm much faster than that of the untilled. As the land comes under cultivation, therefore, the climate definitely improves, e.g. in the amount and the distribution of rainfall and in the disappearance of summer frost. This is a fact of immense importance in the development of the prairie, especially in Canada.

STEPPE LIFE

But the natural and primary product of grasslands must be grass-eating animals; and, though these may attract, as they do on the savannas, a large number of flesh-eating animals, the latter are incidental, and civilization sweeps them away. When man first appeared, e.g. on the "steppes" of Asia, no doubt he was a hunter of these relatively defenceless grass-eating beasts; but he must very soon have realized the wisdom of saving any lambs or kids or calves which were following a sheep or goat or cow that he killed. And so practically all our most useful "domestic" animals, including horse and ass and camel, came to be domesticated. Indeed, the domestication and rearing of animals is the only occupation for which the steppes, as a whole, are naturally and entirely suited; and a large proportion of the area will never, so far as we can judge at present, be suitable for any other purpose. The natural effect of this on the people of the steppes was to make them wholly and very efficiently pastoral. The vast area isolated them from any patches of settled agricultural country, and forced them to depend on their flocks and herds for practically everything—milk and meat, wool and skins. The milk could be drunk as milk, or fermented into koumis, or made into butter and cheese; the wool and the skins made clothes and carpets, tents, "bottles," and other utensils. The *best* products in each case came from the beasts which were most suited to the conditions, the horse meat and the mutton being far better than the beef, for really good beef is associated with lush meadow, not with the dry steppe grasses.

Of course, the life is one of constant movement, for the fodder in any one place is soon consumed, even if the wells do not run dry; and, in any case, there must be seasonal movement, e.g. to get shelter in winter or to escape from the swarms of insects on the lowlands in summer. A large number of attendants is necessary for the hundreds of animals, a great encouragement of large families, and a reason for even grown-up sons living with their father—which ends in an absolute patriarchal tyranny. The conservatism of the aged tyrants, the unavoidable ruin from storm and plague, the blood-tie through the whole group, tend to make them unprogressive, fatalistic, hospitable, etc. In a word, the geographic environment reacts on all sides of their life.

ARTIFICIAL GRASSES

Obviously, the proper business of grassland is to grow grass, but the grasses may be natural or artificial; in the former case the human life must be pastoral, and in the latter agricultural, at least in part. That is to say, the cultivated grasses may be grown as fodder for animals, e.g. lucerne and maize; but, more often, they are grown for "bread," e.g. wheat and oats. In other words, with the development of population throughout the world, and an increasing demand for "bread" beyond what the densely peopled areas themselves can produce, the great grasslands of the world have become our normal source of both bread and meat, even though the continental wheat and beef have not the flavour or the quality of our home-grown "island" products. A few of the continental areas, especially Canada and Hungary, raise wheat that is of good flavour as well as strong; but this is true only of a few. There is, therefore, reason behind the demand that a given proportion of our good-flavoured, home-grown wheat should be used with all imported wheat in the grinding of flour for bread-making.

PRODUCTION

(*Continued from page 240*)

VII

THE HUMAN ELEMENT IN PRODUCTION—(*continued*)

(*c*) Supplementary Incentives

The consciousness that the alternative to work is starvation is, of course, not the sole incentive to man's endeavour. Much work is done—perhaps the greater part of the world's most skilled work—by men and women who, at least, are far removed from the shadow of the workhouse. The "ruling classes" in such a community as ours—our judges and public officials, our statesmen and diplomats, our captains of industry and trade—are largely recruited from the ranks of those who could well afford, as far as their circumstances go, to live in partial or complete idleness. That they do not do so is due to a complex of motives, of which here we need only distinguish the more important. Of these there seem to be five—

1. Much work is attractive in itself, and is cheerfully, and even eagerly, performed for its own sake. Creative work, such as that of the scientist, or of the research worker in science or medicine, falls often within this category. There is work too which appeals to other than the purely creative faculties, to human ambition, the love of power, the desire to dominate the lives and outlook of one's fellow-creatures. The "captain of industry" who, with every means to material enjoyment at his command, prefers to remain—as he so often does—a slave to the exactions of his business, may well then be included in this category.

2. Distinguishable from the above, though not sharply distinct, is the work that is performed not so much for its own sake as for the sake of indirect reward. The desire for fame,

> That last infirmity of noble minds,

with its power to compel the aspirant

> To scorn delights and live laborious days,

the lure of prizes and honours, and, in these days of broadcasting and of syndicated publicity, the possibilities of popular adulation—these may be strong inducements. What motives will induce a man to accept the office of Prime Minister? Not, certainly, any stimulus deriving from the emoluments attached to it. In most cases, love of power and the desire to gratify private ambition are unmistakably present, cheek by jowl with an interest in the job, and with some at least of the elements that go to the making of a sense of duty.

3. This last-mentioned motive—a sense of duty—must be put in a category of its own. It plays a part in securing the performance of much of the world's work. In such a community as ours there are innumerable opportunities for its exercise, in particular various fields of collective administration: county and borough councils, education committees, boards of guardians; the magisterial bench; the executives of trade unions and co-operative societies; the governing bodies of trusts, charities, hospitals, schools. Not wholly separable, of course, from other compelling motives, it yet is sufficiently important in itself for stress to be laid upon it here. Nor must it be forgotten that a sense of duty plays often no inconsiderable part in the choice of a career.

4. A further consideration—which again is only partially distinguishable from those already mentioned—is the influence upon individual action of the weight of social opinion. If the dominating idea in a society is that idleness is socially discreditable, that the lilies of the field are to be regarded, not as an example, but as a warning, then social parasitism, even where the distribution of wealth tends to encourage it, is not likely to flourish. It can hardly be said of our own society, as at present constituted, that its dominating idea is that idleness is discreditable. Nevertheless, there are considerable forces at work which make for the acceptance of this notion: the traditions of strenuous, successful, self-respecting families; the converging streams of criticism which Christian ethics, "orthodox" economics, and the resentment and indignation of the under-dog, severally bring to bear; and an uneasy consciousness at the back of the millionaire's mind that unless he gives value for his money the tumbrils of the social revolution may at any moment rattle up the street. Social parasitism exists, and on a considerable scale; it flourishes, nevertheless, under the persistent frown of several kinds of cloud.

5. Finally—and this last consideration may be very briefly dismissed—the man who can set a finite limit to his desire for material wealth is very far to seek. We most of us regard our own wants as modest ones, and would be content—so we tell ourselves—to shake the dust of the market-place from our feet, and to devote our energies selflessly to the service of our fellows—if only we had so many hundreds or thousands more a year. We attain that goal, and somehow the perspective has shifted. We ourselves would be glad to retire, but . . . the children have to be provided for, and the Smiths, who surely are not to be thought of as better than ourselves, are talking of getting a Rolls-Royce. There is nearly always a beckoning finger so very little farther ahead. And hence

the primeval "negative" incentive—the fear of starvation—is fortified to-day by countless positive incentives, of varying degrees of strength, from which the weak flesh that is man, the creature of his wants, his passions, and his appetites, strives helplessly to escape.

We have been considering, in some detail, those incentives to the putting forth of effort by which, in the main, men and women are actuated. Let us next explore some related questions which have increasing significance for the student of social economics.

Four such questions suggest themselves for discussion—

1. What factors determine the occupational distribution of the population (i.e. the sorting-out of those who are seeking work into the various occupations that need to be performed)? We have already noted, in Part IV, how the working population of Britain is actually grouped.

2. Next, looking at this problem of occupation, or vocation, from the point of view of the individual man or woman, what factors determine the choice of occupation in each particular case?

3. What are the factors which determine the duration of an individual's working life?

4. What factors, similarly, determine the length of the working week and of the working day?

The answers to these questions depend, in part, upon the answers to some theoretical conundrums which we must pose for ourselves later. But it is worth while our attempting, at this stage, to give some indication of their general character.

Occupational Distribution. How is it that the distribution, among the various occupations open to them, of those engaged in doing the nation's work corresponds to national requirements as closely as it does? The phenomenon is more remarkable than many of us imagine; familiarity with the social order of whose fabric our own lives are a part tends, in this respect as in others, to deaden the imagination. It does not strike us as in any way noteworthy that tea, sugar, bananas and other exotic products should appear on our breakfast tables punctually every morning; yet the social organization which renders possible even the most modest breakfast is a very remarkable achievement. In the same way that elaborate distribution of specialists among specialist jobs which is the corollary of the division of labour strikes us as such a matter-of-fact affair that that causes us no astonishment either. If a tap leaks, there is a plumber round the corner to repair it for us; if we want a tooth pulled out, we shall find someone close at hand who will contrive it more or less expertly for us; if we are the victims of a street accident or of an interesting burglary, a reporter will appear as from nowhere and produce the inevitable "story." How is it all managed?

The answer is that there are two ways in which the thing might be managed.

What Might (But Does Not) Happen. One method is that of *regimentation*. It would be theoretically possible to charge some governmental agency, omniscient and omnipotent, with the duty of determining periodically what the jobs were which required filling, and of allocating the available population, as vacancies arose, to the duties which they seemed best fitted to perform. During the war the tendency in our own and other countries was increasingly in this direction. Able-bodied men were drafted as required into the Army; while skilled munition workers who, whether voluntarily or under compulsion, had joined its ranks, were "combed out" again, and sent to work at their trades. A National Register was compiled, and strong pressure put upon men of diverse qualifications to place their services at the disposal of the State. And the Army itself became more and more a complex of specialized activity—a State within a State. It had its own medical and sanitary services, its commissariat, its transport, its administrative staff, its technicians and manual workers, and its women auxiliaries, engaged in domestic duties in its camps. The recruitment for, and organization of, these services was contrived throughout on bureaucratic lines; the decision as to whether an individual should or should not perform a particular job rested, in the end, upon the shoulders of someone else.

But *regimentation*, however feasible, and however tolerable, in times of war, would not work well under normal circumstances. It would not work well because, firstly, it is an extravagant method—it necessitates too many officials; secondly, it is not an efficient method—it lends itself too readily to mistakes; and thirdly, and above all, it is not a popular method. It runs directly counter to the instincts of any nation that prides itself on the possession of the two main attributes of democracy—freedom and responsibility. Men and women do not want to be told what to do; they want to decide for themselves. "Better," as Milton's Satan puts it,

> Better to reign in hell than serve in heaven

—better to be allowed to exercise one's judgment, and to make one's own mistakes, than to be ordered about, willy-nilly, for the supposed advantage of the community, at the behest of the grand panjandrum of some red-tape-ridden department.

BUSINESS MANAGEMENT

(*Continued from page* 248)

VII

THE SCALE OF ENTERPRISE (2)

It has already been stated that most industries in this country are comparatively old, and that most of the firms in such industries were established in the distant past. When they commenced operations they aimed at the most economical method and the best layout that was then available. The extensions that have since been made render their establishments less efficient in the technical sense than establishments on a smaller scale erected in more recent times. And for this reason many of the leading firms of to-day are handicapped by the comparative inefficiency of their establishments.

But they recognize the handicaps, and are aware that their success has been achieved in spite and not on account of them. Moreover, they are constantly measuring such handicaps against the advantages which an entirely new establishment would secure, and are prepared to scrap the old in favour of the new whenever it is desirable to do so. The importance of personality does not lessen the need for discussing the relative merits of large and small businesses and the factors which determine the economical scale of enterprise in any particular case.

MEANING OF LARGE-SCALE ENTERPRISE

It is, however, important that we should know exactly what is meant by a large-scale enterprise. In the last instalment we gave a brief description of the development of two firms. In the first case, we saw that the establishment grew at the same time as the function became narrower. The firm specialized in one product and tended to unload all subsidiary products upon other firms. The scale of production thus increased more rapidly than the growth of the establishment as a whole might have suggested. In the second case, the firm constantly added to the number of products supplied to the market and, at the same time, tended to become more self-contained. It provided the power which was required and supplied all the accessories necessary to the manufacture of the main products. For this reason the increase in the scale of manufacture of any one product supplied to the market was not so rapid as the growth of the establishment as a whole might have suggested. These are but two examples of many ways in which a firm may grow in size, and we may now proceed to consider the various meanings which may be attached to the words "big business."

First of all it is necessary to draw a distinction between a business unit and a production unit. A business unit, which may control many establishments, is the unit which buys from or sells to other units either on the market or through contracts extending over a period. It purchases materials, sells its own products, and enters into contracts of employment with workers of different kinds, paying either wages or salary in return for personal service. If a firm controls two stages of manufacture carried on in different establishments, such establishments do not constitute different units, even though their accounts are made up separately, and the product of the one is entered as the material of the other at an accounting price determined by the prevailing price on the open market.

LARGE ESTABLISHMENTS

The business unit may only control one industrial establishment, and it may be a large unit because the industrial establishment is a large establishment. The establishment may be large because it is to a great extent self-contained and produces a variety of products. As in the second case quoted in the last instalment, it may possess a large power plant and an engineering shop in which old machines are repaired and new machines are built. It may make a considerable number of accessories, and being already so large it may make provision against fire by maintaining its own fire brigade and also provide dining and recreation rooms for the workers. It may further maintain a fleet of motor vehicles for transporting the products to the market, and these may be housed in a building which forms part of the establishment. Although in such a case the establishment is very large the actual scale of manufacture of any one of the allied products may be comparatively small, and the establishment represents an aggregation or a collection of activities rather than the pursuit of any one activity upon a large scale. Many illustrations of this type of establishment might be given, but it is sufficient to refer to the manufacture of stationery requisites and stamped and pressed metal ware and the supply of chocolates and cocoa.

In the second place, the establishment may be large in spite of the fact that it is highly specialized. The technical conditions to which reference will be made later are such that the manufacture of one specialized product on a large scale is much more economical than on a small scale. In such a case there is no tendency to multiply products. The production of steel may be quoted as an illustration of this type of enterprise.

ONE FIRM, MANY ESTABLISHMENTS

Many business units are large not because the establishment is large but because the unit

controls a number of establishments. It is by no means easy to give a true classification of units or firms which fall under this category, and we must content ourselves at this stage with a few illustrative cases. In the first place, the firm may have achieved so much success as to make it necessary to increase its supply beyond the limits of the establishment in which it first started business. There may be no obvious economy to be derived from an enlargement of the establishment and the firm may, therefore, purchase or erect a second establishment, either in the same neighbourhood or (as in the manufacture of biscuits) in some other part of the country within easy reach of one section of the market for the product. A manufacturer of ladies' blouses may own two or more establishments which are situated either in one large city or in two or three cities. In the second place, a firm may own two or more establishments, each of which specializes upon a given product, but which jointly supply allied products to be sold on the same market. Thus, it may make ladies' blouses in one establishment and ladies' underwear in another, and thereby be able to supply several articles of clothing sold in a shop.

In the third place, a firm may decentralize the production processes and maintain several establishments, each of which specializes in the manufacture of the materials required to make the final product which is sold on the market. The outstanding example of this method of production is supplied by Mr. Henry Ford in America. The large establishment in which motor-cars are made is devoted to the actual construction of the car, that is to say to the assembling of parts, most of which are manufactured in other establishments. It is one of Mr. Ford's many contentions that production on a large scale does not necessarily mean production in a single establishment of enormous size. On the contrary, it is more economical, he argues, to split up production into parts, each of which is made in a relatively small establishment. The method is not confined to America. In this country, too, the engineering and other processes involved in the construction of the parts may be carried on in a number of establishments, so that the main establishment is chiefly devoted to lighter work together with the assembling of the parts and the construction of the car.

VERTICAL INTEGRATION

The next two cases closely resemble the last. A business firm which supplies a manufactured product may control two or more stages in production. Thus, a firm which manufactures steel rails may produce such rails from steel made in its own establishment. It may, further, make such steel from iron which it manufactures, and the iron may itself be made from ore obtained from its own mines. In some cases, the blast furnaces in which the iron is produced from the ore, the steel plant in which the iron is converted into steel ingots and rolled into billets, and the mills in which the billets are rolled out into steel rails or some other product, virtually constitute a single establishment, but in other cases they may be quite distinct and even many miles apart, while the firm which owns them may also own coal mines and ironstone quarries. None of these factories and mines may be very large, but the business unit which controls the group is obviously a large unit.

MANUFACTURER AS RETAILER

Again, a business firm may combine the two processes of manufacture and sale. A boot manufacturing firm may find it desirable to open shops in large towns, and in this way to undertake the sale of its own product. It will immediately be evident that only a firm which maintained a large producing establishment would be able to pursue this policy, nevertheless such a firm is very much larger than the manufacturing establishment itself would suggest. Further, a successful retail marketing firm may begin by increasing the number of stores under its control and afterwards extend backwards by manufacturing, in its own establishment, some of the products which it sells.

The tendency towards the integration of function illustrated in the last two cases is now very marked, and will be considered in greater detail. At this point we are merely concerned to illustrate the different meanings in which the term " big business " is employed. In all the cases which have already been indicated the purpose of the firm is to make itself a strong competitive unit.

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FINDING CAPITAL

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VII

PARTICULARS OF THE PRIVATE LIMITED COMPANY

CONSTITUTION OF THE BOARD

THE next point to be decided in drafting our particulars is the constitution of the board. The subscribers of the new capital will, as a matter of course, require representation on the board, and it is only human nature that in many cases they will desire a majority, directly or indirectly, in fact or potentially, thus giving them practical control, for they will point out that they are risking a greater amount of cash than we are. As we consider the business ours, we do not take the same view, but each instance will be solved on its merits. It will probably help us if we have in mind an acquaintance of some standing, whom we can approach to accept the chairmanship of the company. We all have our vanities, and it pleases most men to be asked to be chairman of a company. We shall, of course, see to it that our friend undertakes to subscribe for a certain number of the preference shares. In all financial enterprises, from the largest to the smallest, it is of the greatest importance to secure a good lead, and with a chairman well known in our circle, we have gone a good way towards winning the battle. In the particulars we shall put down the name of the chairman and ourselves as managing directors, leaving, say, two places vacant for the nominees of the subscribers of the rest of the preference capital.

MANAGEMENT

We make it clear that we shall continue to manage the company. We must now decide on the salary we require. The labourer is worthy of his hire, and as we are going to devote our whole time to the business—we may even be prepared to enter into a restrictive covenant to that effect —we ought to be remunerated. On the other hand, our salary should not be too large. We wish to show our friends that we look to our dividends and not to our salary to compensate us for our work. In fairness to all, we should compromise on the sum which, in view of our circumstances, may be considered a living wage.

OBJECTS OF THE COMPANY

A short paragraph is sufficient, but it should set out with precision the name and nature of the business taken over and how it is proposed to develop it.

DESCRIPTION

The history of the business from its commencement will be outlined, the certificate of profits shown, the assets to be taken over detailed, and the consideration to the vendors indicated. The use to which the new capital will be put should be elaborated, and estimates of future profits made. This is by far the largest section of the particulars, and it is the one that will be read with keenest interest by our friends. While we shall naturally make the most of our business and its opportunities, we must remember, as we mentioned before, that the particulars form the basis of the contract under which our friends will subscribe capital. We must, therefore, be able to substantiate every statement contained in our memorandum.

APPLICATION FORM

It is usual to append an application form for shares to the particulars. We do not wish to evoke merely a vague interest in the minds of our friends. The application form places at their hand a method of giving concrete expression to their interest, while, coming as it does at the end, it is not unduly obtruded on them.

DISTRIBUTION OF THE PARTICULARS

When the particulars are completed, we shall have a number duplicated and distributed among our friends. It must be emphasized again that on no account may we solicit capital from the public, firstly, because our company is a private one, and, secondly, because we want to avoid the formalities attendant on the issue of a prospectus. We have headed the particulars " Strictly Private and Confidential," but it is a question of fact in each case whether we have restricted ourselves to friends or approached the public. The South of England Natural Gas Co., Ltd. (South of England Natural Gas Co., Ltd. (1911) 1 Ch. 573) thought that shareholders in other gas companies would be very interested in their scheme, and sent out 3,000 copies of their particulars to selected shareholders in certain gas companies. The Court held that this was an invitation to the public. A gentleman interested in a certain company, when travelling from his home in the suburbs to his City office, distributed his particulars to the people in the same railway compartment. This, again, was held to be an invitation to the public. If we do give our particulars to anyone whom we do not know very well, we should ask the recipient to return the papers to us at once if he is not interested.

We have, of course, taken our accountant and our solicitor with us in drafting the particulars, and they may help us very considerably by introducing us to prospective shareholders. If we number among our friends an insurance manager, a good

stockbroker, or the director of an investment trust or issuing house, we shall find them useful. Officially, they can do nothing for us. An insurance company puts its surplus funds in realizable securities, the stockbroker is only interested in marketable shares, an investment trust looks askance at shares in a private company and, of course, cannot make an issue of such shares. On the other hand, these gentlemen are in touch with the investing public, and through them we may meet people who will be interested in our business. The same remarks apply to our bank manager.

We do not, of course, forget our customers and our trade suppliers; but we must be careful here, for they are apt to make their subscriptions dependent on conditions that may later prove irksome. Unless in exceptional cases—there are many instances in certain trades where large sums have been obtained from customers—it is better to obtain our capital from friends who have no special connection with our business.

Let us suppose that a number of friends are interested in our company. They will meet to discuss the particulars, and they are sure to suggest alterations. We have named our solicitor and auditor as the solicitor and auditor of the company. They may or may not agree to the retention of the auditor, but quite probably they will want a solicitor nominated by them to draft the memorandum and articles, and to be the solicitor of the company. If this demand is made, we shall give way, for there might be a conflict of interest if our solicitor acted for us and at the same time for the company. The principal matters for discussion will, of course, be the proposed dividend on the preference shares, the amount of ordinary shares allocated to the new shareholders, the constitution of the board, and the amount of our salary. We have considered these matters carefully when drafting the particulars, and we shall come to an agreement with our friends, aided by our good sense and by the counsel of our professional advisers.

DEBENTURES

A limited company may find capital not only by the issue of shares, but, if it so desires, by the issue of debentures. Until the second half of last century, the debenture was a document seldom used and of little importance. It might have been described as the form of IOU given by a company. In the Companies Act of 1862 no reference was made to it, but round about 1870 some ingenious lawyer devised the idea of the floating charge, and grafted it into the form of the debenture. No one knows who originated this peculiar form of security. It can only be said that between 1870 and 1880 the security of a floating charge by means of a debenture became familiar in the City of London and gradually spread through England. It is not found in any English conveyancing precedents published prior to 1870, and it was not formally recognized in company statutes until 1900. It is a simple form of security, but an extraordinarily effective one. The following is a common form—

THE NONSUCH COMPANY LIMITED

ISSUE OF A DEBENTURE FOR £5,000

Carrying interest at the rate of £6 per cent per annum.

Authorized by Resolution of the Directors dated the 31st day of December, 1927

DEBENTURE £5,000

1. The Nonsuch Company Limited (hereinafter called "the Company") will, on the 31st day of December, 1932, or such earlier day as the principal moneys hereby secured become payable in accordance with the conditions endorsed hereon, pay to John Smith of 1 Fourth Street, Leeds, or other the registered holder for the time being hereof, the sum of £5,000.

2. The Company will, during the continuance of this security pay to such registered holder interest on the said sum of £5,000 at the rate of 6 per cent per annum, by equal half-yearly payments on the 30th day of June and the 31st day of December in every year.

3. *The Company hereby charges with such payments its undertaking and all its property and assets, both present and future, including its uncalled capital for the time being.*

4. This Debenture is subject to and with the benefit of the Conditions endorsed hereon, which shall be deemed incorporated herewith.

Given under the Common Seal of the Company this 31st day of December, 1927.

The Common Seal of the
Nonsuch Company Limited
was hereto affixed in
the presence of

DAVID DAVIDSON, JOHN JOHNSON } *Directors.* Seal.

A. WRITER, *Secretary.*

MARKETING

(*Continued from page 252*)

VII

DEALING in futures is often attacked on the ground that it has the effect of lowering the prices paid to the producer, that it affords opportunity for gambling by middlemen in such a way as to increase prices to consumers, and very frequently social reformers have recommended repressive or restrictive legislation. With these aspects of the problem we are not immediately concerned. For the present purpose the uses of futures are viewed simply as one of the problems of marketing, apart from the widespread discussion that the system has occasioned in Britain and in America within recent times. Such a review, to be of value, must be impartial, and to a large extent it will turn on the position of the actual producer and the offer of his output on the market. In substance, the chief defence of the legitimate use of futures is that only by such a method could crops be moved with ease and safety. The dangers and abuses of the system are fully recognized, but so far it has not been easy to suggest more effective or cheaper means of distribution. In any event, a clear distinction must always be drawn between what is plainly gambling and what is on more reliable analysis legitimate business.

THE POSITION OF FARMERS

A brief description of the position of farmers in the cotton belt in the United States may clarify the problem. As regards the greater part of their output they are often in debt to storekeepers in the adjacent districts. Many of them can market only a few bales. They frequently pay by passing on debts in these bales to their creditors. Storekeepers may impose conditions which are at times adverse to the seller, but most of the authorities consider that as a rule they act with fairness. Business is often conducted directly with a factor or his agent, the factor being an important link in the chain of middlemen and manufacturers. As a rule his services cover a wide area ; his agents are regular employees in receipt of salaries ; he shoulders risks attributable to market changes ; pays on delivery ; and from him the cotton proceeds, by way of spot markets in the south and otherwise, to the merchant who sells to factories or to exporters. The exporter may be a merchant exporter on his own account or he may represent in America a Liverpool firm. At this point, i.e. when the cotton is in the hands of the merchants, dealings affecting it first take place on the exchanges. Prior to that, however, futures, anticipating supply in a general way, may have been bought or sold. The factor conducts his business without the intervention of the broker, and up to this stage it may be argued that the middlemen function has not been unduly emphasized. When crops are short competition is keen, and it is urged that growers usually have the advantage of the resulting high prices. For some years the Federal Reserve Board in America has made special financial provision to enable firms to hold their crops until a later part of the crop year. On this point the general belief is that farmers would suffer heavy loss if it were necessary to offer their crops on the market during the quarter following harvest. The additional financial facilities which have been arranged have not removed the contention that complete safeguard will only come when a review of the whole machinery by means of which cotton is collected from the growers is definitely undertaken.

THE PLACE OF TECHNICAL KNOWLEDGE

That farmers should use the exchanges directly, and sell futures on the basis of their growing crop before it is harvested, selecting the period of delivery in competition with other farmers and with spinners, is not regarded as practical politics. Such summary of operations in futures as has already been offered indicates the highly specialized character of the business. Farmers could not reasonably be expected to possess either the knowledge or the ability of the technical character involved, and most writers agree that where farmers have undertaken such transactions they have generally come to grief. But for the farmers there are undeniable advantages in the existence of the futures market. Variations in its activity are very soon reflected in the prices offered for crops. Professor J. G. Smith recalls that it has been said regarding the 1908 cotton crop that the main trouble which prevailed was an almost complete absence of the speculation which in former years helped the farmer to carry the crop and compete actively with consumers and spinners, thus creating a higher range of values during the period of active marketing than would be possible with consumers and spinners having a market all to themselves. The prices of futures on the exchanges regulate the terms offered to farmers by factors. The merchants purchase from the factors on that basis, and in all the operations they have the assistance of the elaborate estimates and statistics of anticipated and actual crop yields to which reference has already been made.

HEDGING OPERATIONS

Certain operations which are designed to supply protection against possible heavy loss are called hedging. The simpler forms of this class of transaction are comparatively rare ; the generally

more intricate effort is designed to give protection against falling prices. Spinners may hedge by means of futures against unsold stocks of yarn as well as against sales of yarn for forward delivery. In the same way manufacturers of cloth and cotton goods may protect themselves against loss resulting from making to stock, and from having to pay unprofitable prices for yarn or cloth when remunerative contracts for forward delivery are delivered to them. The science of the operation has been described as the balancing of a possible loss in the spot market by a possible gain in futures. There are, of course, many other phases of the problem. Complete protection cannot be obtained. The system, however, is regarded as working smoothly and as conferring a real protection, at the same time keeping the trading profit or the commission earned by the merchant and importer small. The legitimate speculator may be regarded as the expert risk taker. Most of the authorities also describe him as the real buffer between the producer and the consumer. If buyers are scarce during the marketing period his efforts may assist very largely in carrying the weight of the crop. He also incurs the greater part of the risk which arises from a price movement. When buyers are numerous and sellers scarce, on the other hand, he fulfils the useful function of selling short, that is, he disposes of what at that moment he does not possess, an action which later requires a corresponding purchase. The processes are completed by the contribution of the bankers, who finance the export and import of the produce. In this matter the principles are somewhat complicated, turning largely on the bill of lading which constitutes the security of the banks for the obligations they undertake on behalf of customers.

ADVANCES TO GROWERS

Similar principles, with necessarily somewhat different detail, apply to the system under which the importation of commodities is financed from Egypt, South Africa, India, and other countries, with the addition that in a number of these cases the importer makes advances to the grower for the purpose of cultivating the crop. As the crop reaches the market these advances are automatically cancelled. For the protection of their customers as well as of themselves the banks require that they hedge by the sale of futures described in this way. In the case of American cotton the process is regarded as simple; the hedging gives valuable protection to both parties. When actual cotton is purchased or sold, as distinct from futures, the usual practice is to quote the price at so many points on or off the price of futures. Such points are called the "basis," and selling on a "high basis" or on a "low basis" means selling at a large or at a small number of points on. Reference has already been made to the hedging purchases of futures by the American merchant exporter who has undertaken to deliver by a certain date cotton of specific grade and staple to his customer in England. In addition to the risk insured against on that particular contract there are other risks in respect of which dealing in futures supplies substantially similar protection. If, for example, a merchant finds, probably through the telegraphic reports of purchases reaching him from his agent, that he has bought more than he requires, he immediately sells on the exchange the number of bales which have been bought in excess of his needs, but instead of selling them on the spot market he sells futures instead. If, on the other hand, his agents have not bought sufficient to cover the amount he has sold, he purchases futures instead, for the purpose of protecting himself against a rise in the price when his agent resumes buying for him on the following day.

In popular discussion the technical aspects of these operations are often forgotten or ignored; it is suggested that they amount in aggregate to a speculation which is contrary, in the last resort, to the public interest. But closer study indicates that, assuming a high standard of business morality, such *operations* in fact remove or mitigate risks which, in their absence, important sections of the business world would hardly be prepared to undertake. And as regards consumers they tend, in certain commodities, to secure an evenness of price, or stability, which is valuable in general industrial and social effort.

VALUE AND DISTRIBUTION

(*Continued from page 254*)

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45. THE meaning of the economist's dictum, that *there cannot be two prices for the same commodity in the same market* should now be clear. It is evidently not literally true; indeed, it could only be literally true in a market in which every buyer and every seller was in telepathic communication with his competitors. At one and the same moment the same grade of cotton may be selling on the Exchange for half a dozen different prices. Nevertheless, it is true that the *tendency* will all the time be towards uniformity. You may have certain price discrepancies—the game, after all, is one in which the tricks will fall to those who play it with most acumen—but you will not, save in exceptional circumstances, have prices rising in one part of the market and falling in another. There is a continuous tendency towards uniformity. The motions of the sea furnish a useful analogy. Successive waves may behave so erratically as to obscure, for a short time, the movements of the tide, but it will not take long for the observer to discover if the tide is rising or falling.

46. A further point about markets may be made here—that no market is completely self-contained. Its operations are affected by those of numerous other markets, some of which will be closely linked to it, while others, remote from it, only make their influence felt indirectly. The Liverpool Cotton Exchange is, as we have seen, affected at first hand by operations in New Orleans and elsewhere—a "boom" or "slump" in America (i.e. a pronounced access of demand for the commodity, or a pronounced falling away of demand) will at once make its influence felt. Transactions on the Cotton Exchange will be affected also, though here the reaction will take longer to express itself, by the movements of the markets which deal in cotton products. English cotton goods, as everyone knows, have been somewhat under the weather during the last few years. This is partly due to a falling-off in the demand for the staple products of the Lancashire mills. Thus, India, our most important overseas customer, has been manufacturing for herself or buying from Japan. Partly also it is due to an increased demand for other fabrics, especially artificial silks. The sellers of these are in competition, in innumerable local "markets," with the sellers of cotton goods. To such ramifications as these there is no limit. A produce exchange, which appears, when first examined, a sharply-defined enclave of specialized activity, is, in fact, organically linked with countless other spheres of economic intercourse.

47. Nevertheless, a produce exchange, or such an institution as the Stock Exchange—of which the technique is essentially similar—is only one kind of market. It is only in certain places, and for certain purposes, that buying and selling are thus elaborately organized. But wherever buying and selling take place, there is the "framework of circumstances" that constitutes a market. The housewife, purchasing her weekly supply of foodstuffs, will participate in the transactions of several such markets; the difference between her and the cotton broker is that she will not operate *consciously*, as he does, in the process of price determination; she will only do so unconsciously. Normally, she will pay for her butter or her cabbages what she is asked, or will reject them. But the mere fact that she may reject them and go elsewhere, or may refuse to buy at all, will have in the end its influence upon prices. Even in the market for cigarettes, the prices of which seem to be immutably fixed by potentates who are above "economic laws," the forces of demand and supply operate. But here the forces of supply are so much better organized than those of demand as to render the battle an unequal one. On the one side is an almost complete monopoly, with control of the raw material, an effective selling policy, and an engine that virtually silences criticism in the forces of publicity and advertisement. On the other side are the complaisance, the ignorance and the gullibility of vast unorganized mobs. Hence, while the price of potatoes rises and falls, the price of cigarettes remains stationary. But cigarettes constitute an extreme case. Over most parts of the economic field the struggle between demand and supply is a less unequal one.

THE LAW OF SUPPLY AND DEMAND

48. Let us, at this point, take stock of our position. A market, we have seen, is a set of circumstances within which operate the forces of *supply* and *demand*; while by the forces of *supply* we mean those tendencies which bear, directly or indirectly, upon the *production* of a commodity; and by the forces of *demand*, those tendencies which bear, directly or indirectly, upon its *consumption*. It is the interaction of these forces of supply and demand within a market that, in the first instance, determines *value*.

49. Of this truth, some examples have been given; and there is little need to multiply them. We encounter them at every turn. "Strawberries are cheap to-day." Why? Because there has been a glut—more strawberries have come on to the market than were available yesterday, and, therefore, the forces of competition being what they

are, they do not fetch so high a price. The underlying reason we shall explore shortly. " The price of gramophone records has fallen." Why ? Because a new process has been discovered, which enables them to be produced more cheaply—to put it technically, costs of production are lower, and so is the supply price. A change in the character of the forces of supply, relatively to those of demand, has taken place. " Lace curtains are selling at a great reduction." Again, why ? Not because they can be produced more cheaply, but because a change has taken place in the forces of demand: lace curtains have gone out of fashion ; and the competition to possess examples of them has fallen off. Day by day we encounter, in the course of our ordinary everyday life, hundreds of instances of the application, in innumerable diverse ways, of the so-called *Law of Supply and Demand.*

THE NATURE OF AN ECONOMIC LAW

50. Let us endeavour, next, to formulate that same law with a little more precision. We must call to mind, to begin with, that our economic law is not a statement either of *musts* or of *oughts* ; it is merely a generalization—a statement of what, taking the relevant circumstances as a whole, is more likely than not to be true. It has the same sort of application, in the field of economics, as has Boyle's law in the field of physics or Mendel's law in that of biology, but it differs in the degree of exactness of its application. Boyle's law is a more precise statement than is Mendel's law, because the data that are relevant to the application of it are better susceptible of measurement, and generalizations induced from those data can be stated with greater certainty. On the other hand, Mendel's law is a more precise statement than the Law of Supply and Demand, because biological data lend themselves more readily to the process of exact generalization than do the complex and elusive data presented by the social relationships of men and women. And hence the Law of Supply and Demand, like other economic laws, must not be regarded as more than a rough generalization, which (if its significance is fairly appreciated) will show itself to be valid *in the long run.*

51. The treatment of this point may, perhaps, appear somewhat laboured, but it is of no small importance. There has long been a tendency to plead the " Law of Supply and Demand " in justification of propositions which, without its apparent support, would appear illogical or pointless. And such a tendency is to be discouraged. The effect is to give to mere generalizations the sacrosanct character which ought only to attach to statements of universal applicability that are capable of proof. But the application of the " Law of Supply and Demand " to a particular situation ought not to be regarded as *proving* anything: it merely creates a strong presumption —a presumption which, in the absence of some valid reason to the contrary, it would be foolish not to accept.

THE LAW OF SUPPLY AND DEMAND STATED

52. Subject to this understanding, we will begin by stating the Law of Supply and Demand in the most general form possible, as follows -

The value of a given commodity in a given market, and at a given time, depends upon the relation between the supply of, and the demand for, that commodity ; and every factor which influences, directly or indirectly, either the supply of the commodity or the demand for it will similarly influence its value.

Let us now proceed to a more detailed consideration of the implications of this general statement.

53. We have seen that *value* is a variable, dependent upon the interplay of two main groups of forces: the forces of supply and the forces of demand. Neither of these, as in due course we shall discover for ourselves, can be looked upon as subordinate to the other (a point, this, in regard to which, at different times, controversy has raged virulently). But where we are dealing with two sets of forces, each of which itself varies in accordance with all manner of underlying complexities, we can conveniently study their interrelations in the following way. We *assume*, firstly, that the one set of forces is fixed, and that the other set is variable ; passing then to a second assumption, that the second set is fixed and the first set variable. Our method of dealing with the problem is somewhat similar to that adopted in the theory of mechanics, when a complex force, the nature of which cannot readily be understood, is split up into its simpler components, the effect of each of these being then separately analysed. Let us attempt to deal in this way with the application of our general " law."

AND RESTATED

54. First, assume that the forces of supply are fixed—that the position, as far as they are concerned, is a static one.

We can then restate our Law of Supply and Demand in the two following ways—

(1) *The supply of a given commodity in a given market being fixed, an increase in the demand for it will result in an increase in its value.*

(2) *The supply of a given commodity in a given market being fixed, a decrease in the demand for it will result in a decrease in its value.*

Subject to certain qualifications, which we have already explored at sufficient length, these are valid generalizations, which bring out, more strikingly than does the fuller statement quoted above, the essentials of one half of our problem. Innumerable examples of their validity will be within every reader's experience.

CURRENCY AND BANKING

(*Continued from page 256*)

VII

NOTE ISSUES

IN this chapter we are concerned with an important element in all modern monetary systems—that of paper notes and the conditions governing their issue by banks or governments. In the previous sections it has been shown that, as regards the coinage, that came in time to be made a royal prerogative. The paper note, on the other hand, did not originate as part of any such prerogative though it has now come to be carefully regulated by Acts and Decrees. It may be useful to describe briefly the historical origin of this medium of exchange.

The chief difference between standard metallic currency and paper currency is that standard coins have a value as metal whereas the same does not hold good of paper notes. Thus we might say that a paper note has a value which is acquired because it represents something else. But it is better first to think of the value of a note as governed by conditions of demand and supply, and secondly to consider the factors which are important on both of these sides. On the demand side notes came to be accepted because of their convenience in the handling of large sums, and also because of the defective conditions of the coinage in the seventeenth century.

THE ORIGIN OF THE NOTE

The introduction of the note in this country is associated with the goldsmiths, who were originally dealers in gold ware and foreign coins. In 1560 we find that certain of their number were appointed judges of the quality of coins, and in the reign of Henry VIII, when the coinage was debased, the goldsmiths assumed the rôle of money-changers. That was a function which had been introduced by Henry I as a royal prerogative, though it was occasionally farmed out, as in the reign of King John. In 1539 the Royal Exchangers were abolished on the advice of Sir Thomas Gresham, but Charles I revived the office in 1627. On the death of Charles the office was again abolished, and it was during the interval from 1539 to 1627 that the goldsmiths assumed their new rôle, which they continued to fulfil after the death of Charles.

The practice gradually developed that people with considerable quantities of metallic coins found it expedient to take these to the goldsmith, who would certify their metallic worth. That practice would be obviously encouraged when the goldsmiths were money-changers, since coins used for international trade transactions passed at their metallic rather than at their nominal values. At the same time there was a growing tendency to use the goldsmiths as banks, or as places where valuables and money could be safely deposited. It was, therefore, but a short step to the next stage, viz., that the goldsmiths as part of their ordinary business should receive deposits of coin and give the depositor a certificate entitling him to the sum so deposited whenever he should desire to withdraw it.

That was the origin of the bank-note. It was first a certificate to the effect that the person named on it was entitled to receive so much coin on demand from the goldsmith. Hence it has been described as a simple "promise to pay." In course of time these promissory notes came to circulate freely, because if a person, holding some of these notes made out in his own name, had certain debts to meet, instead of taking the notes to the goldsmith, cashing them, and then paying his creditors, he might simply transfer the notes to the name of his creditor. Later the promissory note which had originally been payable to the person named on it was issued payable to "bearer," and in that form it corresponds to the bank-note of to-day.

It is worth noticing that there is a certain convenience attached to notes which may increase the public willingness to accept them, provided they are properly issued. A large quantity of metallic money is bulky and difficult to handle, while notes for large sums occupy little bulk. That is an advantage which would have been obvious apart from the defects in the coinage which existed at the time of their introduction.

DEPOSIT BANKING

If the goldsmiths, however, had merely provided facilities for the safe keeping of valuables they would have required to have made a charge for their services. Instead of that they actually gave an inducement for people to deposit sums of money with them by offering interest on deposits. The usual tradition is that prior to the Civil War it had been the practice for cashiers in London who were responsible for the running cash of their firms to lend their balances to the goldsmiths at fourpence per day in interest. During the Civil War many of these enlisted, and, according to certain reports, took with them the money with which they had been entrusted. Thereafter, merchants came more freely to adopt the practice of depositing balances directly with the goldsmiths for their safe keeping. We have, therefore, to find a reason why the goldsmiths paid interest on deposits of coin instead of charging for their services in taking charge of these deposits.

The explanation is that the goldsmith, having attracted deposits of coin, could lend out part of these deposits to other borrowers, and their profit

would be the difference between the interest which they charged for loans and the interest which they paid on deposits plus whatever expenses were incurred in the conduct of this banking business. Experience would teach them that if public confidence was maintained, the note-holders would not all wish to cash their notes at the same time, so that there was always a considerable deposit of unused coin in their vaults. They might, therefore, lend out part of the idle coin to borrowers against suitable security, taking care to keep a sufficient stock of coin to meet probable demands for the repayment of notes. Alternatively, they need not actually have lent coin, since if the use of notes was established borrowers would be willing to accept notes so that the bankers could make larger loans in the form of notes against the coin which had been deposited with them.

CONVERTIBILITY

Notes which are issued in the manner which has been described are said to be "convertible," i.e. the holders of the notes can require that the bank of issue shall redeem or repay in gold the notes when presented. But the important point is rather that people are willing to accept these promises to pay in the course of ordinary business transactions. It might be said, of course, that people will only be willing to accept such notes if they are convertible, but that statement is incorrect. Inconvertible paper has, in fact, circulated on different occasions, and while it is true that experience has taught us rather to associate inflation with inconvertible paper currencies issued to excess, nevertheless it is still possible for an inconvertible paper currency to circulate and to remain stable in value. Where that obtains it implies that the supply of paper is properly adjusted to the demand for notes at a given level of prices.

To return to the discussion of the issue of convertible notes, it will be apparent that under the conditions cited, the quantity of circulating currency will have been increased since the bank has found it possible to issue notes in excess of the gold deposited with it. But the banking principle tends to have the same effect even on the assumption that no notes are issued. Let us suppose that only gold is deposited and that deposits are subject to withdrawal on demand. If there are a large number of depositors it is unlikely that all will wish to withdraw their balances at the same time. The receivers of rents and quarterly salaries, for example, will increase their deposits at the beginning of each quarter and will make gradual withdrawals over the following three months, as they have debts to pay. Other customers will have balances which show regular monthly movements; others will show weekly movements; others, again, will be very uncertain in their movements. Some customers will only keep their idle balances on deposit, others will be saving until they have large enough sums to invest in industry and trade. But in the aggregate many of these movements will tend to cancel one another, and the concentration of idle balances in the bank renders them more effective. When the bank lends part of these balances to suitable borrowers, it therefore acts as an intermediary between a group of lenders—the depositors—and a group of borrowers. Otherwise it would be difficult for the potential borrowers to get in touch with the potential lenders. By specializing in this work, the bank is able to judge as to the real security of the potential borrowers, and so serves both sets of customers. But for the present the point to notice is that, as a result of this banking function, idle balances are made more effective. They are made to work. The quantity of actual circulating currency is increased in relation to what it would have been if the idle funds were merely deposited with the bank for their safe keeping. The issue of notes makes possible a further addition to the actual volume of circulating currency.

THE GOLD RESERVE

The tendency is for this increase in the actual circulation to exercise some influence in an upward direction upon the general level of prices. It is, therefore, important to consider how far this movement can go. It should be remembered that we are still concerned with convertible note issues, and that the bank must hold in reserve a stock of gold adequate to the possible demands for the redemption of notes. That fact, in itself, places a certain limit to its power to issue notes. But it is important to understand the significance of this gold reserve against notes. Demands for the repayment of notes will, of course, increase suddenly if confidence in the bank of issue is shaken. But, apart from these abnormal occasions, the tendency, as has been shown, is for the increase in the quantity of circulating currency to raise prices. That will mean that there may be a greater demand for coin in actual circulation for the purpose of discharging these debts which are not usually settled in notes, and that increased demand for coin will be supplied by presenting notes for repayment at the bank of issue. Thus the gold reserve of the issue bank will tend to fall. The second drain on the gold reserve is concerned with the foreign exchanges, which will be discussed later. As prices rise, imports from abroad will be encouraged while exports will be discouraged, and there may result a certain adverse balance of indebtedness which will involve an outflow of gold to countries abroad. Thus the rise in prices caused by the increase in the note issue may occasion a double drain upon the gold reserves of the issue bank. Such an event would be a warning to the bank that further issues should not be made and that some restriction was called for.

INTERNATIONAL TRADE

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VII

THE CASE FOR PROTECTION

THE previous discussion will have indicated that the supposition that the economic welfare of a country can be enhanced merely by erecting protective tariffs to exclude or restrict imports from abroad is based upon a number of misconceptions. Whatever serves to check imports reacts in a manner which also checks exports. The case for protection, however, is generally modified in practice so that it refers not to the general effect on the entire trade of a country, but to particular aspects of that trade. It seeks rather to concern itself with a number of specific benefits which are alleged to be forthcoming subject to certain conditions. Frequently the benefits which are claimed belong to a political rather than to an economic order. Thus it is held to be disadvantageous if a country is obliged to be dependent upon other countries for supplies of particular "key" products, the supplies of which are liable to be suspended in the event of war or political upheaval abroad. It may even be admitted by the adherents to this view that the artificial stimulus to such "key" industries within a country by means of protective tariffs involves an economic loss and sacrifice during normal times when cheaper supplies from abroad are procurable. But it is held that the economic loss and sacrifice is worth making if it secures a greater measure of political security in times of uncertainty.

"KEY" PRODUCTS

It is relevant to observe that the selection of products the regular supply of which is a matter of national concern must proceed along somewhat arbitrary lines. The case of agriculture would be particularly important and the arguments in support of the Corn Laws emphasized the significance of national independence as regards the food supply of the country. But the group of essential commodities might be extended almost indefinitely, more particularly in the cases of highly developed modern communities. It might be made to include meat, coal, iron-ore, nitrates, paper, scientific instruments, optical glass, and a great host of other apparently less important commodities. This fact clearly lends itself to practical abuse since a real desire for artificial protection within a particular industry may be disguised under an ostensible plea for the national well-being. And if the political argument is successfully pursued for the benefit of a large number of domestic industries, the final result may show an important economic loss of the kind which would follow the imposition of a general protective tariff.

The practical problem must be considered in relation to the possibility of maintaining peaceful relations as between the different states so that the outbreak of war is rendered less probable. It may, therefore, be reasonably argued that attention should first be directed towards this latter end. Given that immunity from political disturbance is rendered lastingly probable, the economic advantage of free commercial intercourse would be secured.

NAVIGATION LAWS

In any particular case, moreover, it is necessary to examine all the relevant factors which may be operative. The English Navigation Laws were approved by J. S. Mill on the ground that the stimulus given to the mercantile marine maintained a "nursery of seamen" for the navy. "A country exposed to invasion by sea," he wrote,[1] "if it cannot otherwise have sufficient ships and sailors of its own to secure the means of manning on an emergency an adequate fleet, is quite right in obtaining those means, even at an economical sacrifice in point of cheapness of transport." As regards this country such an artificial stimulus has clearly become unnecessary. But it is not evident that the development of the English mercantile marine was solely promoted by the artificial encouragement of the Navigation Laws. In France, where similar legislation was attempted, the result was failure.

AGRICULTURE

In the case of agriculture, J. S. Mill, writing in 1848, was able to remark that the protectionist argument "has been so often and so triumphantly met" as to warrant but slight notice. National independence in respect of agricultural produce was liable to become a source of danger under normal peace conditions. "That country is the most steadily as well as the most abundantly supplied with food which draws its supplies from the largest surface. It is ridiculous to found a general system of policy on so improbable a danger as that of being at war with all the nations of the world at once, or to suppose that, even if inferior at sea, a whole country could at once be blockaded like a town, or that the growers of food in other countries would not be as anxious not to lose an advantageous market, as we should be not to be deprived of their corn." Since Mill's time, however, the possibility of economic isolation through blockade has, perhaps, become for certain countries a more serious menace. To that extent, and more especially as regards the United Kingdom, the political argument for the protection of agriculture

[1] *Principles*, Book V, Chapter X, Section 1.

might appear to be reinforced. Nevertheless, the problem is not simple. A policy which is expedient under war conditions may be definitely inexpedient and harmful under conditions of peace. Mill's argument as to the advisability of securing supplies of foodstuffs from many sources remains essentially valid and it might equally be extended to cover raw materials. Taking British agriculture since the seventies of last century, conditions in general have been unfavourable. With the rapid development of ocean and inland transport and the opening-up of rich, new virgin soils overseas, agricultural products were readily obtained from overseas sources of supplies at low costs. To what extent that tendency may be continued or checked cannot be discussed here in detail, but it may be observed that in the absence of a further series of rapid and important inventions, the peculiar advantage enjoyed by the British consumer and the particular hardship experienced by the British farmer should tend to decline.

A policy of protection adopted for political reasons within that period since the seventies of last century could hardly have failed not to deprive the British consumer of the advantages which he did, in fact, enjoy. During the late war, however, the exceptional danger made its appearance, but food supplies were well maintained under strong naval safeguards. The corresponding dangers which would arise in the event of some later world war cannot properly be foreseen, but in considering the problem it would be relevant to examine the prospects of British agriculture apart from protection, the loss and risk to consumers under a protective tariff on wheat imports, the reacting effects of protection on the trade of the country as a whole and particularly upon the export industries, and, finally, the possibility of effecting reasonable security against the outbreak of war through the development of the League of Nations. The economic argument would suggest that attention should be concentrated on the avoidance of war rather than upon the adoption of safeguards which are only effective if a country is completely isolated from foreign sources of supply for foodstuffs and raw materials.

THE INFANT INDUSTRY

Another main argument for protection is that which relates to the "infant" industry. It is supposed that a country has the possibility of developing some domestic industry for the supply of products which are already obtained from abroad where the industry in question is long and well established. To begin with, the new or infant industry in the first country could not hope to compete on favourable terms with the foreign industry. It is presumed, moreover, that the foreign country is superior in that particular form of production not because of special natural advantages which it enjoys but for the sole reason that it had an earlier start. The industry in the first country has yet to be built up. Hence, it is argued that it is reasonable that a protective tariff should be imposed on imports of the particular product and that this should remain effective until the infant industry has "found its feet."

It is to be noticed that this argument generally takes the form that the tariff should be temporary in its duration. It is intended to obtain only until the industry has been developed; when that stage has been reached the tariff would be removed. On its face value the argument is at least plausible. There is one point which frequently arises and which must be mentioned at this stage. That is the claim that the imposition of a duty on imports from abroad will not lead to a rise in the price of the commodity. If that were true, the infant industry would enjoy no benefit. The problem of that industry is precisely that in its early stages it cannot produce at the price at which supplies are forthcoming from other countries. The real protection which it requires is, therefore, one which secures that the price of its products will be raised.

As in other problems, it is necessary to balance the advantages against the drawbacks. Experience suggests that infant industries which are protected never "grow up." Writing in 1904, Smart remarked[1]: "Sir Charles Tupper declared long ago that given fifteen years of protection, the infant industries of Canada would be able to stand alone. The fifteen years are gone, twenty-five years are gone. The infants are still in arms. So with America. . . . Practically all industries there are protected. We must conclude, then, either that all the industries are yet in their infancy—and a century is a long time for long clothes—or else we commit ourselves to some theory of permanent infancy."

The explanation is not difficult to obtain. An industry which "grows up" under artificial conditions tends to adapt itself to these conditions and finds it difficult to adjust itself to some other set of circumstances. What has been described as a "vested interest" tends to be established. This term need not be interpreted in any particularly disparaging sense. It is intended to refer merely to the lack of adaptability which is developed in an industry which has been encouraged to foster under unnatural circumstances. Moreover, a tariff once established is not easily removed. Experience suggests that when there are several infants each enjoying protection any proposal to remove the tariff in respect of one industry tends to be exploited as an inequitable act of government. In general, the fact that such an industry, having been granted protection, persists in its demand for protection even after the industry has been established, must be taken as a partial refutation of the earlier part of the infant industry argument.

[1] *The Return to Protection*, page 60.

THE TRADE CYCLE

(*Continued from page 260*)

VII

DISPROPORTIONATE PRODUCTION AND THE TRADE CYCLE

DISPROPORTIONATE production—production by a particular trade or industry in excess of its market—is often spoken of as being responsible in great part for the trade cycle. Such a view has much to be said in its favour. There is ample evidence to show that from time to time some particular trade or industry, or group of trades or industries, produces more than it can dispose of at a profit. A change of fashions or a sudden craze may be responsible—makers of hairpins, for instance, have experienced little demand for their product during recent years. Political events are frequently to blame—the demand for weapons and high explosives during the four and a half years following on 1914 practically ceased with the signing of the Armistice. When a country such as Russia falls out of the comity of nations the channels of trade are again changed. New inventions can also give rise to disproportionate production—oil and water-power replace coal for certain purposes, and an excess of coal miners is the result.

THE PLANLESSNESS OF PRODUCTION

Quite apart from these and other possible causes of disturbance, disproportionate production is in any case to be expected, seeing the circumstances of modern industry. Here we have a vast and almost infinitely complicated business, producing goods for the most part in advance of demand, with no planned co-ordination of its different sections, each unit going ahead with little, if any, knowledge of what other units are doing. Under conditions such as these, some industries are bound to overshoot the mark, and in these industries there will be unemployment.

This disproportionate production and consequent unemployment in one or two industries will tend, it is argued, to bring about general depression. For unemployment means a falling off in buying, and particularly in the buying of finished goods. And, as it happens, even a slight decrease in demand for finished goods is likely to assume serious proportions as it is relayed back to the earlier stages of production.

How this comes about can best be seen by taking an imaginary example.

THE EFFECT ON BASIC INDUSTRIES

Let us suppose that a manufacturer supplies a wholesaler, and the wholesaler supplies a retailer, with ten articles a month, which articles the retailer normally sells. One month, however, his sales fall off to eight. The retailer, having already two articles on hand and faced with an apparent reduction of demand from ten to eight, orders only six articles from the wholesaler, instead of the usual ten. The wholesaler, with four articles thus left on his hands, and with demand down to six, orders only two articles from the manufacturer. The manufacturer with ten articles made, but orders for two only, ceases work.[1]

In this fashion a slight falling off in consumption tends to become greatly magnified. Nor is this all. The manufacturer, besides discharging some of his own men, will certainly abstain from ordering new machinery, which means unemployment in the industries producing construction goods. This unemployment brings about a further falling off in buying, and the whole process thus begins over again in an accentuated form, until depression in one or two industries which have overproduced may well result in general trade depression.

CRITICISM

The theory, thus summarily sketched, is at least plausible. There can, indeed, be little doubt that disproportionate production is a factor in general trade depression. But is it the major factor in the trade cycle?

Two main reasons may be advanced for believing that it is not. In the first place, disproportionate production is not confined to overproduction. It may also take the form of underproduction, and those industries where the demand for goods is in excess of the supply will be taking on more workers to meet the rush of orders. It is true that men cannot change their trades or their homes at a moment's notice,[2] but the fact nevertheless remains that the unemployment brought about by disproportionate overproduction will tend to be absorbed by reason of the disproportionate underproduction which is its counterpart.

In the second place, supposing it to be granted that disproportionate production, and the cumulative unemployment arising therefrom, may bring about general trade depression, how does this theory meet the test which both of the previous theories fail to meet satisfactorily? What is there to prevent this progressively increasing unemployment bringing industry to a standstill? What factor has the force to arrest the vicious spiral thus induced and to set industry back again on the road to prosperity? There is no adequate

[1] This example, of course, merely illustrates a *tendency*. For a detailed analysis bearing on this particular point see *Cyclical Fluctuations*, by S. S. Kuznets, Adelphi, 1926.

[2] As Prof. Pigou has pointed out, however, this immobility of labour tends not so much to accentuate depression as to prevent prosperity reaching higher levels. *Industrial Fluctuations*, Chapter XX.

answer forthcoming. Disproportionate production might conceivably be held to account for trade depression, but it cannot be held to account for the trade cycle.

THE OVERSAVING THEORY

There is, however, a special form of this theory which attributes the trade cycle to a particular type of disproportionate production, namely, the overproduction of capital goods relative to consumers' goods. Among the economists who have advanced theories of the trade cycle based on this idea Mr. J. A. Hobson is by far the most widely known and credited. His theory may be summarized as follows:

A large proportion of the total income of the people of a country goes into the hands of a relatively small number of wealthy people. A great part of these wealthy people's incomes is invested in capital goods—factories, machines, etc. The new capital goods thus brought into existence proceed to turn out larger quantities of goods for actual consumption. But, since the vast majority of the population are relatively poor, these increased quantities of consumers' goods cannot find a profitable market. This scarcity of markets naturally brings on unemployment, price reductions, and trade depression generally. But it also involves considerable business losses, and the volume of savings invested in industry falls off; with the result that after a while equilibrium between saving and spending is restored and trade activity is resumed—but only for the whole process to start over again.

This "oversaving" or "underconsumption" theory has been attacked from many angles, and, although widely accepted by social reformers and others, has not found favour with many economists. There is no question that it has a certain validity. By taking an extreme case where, say, nine-tenths of the national income was invested in additional plant, it is possible to imagine circumstances in which "oversaving" could have the effect of disorganizing trade very completely.[1] There is this fact in its favour also that "industrial expansions have always been, in the main, expansions in the building of means of production."[1]

[1] Cf. F. W. Taussig, *Principles of Economics*, pp. 47-8.

IS THE OVERSAVING THEORY ADEQUATE?

But here, also, the test which the theories previously examined failed to satisfy is again a difficulty. Why should not the unemployment arising from underconsumption cause a still greater degree of underconsumption, which, in its turn, is likely to cause still more unemployment, and so down deeper and deeper into depression? As Mr. Lavington has put it: "It may, indeed, fairly be asked why declining activity should not proceed far beyond the relatively moderate limit of its ordinary course; why it should not continue to develop until the larger part of our resources were out of action, and unwilling idleness passed into starvation and revolution."[2] The mere fact that saving has fallen off because of business losses, so that capital equipment is not being enlarged at the same excessive rate as before, hardly seems an adequate reason for thinking that the vicious spiral of unemployment and narrowing markets will be checked and reversed.

Disproportionate production, therefore, whether due to some large or abrupt change in the demand for or supply of some particular commodity, to miscalculation of demand or supply arising out of the "unplanned" nature of production, or to a possible tendency to "oversaving," can hardly be regarded as the dominant factor in the trade cycle. On the other hand, that it is a factor, and at times a highly important factor, tending to restrict trade activity, no one is likely to deny.

NOTE.—The summary account of Mr. Hobson's theory, which is all that space permits here, requires to be supplemented by further reading. In *The Economics of Unemployment* (Allen & Unwin) Mr. Hobson puts out his views in a manner readily understandable by the general reader.

[1] Pigou, op. cit., page 17.
[2] *The Trade Cycle*, by F. Lavington, p. 87

SURVEY OF INDUSTRIES

(*Continued from page 265*)

VII

ENGINEERING ECONOMICS

ECONOMIC IMPORTANCE OF ENGINEERING

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ENGINEERING has been defined "as the art of directing the great sources of power in Nature to the use and convenience of man." If the widest interpretation is put upon this definition, then engineering becomes one of the great fundamental factors in human existence, because depending on it are such fundamental considerations as cheap and plentiful food supply, economic transport, ready means of communication, public and domestic illumination, heating, cooking, and the application of all forms of mechanical power to the reduction or elimination of human effort. The aim of all progress in engineering is to eliminate waste of time, effort and material in all these activities and consequently to secure their establishment on an increasingly economic basis. If inquiry into the position of engineering in the economic life of the race is carried sufficiently far, it becomes apparent that the progress of engineering is a fundamental factor in determining the population that a country can sustain. This is because the use of mechanical power creates the capacity to produce industrial and agricultural commodities in excess of actual requirements, and the surplus production results in the ability to support an increased population. Similarly, in this way, engineering is one of the main instruments in the acquisition of wealth.

ECONOMIC EFFECTS OF ENGINEERING PROGRESS

The effects of progress in various branches of engineering are mutually interlinked and are interlinked with all other forms of progress to an extraordinary degree. Perhaps the outstanding example of this interlinkage is seen in the effect of the development of the steam engine and its application to production. Improvements in the efficiency of all prime movers, whether steam engines, steam turbines, or gas and oil engines, and every form of electrically-propelled mechanism, have increasingly cheapened and speeded transport, which, together with engineering feats in harvesting and storing, have resulted in cheapening and increasing the amount and range of food supplies. Similarly, improvements in prime movers enable raw materials to be more easily "won." In the textile industry, for example, the easier winning of metals has led to the cheaper and increased production of textile machinery. This in turn has led to increased and cheaper production of textile materials, which has similarly resulted in increased demands, which in turn have called for increased transport facilities, which again has reacted to increase the demand for transport vehicles and motive power, which again has called for increased fuel and all other raw materials supply.

One of the greatest influences of engineering progress is its ability to annihilate time and space. This is particularly evident when one considers the present position in regard to the communication of intelligence. The marvels of communication by telephone, telegraph, and wireless telegraphy require no comment, but it is not always appreciated that the newspaper industry has perhaps more than any other made the most speedy and complete use of engineering progress. Every phase of newspaper production has been mechanicalized; with the result that news of happenings is being distributed to the public after an incredibly short interval of time.

There are three broad divisions of engineering: civil, mechanical, and electrical. Civil engineering, dealing with the construction of harbours, docks, bridges, waterways, etc., though perhaps not so spectacular nor so intimately associated with the economic factors of everyday life as are electrical and mechanical engineering, is, nevertheless, vital. The difficulties of drainage and irrigation, as evidenced in the Assouan Dam of the Nile, which have always been important considerations in agriculture, have, due to the efforts of the civil engineer, been overcome. The effect of bridge building has been to reduce transport difficulties, while the making of harbours has enabled the deep-sea loading and unloading of cargoes to be accomplished. Waterworks and sewerage disposal are vital aspects of civil engineering, as also are the safeguarding of ships at sea by means of lighthouses, etc. The effect of improvements in the military and naval branches of civil engineering on the well-being of the economic life of the people should not be overlooked.

Mechanical and electrical engineering make their outstanding contribution to the economic factors of life primarily in that they provide the means whereby energy in some latent form, such as that contained in coal, or oil, or in falling water, can be translated into a form in which it can be most readily transmitted and employed for human service. The latent energy of fuel, such as coal and oil, is converted into heat energy and consumed in furnaces to enable steam to be raised in boilers, the energy of the steam being converted into mechanical energy in steam engines or turbines.

This mechanical energy may again be converted into electrical energy by means of dynamo-electric apparatus, and in this form can be transmitted over vast areas to be ultimately used for traction purposes, for heating, lighting, and for power for industrial and domestic use, etc. Similarly, the latent energy of oil may be converted in an internal combustion engine into mechanical and, ultimately, if necessary, into electrical energy, and used in either form for a vast number of purposes. Or again, in the place of the latent heat energy of combustibles the kinetic energy of falling water may be used in water turbines to generate electrical power. Energy in mechanical form can be utilized for steam engines, ships, motor-cars, aeroplanes, etc., and, similarly, the energy of moving water can be applied to a variety of hydraulic applications. These and a great variety of electrical applications, both in generation and operation, broadly comprise what is ordinarily called mechanical and electrical engineering.

In this chain of activities it is of the utmost economic importance to ensure that the various conversions from the latent energy of coal to steam, then to mechanical, and then to electrical energy, are all done with efficiency, that is to say with a minimum of waste, since, as already pointed out, any economy that may be effected in these various conversions will react to make life more economic for the community as a whole. Similarly, in every piece of apparatus that is used, whether for illumination, for heating, cooking, or motive power, progress comes through either the employment of improved materials or increased knowledge which will enable the apparatus to function with an ever-minimized loss. Some of the advancements in knowledge are of the greatest importance. A hundred years of steam engine development (1800-1900) saw this prime mover pass through the simple form of single expansion to compound, triple and quadruple expansion. At the end of that time a 3,000 h.p. unit was considered large. When the modern steam turbine was devised, the growth in size of units increased rapidly until at the present time a 25,000 h.p. unit is common practice, while units of 50,000 have been constructed in this country, and one of 55,000 is under construction at the present time.

Some idea of the increase in size of electricity-generating units may be obtained from the following figures –

In 1880 the largest unit built was of					60 h.p
,, 1890	,,	,,	,,	,,	100 ,,
,, 1900	,,	,,	,,	,,	1,650 ,,
,, 1910	,,	,,	,,	,,	16,000 ,,
,, 1920	,,	,,	,,	,,	45,000 ,,
,, 1925	,,	,,	,,	,,	60,000 ,,

It is interesting to note that whereas 21 years ago 18·5 lbs. of coal were required to generate one unit of electricity, in 1926 the average was 2·53 lb. per unit, while at one generating station the fuel consumption was only 1·51 lbs. per unit. These improvements are due to improved engine and boiler design, to improved feed water treatment, and to the utilization of waste heat in boilers. By these means 8 tons of coal now do the work which formerly required 58 tons. Apart from fuel economy, the economy of space in engine room and bunker capacity, especially in marine engineering, is particularly valuable.

The application of the internal combustion engine employing the Diesel principle has produced still further economy in the conversion of the latent energy of oil fuels to mechanical energy.

No form of locomotion has made more rapid strides than that of mechanical flight, made possible by the invention of the internal combustion engine and by metallurgical improvements. Twenty-three years ago mechanical flight was impossible, but since that time progress can be marked by the following records of the speeds attained in the Schneider Cup Races.—

Year	*Miles per hour*	*Year*	*Miles per hour*
1913	45	1922	145
1914	86	1923	177
1920	106	1925	234
1921	111	1926	246½

ENGINEERING PROGRESS AND ECONOMIC PRODUCTION

The use of power considerably increases productive output, and the high output per worker in the United States of America is due to the wide use that is made of electrical and mechanical power. In the 1919 Census of Production it was estimated that in the U.S.A. the efforts of every worker were increased by 3·25 h.p., i.e. by about 30 times his own effort.

The writer has investigated five selected industries having reliable returns for both the U.S.A. and Great Britain, including iron and steel, motor-car, textiles, coke, paper and printing, and has found the employment of power to be in favour of the U.S.A. in the ratio of 2 : 1 and the production per employee in the ratio of 4 : 1. In these industries there is sufficient evidence to show that if the horse-power per employee is doubled, the productivity increases about four times, assuming, of course, that all other factors remain equal and constant. This condition is responsible for the high rates of wages that are paid in the U.S.A. as compared with those prevailing in Britain. In addition, it is also claimed that due to the application of power the purchasing power of these wages, expressed in terms of essential commodities, is higher than in Britain. Of the power used, electrical power is rapidly becoming predominant.

The increased application of power to the material requirements of life means that these requirements are increasingly achieved more or less automatically, and this must necessarily react to produce a progressively higher intellectual level.

ECONOMIC LIMITS OF POWER-PRODUCING UNITS

Two important considerations in engineering are the magnitude of economic production of mechanical and electrical energy and the economic limit to the provision of facilities for industrial production.

In the former case it is clear that considerable economies can be effected in the cost of producing electrical energy by improved prime movers housed in central stations of considerable magnitude. The ultimate limit of economy in fuel consumption due to increasing the size of producing units will be determined by such factors as the density of population of areas to be served, the cost of transport of fuel, the cost of obtaining facilities for cooling water, and the cost of transmission of the energy to the consumer. Similarly, load factor is important in determining the economic size of generating stations, and where the load factor is not high, or only becomes high due to the industrial load, which, except in such continuous industries as coal mining and iron and steel making, is normally for only about eight hours per day, the super-power station may not be economic. Similarly, where transmission has to be made over a very wide area through an extensive network of cables and overhead lines, the economies due to large-scale production may be outweighed by capital charges and line losses in transmission and by the erection of transforming and distributing sub-stations for distribution to the consumer.

ECONOMIC LIMITS OF MANUFACTURING UNITS

Considering the economic aspect of large-scale manufacture, the limitations rise largely from the character of the product and, consequently, the type of organization that has to be established for producing and marketing it. Thus, certain commodities, of which motor-cars are a noteworthy example, may be manufactured on mass production lines; and, subject to the market being such that continuity of operations on something approaching the full manufacturing capacity of the particular works concerned can be maintained, the size of the productive unit represented by a complete manufacturing and selling organization does not appear to have reached its ultimate limit, although questions of internal transport in various parts of the productive organization and the risk of congestion of incoming raw materials and outgoing products may eventually determine the limits of size in which any particular manufacture can be efficiently conducted. Where products are of a general character and very many types are made within the same organization, as in the case of the various commodities that comprise general electrical engineering, the bulk of which cannot readily be made on mass production lines, the limiting size of unit is likely to be reached much more quickly than in the case of mass production; and in such lines of manufacture the tendency is increasingly towards the decentralization of manufacturing organizations when a working capacity of from 10,000 to 15,000 workpeople has been reached. While the factors responsible for the limitations are to some extent those of transport, etc., the main consideration is the difficulty of securing the right personnel for management, which becomes an increasingly important factor.

While the size of actual producing units will reach an economic limit, there appears to be no limit to the extent to which productive units in the same or allied industries can be formed into combines for the purpose of eliminating wasteful competition and unbalanced production, for better insurance of raw material supplies, for the more effective employment of scientific and technical resources and of unified and properly controlled selling and distribution, and, in some cases, easier financial conditions. Such combines are also concerned with political influences and with the operations of similar combines abroad. Recent examples of large scale combinations are the Imperial Chemical Industries and the International Combine set up on the Continent to regulate production in the iron and steel trade. The intention of this latter is to suppress useless competition by arranging suitable partition of products. The scheme aims at overcoming the chaotic state of the iron and steel market due to the over-stimulation of production and the post-war decrease in world consumption. Perhaps the most important consideration in such combines is the means they afford of securing the best research facilities, technical knowledge, and manufacturing experience all directed towards economic production and also to the means of securing a rate of production suited in all its phases to the maximum amount that markets already existing (or which can be created) are able to absorb.

With this growing tendency towards combinations of productive means there are parallel combinations of labour of all kinds. The extent to which these great labour combinations can be wisely and efficiently controlled and directed represents an enormous and important consideration in the extent to which modern industry can efficiently function.

These considerations, which are evident in every form of industry, are predominantly so in engineering which, as already pointed out, is the factor of fundamental importance in all economic progress, because the economic exploitation and utilization of power is one of the most important necessities in procuring a high state of civilization.

THE ENGINEERING INDUSTRY

By The General Editor

DISTRIBUTION AND ECONOMIC POSITION

It will be evident, from what Mr. Fleming has stated, that the demand for the products of the engineering industry is mainly determined by four factors. The first is population. Other things being equal, a country with twice as large a population as another will require twice as large a supply of machinery. Moreover, an increase in population will create an increase in the demand for machinery without any change in the method of organization. The second factor is the extent to which the industries of a community have become mechanized, that is to say, the extent to which they employ engineering methods. This factor determines the volume of replacement orders which the engineering industry receives. The cotton industry of Lancashire is essentially a machine industry, while that of China is mainly a domestic industry employing hand labour. Assuming that they produce annually the same quantity of cloth, it is evident that there will be a regular flow of orders for textile machinery from the former, but not from the latter.

ENGINEERING AND DEVELOPMENT

The third factor is the rapidity with which new industries based upon engineering processes are created and existing industries increase or diminish in size, while the fourth is the rate at which industries based upon hand labour are modernized or mechanized. The growth of the motor-car industry in this country has obviously reacted upon the engineering industry, while the growing production of mill-produced cotton in India has reacted upon that section of the industry which makes textile machinery.

The third and fourth factors account for the large supplies of engineering products which are periodically sent to backward and to new and thinly populated countries. When in a new country, such as Canada, new railways are constructed, there naturally follows a large demand for locomotives, coaches, and other railway materials. When the scheme is completed most of the demand disappears, to be replaced by a similar demand from another new country. At a later stage replacement orders begin to appear in one new country after another, and in the aggregate these reach considerable dimensions. Again, the process of industrialization, which is now fairly rapid among the older civilizations of the Far East, carries with it a large demand for machinery from the engineering countries of the world.

TRADE FLUCTUATIONS

Two further observations may be made at this stage. In the first place, engineering, like shipbuilding, is an industry which is peculiarly susceptible to booms and slumps. During a period of general contraction of trade few people develop their businesses, with the result that the engineering industry is mainly concerned with completing contracts placed at an earlier stage, or with replacement orders of an urgent character. During the later stages of the depression and the early stages of a trade revival economy is still the order of the day, and economy is too frequently interpreted as the cutting down of immediate expenses. There are, of course, some who realize the need for maintaining plant at the highest stage of technical efficiency, and it is upon those that the engineering industry mainly relies for orders at this stage. It is only when the revival in general trade culminates in great activity that the majority of manufacturers realize the need for development and place orders on a large scale for new equipment. For this reason a boom in engineering develops more slowly than in other trades. But when it appears it is, like the slump, more pronounced than in the great majority of industries.

In the second place, engineering is a group of industries many of which are closely related to manufacturing industries. The textile engineering industry finds its market in the textile trades, and its progress is bound up with the progress of the latter. Thus, behind the general fluctuations of trade we find that different sections of the industry rise and fall with the particular industries upon which they depend, and, therefore, change in their relative importance. The recent developments in the use of electricity and of motor-cars, for example, have resulted in a rapid growth in the relative importance of two sections of the engineering industry. It does not follow, however, that a section necessarily suffers from depression if and when a long depression appears in the industry which forms its market. The coal industry of Great Britain has been suffering from depression during the last few years, but that branch of engineering which is engaged in making mining machinery has enjoyed considerable (though varying) prosperity. The depression in the mining industry has compelled competing firms to improve their methods of production, and such improvement has been achieved partly by the introduction of machinery for cutting and conveying coal.

THE CHIEF ENGINEERING CENTRES

The engineering industry only exists on a large scale in highly-developed countries. Repair shops and small establishments are naturally to be seen in all parts of the world in which machinery of any kind is employed ; nevertheless, the industry is only to be found on a large scale in communities which have already been highly industrialized. It can only flourish where supplies of iron are within easy reach. It requires, moreover, a supply of skilled workers and a large home market. And, where it does exist on a large scale, it tends to specialize in those sections for which there is already a large domestic market and towards which, therefore, the engineers naturally turn.

The largest centre of the industry is the United States of America, which is said to produce approximately one-half of the total world supply of machinery. It is not surprising that such should be the case. Not only is the population far greater than that of Great Britain or Germany, but the amount of power which is used per head of population is already large and still rapidly increasing. For this reason there is a considerable demand both for replacement and for development purposes. The German industry is second in importance, and is said to be responsible for approximately one-fifth of the world's supply. Great Britain, which occupies the third position, is said to produce approximately 12 per cent of the world supply. Of the other countries Belgium, Austria and France are the most important, but it will be seen that these and all the remaining countries jointly contribute less than one-fifth of the total.

SPECIALIZATION

Although the British industry is far smaller than that of the United States and Germany, all three export approximately the same amount and jointly export about 85 per cent of the total world exports. The British industry thus depends to a greater extent than its two chief rivals upon the foreign market, and was known before the world war as a "fifty-fifty" trade. The industries of the three chief countries were partly competitive, but one of the results of long continued competition was specialization both in product and in markets. Thus, for example, the British industry specialized on textile machinery, engines, locomotives and agricultural machinery. The United States, with its large agricultural industry, naturally specialized on agricultural machinery, while Germany specialized upon textile machinery and machine tools. Again, the United States concentrated mainly upon the American market and Germany upon the European market. The British industry found important markets in Russia, in the Commonwealth, in France, and in South America. This mixture of specialization and, in certain cases and places, keen competition, was one of the marked features of the industry before the war.

POST-WAR DEPRESSION

Since the war the engineering industry of this country has been suffering from severe depression. The depression, which varies in intensity between different sections of the industry, is due partly to a fall in demand from the home market. Marine engineering has naturally suffered the same experience as the shipbuilding industry, which is the subject of a separate article. The depression in other sections, such as locomotive building and constructional engineering, is partly a reflection of the general depression in British industry and the absence of any vigorous policy of development. But the cause of the depression in the engineering industry is to be found mainly in the failure of the export trade. Engineering statistics are extremely difficult to employ. Not only is a satisfactory unit at present beyond reach, but the fluctuations from year to year are so marked as to make comparison between two years widely separated highly dangerous. It may be pointed out, however, that the total exports of machinery fell between 1913 and 1925 from 689,000 tons to 516,000 tons.

The statistics given on page 314 show that the fall in exports was very general, but was most marked in agricultural machinery and prime movers (not electrical). The statistics are taken from a memorandum on the economic situation prepared by the British Engineers' Association for the Preparatory Committee of the International Economic Conference (May, 1927) of the League of Nations.

From additional statistics contained in the same memorandum the following facts emerge—

Before the war about 34 per cent of the total exports was shipped to British possessions (nearly half to India) and about 36 per cent to Europe. The exports to British possessions were almost as great in 1924 as in 1913, being 231,000 tons as compared with 234,000 tons. The greatest fall occurred in the exports to foreign countries (from 268,000 to 108,000 tons), mainly Germany and Russia. Exports to South America fell from 73,000 tons to 40,000 tons.

The exports of textile machinery to Europe fell from 76,700 tons to 35,600 tons ; to Japan from 19,700 tons to 9,000 tons ; to British East Indies from 50,400 tons to 33,300 tons.

The exports of electrical machinery to Brazil fell from 1,213 tons to 733 tons, and to Argentina from 2,248 tons to 550 tons ; the exports to South Africa increased from 1,794 tons to 5,197 tons, to India from 2,597 tons to 5,509 tons, to Australia from 3,606 tons to 5,700 tons, and to New Zealand from 936 tons to 2,476 tons. The exports to most other countries fell, and the increase in the grand total is due to the rapid expansion of the Commonwealth markets.

The exports of agricultural machinery to Europe fell from about 17,500 tons to 6,759 tons, and to

South America from 5,830 tons to 1,335 tons. The exports to South Africa increased from 1,666 tons to 3,245 tons. They also showed some increase to other parts of the Commonwealth. The fall in the grand total was due almost entirely to the failure of Europe and South America.

The exports of machine tools to Russia fell from 1,018 tons to 141 tons; to Japan from 2,250 tons to 412 tons; to Brazil and Argentina from about 1,700 tons to about 300 tons; the exports to British East Indies increased from 1,310 tons to 3,451 tons; to the rest of the Commonwealth they fell from about 3,200 tons to about 1,900 tons. Europe (especially Russia) and South America are again mainly responsible for the fall in exports.

The exports of rail locomotives (complete) to Europe fell from at least 2,558 tons to 861 tons, to South America from 14,200 tons to 5,000 tons and to Australia from 5,059 tons to 464 tons.

FOREIGN INVESTMENT

Further reference will be made to the post-war situation in the final issue of the EDUCATOR, but it may be desirable at this stage to draw attention to the connection between the exports of machinery and the amount of British capital invested abroad. British capital invested in other countries before the war was normally employed in economic development, and economic development meant railway expansion together with the construction of factories, harbours, and similar enterprises. Consequently, it meant a demand for the products of the engineering industry, and such products were largely obtained from Great Britain. It will, therefore, be necessary to inquire whether the existing depression in the engineering and allied industries is connected with the reduction in the amount of British capital annually invested in other countries since the war.

In spite of the severe and long continued depression in the industry there is no reason to doubt that in due course prosperity will be restored and that this country will continue to be one of the great centres of engineering production. For, in spite of the impetus given by the war and by subsequent tariff policies to engineering production in other countries, there is no reason to suppose that the competitive strength of the British industry has been impaired.

Engineering is a collection of industries, and it is possible for some branches to flourish while others decay. The most rapidly expanding section of the industry is electrical engineering, to which a separate article is devoted. To a large extent this represents a change rather than a net increase. Electrical machinery is taking the place of other machinery.

When, however, full allowance is made for the relative inefficiency of a number of firms and for the possible failure of some sections of the industry to recover their former rate of growth, there can be little doubt that the British industry, taken as a whole, will once more occupy as important a place in the national economy as it has done in the past. The existence of a strong engineering industry in this country is a condition of social progress.

EXPORTS OF MACHINERY

Exports of	Quantities. (Thousands of tons)					
	1913	1922	1923	1924	1925	1926 (6 months)
Agricultural machinery	73	8	13	18	22	10
Boilers and boiler house plant	69[1]	55	52	55	56	31
Electrical machinery	27	17	21	31	33	17
Machine tools (metal working)	17	12	14	12	14	7
Prime movers (not electrical)	94	29	42	51	57	24
Textile machinery	178	154	139	104	123	51
All other sorts of machines and machinery	231	126	151	193	211	100
To British Possessions	234	194	228	231	?	?
To Foreign Countries	455	207	204	232	?	?
Total exports of machinery	689	401	432	463	516	240
Ratio to 1913 = 100	100	58·1	62·7	67·3	74·9	69·7[2]

[1] Exclusive of Boiler House Plant, which is included in "all other sorts of machinery."
[2] Ratio for the complete year based on 6 months' actual returns.

LABOUR ORGANIZATION

(*Continued from page 269*)

VII

PERSECUTION OF TRADE UNIONISM

THE reason for the sporadic enforcement of the Combination Acts was chiefly to be found in the attitude of many employers towards trade unions in those days. So long as the war with France continued, trade in this country was, generally speaking, good, and, except when a trade union became too turbulent, little notice was taken of its existence. After the war, however (as was also the case after the war of 1914-18), trade declined, with the result that employers found themselves faced with severe competition. Seeking a method to enable them to reduce costs of production, they started a campaign against trade unionism, on the ground that it tended to maintain wages at an uneconomic level.

The employers justified their attacks on the ground that (*a*) the trade union was an illegal combination, and (*b*) prices of commodities had fallen after the end of the war, so that a reduction in money wages would not necessarily mean a fall in the standard of living. They were further encouraged to reduce wages by the fact that any difference between the actual wage rates and those fixed by the local Justices of the Peace would be made good from the Poor Rate under the widespread system of out-relief which originated in 1795 at Speenhamland in Berkshire. This policy of reducing wage rates could not, for obvious reasons, proceed indefinitely. In the first place, individual employers, by reductions in wages, had undercut one another in their markets, and, secondly, the burden on the local rates was becoming intolerable.

This policy of active persecution, however, did not by any means abolish trade unions or combinations of workers. On the contrary, it had the effect of making the whole movement more intense and bitter, so much so that the Government, in 1819, passed the Six Acts, which are regarded by some people as a suspension of the English Constitution. Under these Acts magistrates were empowered to search for arms and to forbid public meetings, while all publications issued by the labouring classes were subjected to a heavy stamp duty. Moreover, the law was greatly strengthened to deal with seditious libels.

Within the short space of five years from this date, however, the Combination Laws were repealed through the efforts of Francis Place, who was assisted in the later stages of his campaign by Joseph Hume. Strangely enough, there was no popular movement for the repeal of these laws, and Place and Hume struggled alone in the face of general apathy on the part of the working classes.

One of Place's arguments, when endeavouring to obtain the repeal of the Combination Laws, was that, if the opposition to workers' combinations were removed, such combinations would gradually diminish. The repeal, however, was followed by the formation of a large number of new trade unions, and the working classes, who now considered that their aims had received public recognition, began a series of violent disturbances all over the country. As a result a Government inquiry was instituted in 1825, which almost undid the work of Place in the previous year. The outcome of this inquiry was the Act of 1825, which, while admitting the legality of trade unions, forbade all forms of " molesting " and " obstructing " by workers involved in a trade dispute. Thus closed the first period.

PERIOD 1825-50. REVOLUTIONARY AIMS

The next quarter of a century, 1825-50, constituted one of the most revolutionary periods of trade unionism. One large union succeeded another. In 1829 was formed the Grand General Union of the United Kingdom for the purpose of including all spinners and piecers. Then came the famous National Association for the Protection of Labour, which had a membership of 100,000, and included 150 trade unions. This national association was in its turn superseded by the Builders' Union, which enrolled workers in all sections of the building industry. Its militant attitude was firmly met by the employers, who adopted the method known as " presenting the document." This document was an agreement which the applicant for work was asked to sign before being employed. Under this he was required to renounce his union, and to take no part in any " labour " activity. The presentation of the document is unknown to-day in this form, but a case is known to the writer in which, after the General Strike of 1926, the men, when returning to work, were individually asked by the employer not to object to work with non-unionists, and to take no steps to persuade such workers to become members of a trade union. Only under these conditions were the " strikers " reinstated.

Internal dissension caused the break-up of the Builders' Union, but its place was taken in 1834 by yet another large scale organization (the largest, in fact, of any), namely, the Grand National Consolidated Trades Union of Great Britain and Ireland. The story of this union's activities can only be summarized here. Anyone, whether in a trade union or not, could become a member. So

great was the enthusiasm it created throughout the country, that within a few weeks it had between half a million and a million members. The chief aim of this union was the enforcement of its demands by a general strike. This was to take the form of a month's holiday, all the members simply ceasing work for a month with the object of demonstrating that industry and commerce, and, incidentally, the fortunes of the rich, depended solely upon the efforts of the working classes.

This union, like the others, did not live to see its objects achieved. It collapsed rather suddenly, after a few months' existence, through internal dissension and external persecution of members by employers and the authorities. The case of the Tolpuddle Martyrs is but one outstanding example of the intolerance exhibited against this union. Unauthorized sectional strikes completed its disintegration, and many of the members, disappointed and disillusioned, turned to the Chartist movement with the idea of attaining their ends by political, rather than industrial, action.

The name of Robert Owen must not be omitted in any discussion of labour organization and aspirations of this period, but his work will probably be dealt with elsewhere in the EDUCATOR, so that a reference is only needed here. Owen was not a trade unionist, but a social reformer, if such a distinction is permissible. It was through a number of his followers banding themselves together in Rochdale, for the purpose of buying goods co-operatively, that the present-day co-operative movement had its beginnings.

THE "NEW MODEL" UNIONS

While Chartism was occupying the minds of the workers, trade unionism was quiescent, but when this movement failed we see attention again being given to methods of organizing labour. Although yet another attempt was made to form a kind of national union through the federation of all trade unions in the National Association of United Trades for the Protection of Labour, little support was given to that body. Trade unionists were tired of political action and now turned their attention to reorganization for industrial purposes. In 1850 the "New Model" trade unions were formed, of which the Amalgamated Society of Engineers (now merged into the Amalgamated Engineering Union) was the pioneer. The new policy was followed more or less successfully by unionists in many other industries, and the type remains with us to-day.

From 1850 to the middle of the 'sixties the reorganization proceeded until, by the latter date, the unions, feeling themselves in a fairly strong position, again became active and aggressive. The employers retaliated by locking out the men. As a result of a long series of disputes a Royal Commission was formed (in 1867) which recognized the legality of trade unions by the Act of 1871. The Reform Act of 1867, which enfranchised urban workers, was also a great gain for trade unionism, for it enabled them to be represented in Parliament by members of their own class, two miners' leaders being returned in 1874.

In the 'eighties there was a rapid growth of what are termed general or unskilled workers' unions. These developed as a result of the exclusion from the "New Model" unions of all who were not craftsmen. The majority of these general unions were organized simply for strike purposes, the great Dock Strike of 1889 being but one of a long series. From that day to this, however, the general workers' unions have remained in existence, and they now form an important section in the trade union world.

RECENT DEVELOPMENTS

The Independent Labour Party was founded in 1893 and the Labour Party in 1900, being at first known as the Labour Representation Committee. Both these bodies were the outcome of the activities of the new general unions as distinguished from the older skilled craft unions.

Limitations of space prevent us from examining in detail the work of the Labour Party, even if it were not rather outside the scope of this series, but the very considerable amount of work done by it to safeguard the position and to improve the status of trade unions deserves full appreciation. The adverse Taff Vale judgment of 1900 gave a great impetus to labour representation in Parliament, and the Trade Disputes Act of 1906 was a great victory for trade unionism generally, since it protected trade union funds from depletion through lawsuits. A further victory was gained by the passing of the Trade Union Act of 1913, which re-established certain rights lost to trade unions through the Osborne Judgment of 1908. The Trade Union Act of 1927 is, on the other hand, a considerable setback to trade union activity in the political sphere.

In concluding this brief survey of the historical aspect of labour organization, reference must be made to the rapid growth, in recent years, of trade unions among what are sometimes called the higher grades of labour, for example, teachers, civil servants, bank clerks, and other "soft-handed" occupations. At present, these are usually regarded as being more or less outside the trade union movement, but there appears little doubt that in time we shall find these becoming more and more closely connected with the older unions of the "manual" worker.

METHODS OF REMUNERATION

(*Continued from page 271*)

VII

COTTON TRADE LISTS

THE cotton industry is that, among the important industries, in which the system of piece price lists has been most fully adopted. A highly developed form of collective bargaining has been elaborated over a long period of years and has been directed mainly to the improvement and extension of the price lists, so that, to-day, each of the more important sections, including spinning and weaving, is regulated by one uniform list or a very small number of uniform lists. Thus, the uniform weaver's lists—for plain and coloured goods—apply throughout the industry in Lancashire and the neighbouring counties; most of the spinning in the same area (which contains nearly the whole of the British cotton industry) is covered by two lists, known as the Oldham and Bolton lists, but each operative in places other than Oldham or Bolton, and the remainder by one or two other lists. There are also uniform lists for various other occupations in the industry, sometimes covering whole sections of work and sometimes sections in particular districts. Generally in each section of this industry the tendency has been to bring more and more of the principal area under some one list, though there are still certain less important occupations in which the prices are fixed by shop lists.

A consideration of one of the important cotton price lists conveys some idea of the real difficulties to be met with in the practical problems of methods of remuneration and of the possibility, in certain circumstances, of overcoming most of these difficulties by a system of payment by results operating with a high degree of exactitude. The more important lists have been the subject of much study and, as they are too elaborate and technical to be treated otherwise than generally in this account of methods of remuneration, may be considered in some detail, by readers who wish to pursue the subject, in, among other places, the following—*Report on Collective Agreements*, published by the Board of Trade in 1910 (Cd. 5366). The same report contains many other examples of piece price lists.

FEATURES OF A UNIFORM LIST

The more important uniform lists cover a great variety of operations and circumstances. The Oldham spinning list, which may be taken as an example, is based on a sum of total earnings (for the spinner and his assistants—piecers—who are paid time rates by the spinner) in a week of a specified number of hours. A spinner operates two mules, the number of assistants varying with the size of the mules and other circumstances. The basis sum of total earnings varies with the number of spindles—that is, the list allows for the operatives on the larger machines earning higher wages than those on the smaller machines. The sum corresponding with a certain number of spindles corresponds also with a specified speed of the carriage (the framework running backwards and forwards over a certain distance—the draw). Provision is made in the list for mules run with speeds greater or less than the standard speed. Allowances are made in the list for, *inter alia*, the following: cleaning and accidental stoppages, doffing time (time for taking off the cops of spun cotton) varying with the size of the mules, breakages, yarns of low counts; and there are numerous other regulations laying down extra payments (for example, pin cop allowance, roller motion allowance, allowance when no bobbin carrier is employed, when a hoist is in use but no bobbin carrier, if a minder—i.e. a spinner—is employed on double decked mules, if the minder is spinning from double rovings, etc.). The machines (mules) are fitted with automatic indicators to show the number of hanks spun. By means of the list it is possible to work out the price per 1,000 hanks which should be paid in any particular combination of circumstances, e.g.—an example which might be elaborated—when the mules have 100 dozen spindles, a 63-inch draw (the draw being the length of movement of the carriage), 4-inch roller motion, a speed of 3 draws in 48 seconds, the yarn is 54's pin cop, there are doffings 15 times off each mule, and the spinning is from double rovings.

CALCULATION OF PRICE

The more detailed treatment of such a list necessary in its operation is not necessary in this account of methods. It is, however, of particular interest to note that this list—and the same is true of some other lists in the trade—differs from many piece-work lists in that it is considerably more than a schedule of operations and prices. In some piece-work trades it is possible to arrange a schedule covering all the operations—or so large a proportion of the operations that those not scheduled can be priced by means of simple interpolations. The more intractable conditions of the cotton spinning trade have been overcome by the elaboration of a much more complex method of calculation by means of which it is possible to work out the price for any one piece of work; that is for a piece of work which, by virtue of a very slight variation in one or other of many factors, may differ from all the very many other possible combinations. The method may be

described, therefore, as that of fixing a piece-work basis rate and using the list as a means to calculate the corresponding piece price for any one of a very great number of possible sets of circumstances. It will be seen from the references to other trades that this method is rather exceptional in its completeness (though, see below, even here completeness is not secured). Usually, either a definite schedule is employed, with, in practice, a give and take on points of difference; or, with no schedule of prices, the piece rate necessary in particular circumstances to give a certain time return (a piece-work basis rate) is worked out on methods that may be described, in comparison with those of the cotton spinning trade, as methods of trial and error.

The parties concerned in the collective bargaining in the cotton trade employ skilled experts to supervise the working of the lists. An example of the examination papers used by cotton trade unions in the selection of these expert secretaries will be found in the Webbs' *Industrial Democracy*. It also throws some light upon the knowledge required to understand the complexities of the price lists. The original lists have often been arranged only after negotiations spread over a period of years, and have been added to by many amendments designed to meet changes in machinery, product, and methods of working.

Though to an outsider the most striking aspect of a uniform list in the cotton trade is its elaborate technical character—so technical and complicated that only by concentrated study will he begin to understand its more general features—it is nevertheless true that these very complicated price lists are operative only because the work is capable of standardization, that is, can be reduced to simple elements. The great variety—in machinery, product, etc.—can be and is analysed into simple elements; and on the basis of this analysis lists, well understood by the trade experts, are constructed to fit nearly all possible combinations of circumstances. Though much more elaborate, the method is essentially the same as that adopted in any other price list—the application of a price to each of a very large number of definite operations. (The reader who wishes to obtain examples of simpler and more easily available price lists may be referred to some of the general minimum piece rates operative in various trades coming under the Trade Board Acts, e.g. boot and shoe repairing—Order D (34); chain making—C (25); brush and broom making—M (41) and (43); fur—Z (23); lace finishing—L (12). The orders can be purchased, at 3d. per copy, from H.M. Stationery Office. Mr. R. H. Tawney's book, *Minimum Rates in the Chain Making Industry*, contains, *inter alia*, discussions of problems relating to piece-work in chain making during the early years of the Chain Trade Board.)

"BAD WORK" DIFFICULTIES

Even in the cotton industry, however, all difficulties as to method of remuneration are not removed by the uniform lists. What the lists do accomplish is the settlement upon a uniform basis of the great mass of questions relating to the application of wages. They do not, of course, determine questions of the general wage level—increase or decrease in wages—e.g. a claim for a general increase in spinners' wages; the settlements of these questions, however, are referred to the list prices, i.e. an increase or a decrease takes the form of, say, 5 per cent alteration in the percentage paid on the list. (The list percentage, i.e. the increase on the basic list prices, is altered from, say, 90 per cent to 95 per cent or 85 per cent.) Neither do the lists automatically eliminate all problems respecting the application of prices. Though of a very elaborate and detailed character, the lists have often to be applied to special circumstances in which there may be room for differences in interpretation; the value of the lists is indicated by the fact that usually, even when such difficulties arise, the skilled experts, of the workers and employers respectively, are able to agree as to what is the proper application of the list. There are circumstances, however—notably when "bad work," or "bad material," is alleged to be a source of low earnings—in which it is admitted that the lists do not provide an automatic means of adjustment, and in which no agreement may be possible. Even, therefore, when the work is highly standardized, the lists, though the most elaborate that human ingenuity has been capable of devising, are not necessarily "foolproof."

Though cotton, among the greater industries, is that with the most elaborate price lists, these differ somewhat in general features. The cotton trade piece-work is, generally speaking, pure price work—in the sense in which we have used that term to indicate that a time rate is not guaranteed. On the other hand, the lists differ in respect of the extent to which provision is made for a piece-work basis rate or for waiting time payment. Thus, some of the lists may be described as more fully pure piece-work lists than others. In this connection it may be noted that the weavers' union has been agitating in recent years for the introduction of additional regulations to secure, among other things, that some guaranteed payment should be made when the weaver is "stopped" on one or more of the customary number of looms. A weaver, whose normal number of looms is, say, six, receives only the piece-work earnings from four looms when two are standing idle; in this respect, that no compensatory payment is made when the ordinary piece-work earnings are reduced owing to circumstances not under his control, the weaver is in a different position from some other classes.

UNEMPLOYMENT

(*Continued from page 273*)

VII

PERMANENT CHANGES IN EMPLOYMENT

GENERAL NATURE OF CHANGES

THE causes of unemployment so far considered are all of a recurring character. The effects of definite changes in industry are generally permanent. A new process, for instance, will not give way to the old, as bad seasons or years are followed by good. Once such change has become an accepted part of the industrial system, it creates new conditions to which industry must adjust itself, and temporary or permanent displacement of labour results. The men affected, indeed, may not be altogether displaced, except in certain instances, as when entirely new types of labour are introduced. Many changes cause no complete displacement. Sometimes, too, economic reactions are set up which, by lowering costs and increasing demand, eventually enable the old workers to be absorbed and others as well.

CHANGES IN DEMAND

These changes are of various types. Some spring from alterations in demand for particular articles, such as changes of fashion, which leave their producers high and dry. The lace trade has been affected by decreased use of heavy lace curtains. Bobbed hair has reduced demand for hairpins, and a fashion for smooth plain metal work the openings for metal chasers. Further back, the pearl button trade was largely destroyed by change of fashion. Development of substitutes for existing goods has similar results. Artificial silk has affected real silk and other textiles, gas workers have suffered from the development of electricity, and the competition of oil fuel seriously influences the production of coal.

HOME AND FOREIGN COMPETITION

Secondly, the centres of particular industries may change, one developing whilst another decreases. Some years back, for instance, decline and consequent unemployment in the Bermondsey leather trades were caused partly at least by expansion of the industry at Leeds. Big changes in methods of production have similar results. Coventry benefits enormously from the motor industry, whilst centres of the saddlery trade, like Walsall, have suffered. Again, foreign competition may partially or totally displace a home industry. The tinplate and the lock trades have suffered in this way. This type of change, however, may not be permanent, and a trade or district may recover its lost ground. The tinplate industry some thirty years ago was heavily hit by American tariffs, but reorganized itself, and subsequently developed rapidly. Sometimes, indeed, the effect of foreign competition is to increase temporarily the severity of cyclical fluctuations. Dumping is often carried out to get rid of surplus stocks during trade depressions, which are thus accentuated in areas in which the goods are dumped.

MATERIALS, METHODS AND MACHINERY

Changes in materials and methods of manufacture have important results. Building trade workers suffered severely in this way during the big depression of 1903–11. The ferro-concrete process caused much unemployment among bricklayers and masons. Plasterers suffered from increased use of fibrous slabs, masons from artificial stone, and plumbers had their work reduced by manufactured sanitary ware and substitution of iron, for lead, piping. Again, the change from horses to motors replaced coachmen, cabmen and carmen by chauffeurs, and wheelwrights and saddlers by engineers and upholsterers.

Finally, there are changes due to the introduction of machinery and improvements in the instruments of production. The Industrial Revolution saw a wholesale displacement of labour by these means. Since then there has been no such catastrophic change. Alterations, however, are continually being made in different industries, sometimes rapidly, sometimes slowly, but always with the danger of displacing labour. Such changes, however, are also very likely to cheapen the product, and may benefit in the long run even the classes immediately affected.

EFFECTS OF CHANGES ON DEMAND

The effects of these changes on the total demand for labour must not be misunderstood. Often it is not decreased but only transferred. What bricklayers and masons lost owing to ferro-concrete, steel workers, concretors, and labourers gained. Reduced work in some trades, owing to improved machinery, is at least partially offset by increases in the engineering, and consequently the coal and iron, trades. Purchasing power set free by reduced costs is spent in other directions. Hence total demand for labour is not reduced, and where the change is due to improved methods, demand may be increased in the long run through greater efficiency and cheapness.

This is best illustrated by considering how improved machinery affects employment. Its immediate result is usually to reduce the numbers employed, sometimes very largely. Such men may or may not be permanently displaced. Lower prices may greatly increase the demand, which

may eventually be sufficient to allow more to be employed than were employed before. Thus improvements in woodworking machinery have had the result in recent years of causing architects to arrange for more woodwork in buildings than in the past. In other cases the results of industrial changes are to reduce permanently the employment of the men or women affected. What the actual results will be, and what the extent of the displacement, depends on the character of the changes and the manner in which they are carried out.

The character of the changes varies. First, it may simply expedite the work and reduce the amount to be done, without altering the men employed on it or the level of skill required. Thus woodworking machinery decreased the demand for joiners and cabinet makers, whilst their work now needs a less wide range of skill, but higher quality, greater finish, and greater speed of working. The temporarily reduced demand, too, may in time be made good, owing to the influences already mentioned. In other cases a new process may reduce permanently, but not destroy, the demand for a particular trade. Silver spinning, a relatively modern machine process, has, for instance, created a new skilled trade, which has permanently cut into the demand for silversmiths. The latter thus retain their trade and opportunity to exercise it, but only in part.

NEW TYPES OF LABOUR

The effects are far more serious where new types of labour are introduced, since the displaced worker cannot continue at his former trade or only at serious sacrifice of wages. Many improvements, for instance, enable skilled work to be done by unskilled or semi-skilled men, as happened with the ferro-concrete process, whilst the introduction of machinery frequently has this effect. The work is still men's work, which at a pinch the skilled worker can take up, but only by jettisoning his acquired skill and permanently lowering his standard of living. Finally, when female and child labour is substituted for men, the latter lose their work altogether. The new wages cannot possibly give them a living, more particularly those with families, and they are thus turned adrift entirely. Repetition work on semi-automatic machines is a common form of this, and other improvements have similar effects. At times, indeed, highly skilled workers are affected, as with certain men in the cotton industry, whose work was taken over by machinery run by women.

AMOUNT OF UNEMPLOYMENT CAUSED

Thus the changes may vary from temporary unemployment to permanent displacement, but their extent depends upon the time and manner of their introduction. Their effects may be comparatively little felt in a trade boom and cause serious suffering during a depression, as happened in the building trades, in which many changes largely coincided with the big depression of 1903–11. Much, too, depends on whether changes are introduced rapidly or gradually, since in the latter case matters can sometimes be so arranged as to minimize displacements. The late Sir Benjamin Browne held that in such circumstances, by expediting work in the departments affected, things could be readily adjusted. In big works men are continually coming and going, so that, if no new hands are engaged for the time being, the normal wastage soon sets matters right. Such a policy would undoubtedly be useful, if more generally adopted, but is hardly practicable for small firms or with rapid changes. Again, female and juvenile labour is sometimes only gradually introduced, giving time to adjust the numbers of men, but this seems by no means always the case.

THE PROBLEM AND ITS REMEDIES

The problem of permanent changes, therefore, is that, whilst usually beneficial to industry and even increasing the total demand for labour, they cause unemployment and displacement of particular sections of the workers. An undergraduate talking to a workman once described such changes as valuable in general, though not in details. "Yes," came the reply, "and *we* are the details." Lack of complete mobility of labour aggravates the problem, particularly in skilled work, and the men are not always as mobile as they might be. One effect of the change from horse to motor vehicles was to substitute engineers' smiths for coach smiths, but there seems to have been comparatively little transfer from one to the other.

The remedies required are various. By more care and forethought in introducing changes gradually and under favourable conditions, as suggested by Sir Benjamin Browne, employers, and especially big employers, could do much to reduce the difficulty. A better system is needed for directing the growing generation to the right trades, since often, as things are, they continue to enter trades after decline has set in. Here improved industrial information and more complete organization of Employment Exchanges would be helpful. Greater mobility, especially between closely allied trades, is required, in which the trade unions could help. Finally, with permanent displacement, organization is necessary to train those displaced for fresh trades or otherwise fit them for new employments, along with some special provision for their maintenance during the process.

BOY LABOUR AND APPRENTICESHIP

(*Continued from page 275*)

VII
THE SCHOOL AND THE WORKSHOP

WHY THE SCHOOL IS NEEDED

It has already been seen that for various reasons the workshop cannot always provide completely for the training either of learners in skilled trades or of boy labourers, and has, therefore, to be supplemented by the school. The learner needs assistance to increase and broaden his knowledge of a particular trade, which may well include some development of his general education. The boy labourer requires more general instruction and preparation to fit him to be a good worker and good citizen, and to do competently whatever his work may be.

TYPES OF SCHOOL

School training takes various forms. Technical training[1] is defined in the Technical Education Act of 1889 as "instruction in the principles of science and art applicable to industries," and is distinguished from trade or manual teaching, involving "the practice of any trade, industry or employment," and "instruction in the use of tools," and so on. The actual schools often combine technical and manual teaching, but the distinction between the two forms of it is important. Continuation schools are, strictly, schools for continuing elementary education, and are valuable for maintaining as well as extending its benefits. Moreover, without giving direct vocational teaching, they can provide general preparation for industrial life, which is particularly valuable to boy labourers. Their commercial departments often become in practice the technical schools of clerical and commercial workers.

THE SCOPE OF SCHOOL TRAINING

Thus the learner seeks in the schools mainly specific training for his future occupation, and he increasingly needs this, because of the growth of specialization and the extent to which he has now to teach himself. Views on the value of such teaching vary considerably. Some, especially among employers and foremen, hold that training in the schools is of little value, because the teaching is theoretical and not sufficiently practical, that it is not given under workshop conditions, and has often to be unlearnt, and that it gives boys excessive ideas of their capacities. Some good employers hold, probably rightly so far as their own works are concerned, that the workshop can do all that is needed, but are apt to overlook the lower standards prevailing elsewhere. Bad employers are against the schools for obvious reasons. In the schools themselves and among social workers the contrary view is not uncommon that workshop conditions of training are frequently unsatisfactory, especially in the early years of training, which should consequently be spent in a day trade school. The intermediate, and, perhaps, most general, view is that school and shop are complementary, that the workshop is the place to give the main part of the training, but that it needs assistance, and to an increasing extent, from the schools.

[1] The relation of elementary schools to workshop training is dealt with in Section VIII.

HIGHER TRAINING

The work of the schools includes, first, technical training proper, as already defined, and in artistic trades such subjects as drawing and design, all these being to some extent outside the ordinary run of workshop training. Not a few firms, indeed, hold that the teaching of these subjects constitutes the main work of the schools. Again, the teaching of certain higher branches of a trade is not always part of the ordinary training contract, and is sometimes rendered difficult by the costly materials used. But preliminary practice in a school may give the boys sufficient knowledge to secure them a chance in the workshop. Secondly, there is the teaching of the general principles of a trade, its underlying ideas, and the why and wherefore of its methods. These are sometimes difficult to teach fully in the workshop from lack of time and for other reasons "We cannot sit round in a ring and hold a class, we have got to attend to business." But the skilled worker is all the better for knowing these principles. Employers, indeed, sometimes make this the dividing line between shop and school, and when the workshop conditions are good, the principle is sound.

OTHER TRAINING IN THE SCHOOLS

Many boys, however, get much help from the schools in the ordinary work of their trades, especially when this work is specialized. They can get "an insight into" work which does not come into the shop. In engineering a boy may never see certain machines, but the school enables him to learn about them; whilst in silversmithing some firms are confined to big work, others to small. Along with this greater variety, a boy can also broaden his general outlook. In the school "you see other chaps who are doing different sorts of work to what you are." Moreover, the instructor can sometimes advise and assist with more effect than the foreman with his many duties, and persuade boys to stick to their work and not throw up good jobs. The schools, too, can be corrective of supposed grievances. "Well, the old guv'nor isn't a bad sort after all," boys will say, "but that chap's got a rotten guv'nor."

All this is valuable work, and especially for boys picking up their trades without any agreement, who thus get experience of better work than they are doing and so secure quicker promotion. The advice of the instructors is particularly helpful to them, and may save them from sacrificing prospects to immediate wages, by emphasizing the need of wide experience. Finally, the school is often the only opportunity for exploited or over-specialized apprentices to make good.

PRE-APPRENTICESHIP TRAINING

Pre-apprenticeship training is sometimes provided in day trade schools. Here boys are taken, usually for three years (13 to 16), with maintenance grants, for training for a trade in some particular industry. They receive at first further general education, with vocational bias towards their chosen trade, whilst later an increasing amount of direct manual training is given. The idea is to turn out boys at 16 with good grounding in the elements of their trades before they enter the workshop. The experiments are often successful and employers prove increasingly willing to take such boys. The general adoption of the system is sometimes advocated, in the prevailing conditions of workshop training, in order to provide more definite teaching during the earlier years of working life, when boys in the workshop are apt to run wild or be overlooked. But the success of existing experiments with picked boys is not conclusive. The supply of adequate skilled teachers for so many would be a difficulty and the expense might be prohibitive. The system, indeed, might well be extended to provide for more than at present. But, unless and until it is clear that it can deal adequately with much larger numbers than it does now, a policy of organizing and improving workshop training seems likely to give the best results.

THE SCHOOL AND THE BOY LABOURER

Boy labourers require different provision, such as is provided by ordinary continuation schools. Direct training is seldom possible,[1] and general development of their faculties and their education is required. This will extend their knowledge, and prevent them from forgetting what they already know. The great monotony of much boy labour can sometimes be mitigated, and something can also be done to fit boys for their life as citizens. Physical training is also valuable. Again, general training of eye and hand by elementary work on tools and materials will make a boy more useful and adaptable and give that general handiness and intelligence which is required of the less skilled workers in place of specialized skill.

Moreover, such training helps to keep the boy in touch with education, until he is old enough to realize its importance, and so bridges over an awkward gap. In later life a fresh start is difficult, if he has forgotten what he learnt at school. Interests outside his work, too, help to overcome that restlessness which monotony causes, and which does much to aggravate some of the worst evils of boy labour. This training also affords, like the trade school, opportunities for advice and guidance and helps to prevent boys running wild, thus supplementing welfare work in the workshops. Similar general training, indeed, is also useful to skilled workers, and should not be unduly subordinated to technical teaching.

FACILITIES FOR ATTENDANCE

Before the war, boys were left largely to secure such training for themselves with such help as their parents could give, and were expected to get it in their own time. Relatively few employers gave definite time off for attendance, or otherwise directly encouraged it. These conditions involved efforts of which only the stronger and more energetic were capable. Only about one in four obtained continued education, fewer still kept it up for periods sufficient to be of real value, and often those who did were too tired to profit fully by the teaching. A fair number of learners and apprentices, indeed, secured some training, but the proportion of boy labourers was, apparently, very small.

Since the war, general reductions in hours and increased help by employers have improved matters, but the provision still seems seriously inadequate. The compulsory continuation schools, with attendance in normal working hours, of the Fisher Act pointed the right way, but have been postponed. What is needed is reorganization of school training and co-ordination with the workshop to get the best out of both, and the general establishment of the required training, under conditions enabling all to get the fullest benefit from it.

[1] See V, "Problems of Boy Labour."

LEADERSHIP IN INDUSTRY

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VII

SCIENTIFIC MANAGEMENT

It is not the purpose of this section to analyse " scientific management," yet no study of industrial leadership could possibly be complete which did not take into account the contribution which was made by Mr. F. W. Taylor's proposals. " Wide misunderstanding," says Mr. Ordway Tead, " has obtained as to exactly what Taylor stood for and what he was trying to do. His name has all too often been associated with efforts at trying to ' speed up ' and otherwise exploit workers in a way which was far removed from any intention of his. . . . The fact is that the rigorous application of a scientific method of analysis to industrial problems which Taylor was the first to advocate in a manner that got a wide public hearing has now been generalized and extended to such a degree that literally hundreds of corporations which never heard of him are utilizing methods he suggested and methods implicit in ideas he formulated not only in production but in sales and personnel. The science of management has now become a frontal attack on all management issues far broader and more discerning than any cult of ' scientific management ' either does or wants to claim the credit for." So that Taylor, in emphasizing the necessity for special study of the way each piece of work ought to be done, in pleading for planning and routing and scheduling the work throughout the factory, really meant to crystallize the spirit of leadership. It was to be perfect industrial leadership which left no gap for individual aberrations from the standard. Mr. Tead is undoubtedly right when he says that hundreds of corporations which never heard of Taylor are indebted to him, but it ought to be added that they are indebted to him with a very real difference. Though there has been a considerable adoption of Taylor's methods of scientific study and scientific planning, in its application it fell short of what I would call the mechanistic method of leadership. As we have found in many other aspects of human affairs, cause and effect in the realm of mind and will are not so invariably associated as we may have supposed. Leadership cannot lay itself down as satisfied with measured and analysed tasks and bonus payments. There is still the something else.

FUNCTIONAL LEADERSHIP

This is admirably shown by Mr. Renold in his article in the *Encyclopaedia Britannica* on " Scientific Management." He deals with the division of leadership into functions and he describes the confusion which followed. Then he describes Harrington Emerson's development on the staff and line principle, showing " experts collected into special staff departments giving advice on a functional basis to the line." By this means personal leadership was restored, for it had been " fatally destroyed by Taylor's functional foremanship." This, of course, as we mentioned in the first article, is something of a reversion to the military type. At any rate, it is clear that the sacred work of the leader cannot be divided into clear-cut aspects. It must entail the leadership of the whole of the work and of something beyond the whole of the work. Behind it there may be specialist aid in every aspect of the technique, but in the presentation of leadership, as we may word it, there is no place for divided responsibility. Taylorism, when thus conceived, has come to be regarded less unfavourably by the worker and by the organization of workers. Dr. Person, in the last edition of the *Encyclopaedia Britannica*, is more hopeful of the attitude of organized labour, though he protests that with the exception of France there has not been any wide acceptance of the advanced views of scientific management on human relations in industry. The student may be assured that in the later developments of scientific management, so far from a mechanistic theory being in the foreground it insists upon the fullest sympathetic consideration of the human unit. More than that, its process includes the consultation of representatives. How this has spread to other countries may be seen by a study of the *Bulletin of the International Management Institute*, which is issued by the Institute at 154 Monte de Lausanne, Geneva.

LATER METHODS OF LEADERSHIP

There is something piquant, not to say paradoxical, in the reflection that the scientific management which set out to standardize all industrial acts and, indeed, to make the whole machinery, including the human contacts, purely automatic, should have evolved a science of management which approaches human contacts with the utmost reverence. We owe it to this movement that in most large industries to-day, whether or not the title of personnel or staff manager or superintendent has been adopted, there is a recognition of the vital importance of specialized and focused attention being given to it. This is much more than welfare as ordinarily understood, for, usually, all that belongs to the actual work is carefully marked off from the responsibility of welfare. But there is a danger lest this special and focused regard for personnel, administration, or leadership should induce in the minds of others of the heads of the industry a sense of indifference. Nothing

in an industry is really severed from the human consideration, and though there is much to be said for specializing the responsibility, it must not be specialized to the extent of confining the human interest to one person.

AUTHORITATIVE LEADERSHIP

Nor would one like to think that industrial leadership is determined to be independent of research into the best way of performing human tasks any more than it can be independent of other aspects of scientific research. It will wish to use them, but not as an imposed doctrine so much as the result of an inner and enlightened preference. Mr. Ordway Tead protests that " merely to have such standards . . . introduced by managerial fiat has proved again and again not to be sufficient to assure willing adherence to them." Here he goes beyond Taylor, but he states an essential truth. We are reaching the stage when industrial leadership will include and comprehend all that science and research can do to facilitate work and production. That it will undertake this with full human sympathy does not mean that it will accept a lower standard, or that as a result of a sentimental outlook it will be prepared to be slack and easy-going. At the outset I tried to distinguish domination from leadership. I must now go back a little on the distinction. True leadership will have something in it of domination in that it will be regarded as authoritative. It must gain that particular respect or it has failed. If it has no element of the authoritative then it is the poor kind of leadership which looks to see where it may meekly follow. To say that it is difficult to find the true leadership is to use a mild word, but let the student remember that he is considering the leadership of human beings with minds and hearts and souls, and let him remember all that that involves. The earlier scientific management expected that by means of financial reward for particularized and standardized effort it could achieve great triumphs of production. The later scientific management wishes to add to this intention the much greater achievement of making it part of the advance of mankind. There will need to be not merely research and study of process and of material but an infinity of careful thought and consideration of mankind. Just as in the development of scientific management we have learned of the wider human problem which is involved, so we shall find that every aspect of industrial leadership has in its forefront the consideration of the reactions which may follow in the human unit and in the human corporate body, for those reactions are not necessarily the same. " The mind," says Mr. Tead, " is not a bundle of mental units known as faculties, but a dynamic, ever-changing force, the activity of which conforms to a number of fairly well-defined types of behaviour. According as one type or another is most prominent, we say that one or other of our so-called faculties, instinct, or reason, as the case may be, is functioning. But, in point of fact, the whole mind is present in each of its activities, and all its so-called faculties are comprised in each." This bit of modern psychology will be ever present to the mind of the would-be industrial leader.

THE REALITY OF HUMAN NATURE

I should have done ill justice to this line of argument if I let it appear that human nature is a kind of artificial thing having no real existence other than as an object of a sort of chemical analysis. One of the disadvantages of the word " psychology " is the impression which it gives of some sort of artificiality. It is the whole man, body and soul and spirit, which the industrial leader will seek to lead, and it is the whole man which is present to us in all that we seek to do. There is no psychological method of leadership. Psychology will warn and guide leadership, but leadership can exist without it. In fact, there are men and women with natural gifts of insight and of attractiveness who make an effective appeal to the whole man and woman whom they are to lead. There is a naturalness of human leadership which we shall do well to remember: a power of attraction which we cannot explain. It is not sufficient to trust to this naturalness, it is not wise to ignore its value. " There is a lot of human nature in men and women," says the Yorkshire proverb, and it is not merely a venture in tautology. Rather it represents the fundamental condition of leadership.

PUBLIC FINANCE

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VII

At this stage it may be appropriate to refer to certain general problems affecting public finance. A distinction is often drawn between normal and abnormal outlay. Within the former is included that regular expenditure which is due at stated periods, usually each year. In the financial systems of most countries of the world accurate estimate in advance is now readily possible, and full provision can be made. Abnormal or extraordinary expenditure, on the other hand, falls at indefinite times. It is uncertain in amount, and strict accuracy in estimate or forecast is usually impossible. Between these classes there is no definite demarcation; in the heads of outlay variations occur from time to time. But expenditure on the normal military and naval forces, education, justice, and the social services is annual and normal or ordinary. Outlay on war, or the relief of distress in emergency, would be regarded as extraordinary or abnormal, although in the sphere of distress the Indian Government, in its famine fund, has so far recognized the principle that special emergency should be kept in view in the general financial system of the country. War, obviously, would hardly admit of the same treatment.

EXPANSION OF OUTLAY

Professor Bastable directed attention to the manner in which the State economy had expanded both in bulk and duration. Under the Tudors English expenditure would, for example, include extraordinary features which were now common or normal elements well within the annual reckoning of the Chancellor of the Exchequer, and modern States are also able, with extraordinary accuracy, financially to foresee and discount the future. What is very often described as extraordinary expenditure for a short period shades into ordinary outlay for a longer one, and it is always desirable, on financial and political grounds, that this should involve no delay in the presentation of estimates or results in national finance. In the public interest they should set forth fully, and as far as possible in uniform style, the strict position at short intervals, and for this purpose the calendar or financial year is generally chosen. Abnormal expenditure occurs frequently in somewhat different fashion. It may refer to large scale schemes of public development or improvement, such as public buildings, railroads, land reclamation, and other effort. The large financial problem which is raised is that of charging expenditure of this class to capital rather than to revenue or income.

TREATMENT OF ABNORMAL OUTLAY

Where the outlay is clearly abnormal, many of the authorities would contend that it would be unfair to charge it to current receipts or income. Provision should be made, in their judgment, by an abnormal receipt, by which is usually meant the proceeds of a public loan or similar device. This has the effect of giving new character to the extraordinary expense which may be incurred in any given year. It becomes an ordinary outlay as interest on the debt which has been incurred, probably with some provision for its redemption. That point, however, will be noticed later in brief reference to the position of sinking funds. The decision to charge such expenditure to capital or to revenue is governed by well-defined principle; here, of course, the reference is purely to public outlay. The enormous expenditure due to the European War has accentuated the problem, particularly in debt obligation. In Great Britain the National Debt before the war was £15 4s. per head; in the financial year, 1921-22, in many respects a peak point following the war, it was £163, or an increase of 987 per cent. That was largely non-productive expenditure, and it is often contended that such expenditure should be charged to revenue or income only. The underlying theory is that to charge to revenue what should be charged to capital, as Mr. Findlay Shirras remarked, is a great injustice to the taxpayer, apart from its faulty book-keeping. Some of the German critics of the middle and latter half of last century would have had all extraordinary expenditure met from loans from the standpoint of capital investment. That attitude is diametrically opposite to the earlier contention which has been noticed. Gladstone's unsuccessful effort to finance British war expenditure in the Crimea without loans will be recalled. Outlay on the scale necessitated by the European War could only have been undertaken in such a way, although it may reasonably be contended that a larger proportion might have been met from immediate taxation, and a much smaller amount passed on to succeeding generations in dead-weight debt.

PRODUCTIVE AND UNPRODUCTIVE EXPENDITURE

State expenditure is also separated into productive and unproductive, or into economic and non-economic. On this point it has been pleaded that non-economic expenditure, in the sense of non-productive outlay, should be met primarily out of income. If that is impossible, the outlay should not be incurred. This argument is often applied to national education and general social progress. But it is counteracted by the plea that

such expenditure is, in effect, indirectly productive, and that it will add in future to the national income, especially in so far as it increases the efficiency of the masses of the people. All economists agree upon the great difficulty of tracing or measuring the results of expenditure. In any event the loans should be precise; they should always be regarded as a definite burden on the resources of the people, and the principle is undeniable that as far as possible borrowing should be restricted to economic or productive outlay. That element has been emphasized within recent years in speeches by Sir Basil Blackett on Indian finance. He alluded to the large expenditure on unproductive objects, adding that he saw no justification other than sheer necessity for not treating that expenditure as chargeable against revenue. In any event he thought that it ought to be repaid from revenue at an early date. His argument placed States in the position of individuals. They should not live beyond their income; if they did, they must, like individuals, expect the penalty and be prepared to submit to drastic reduction of expenditure or sale of assets or possessions. But there is a certain fundamental difference between public and private expenditure, in that the individual income depends on return from property held or reward for the individual's exertions, whereas, while this element is present to some extent in public or national income, the latter comes mainly from the contributions which are levied compulsorily in taxation of the people.

EXPENDITURE CHARGEABLE TO CAPITAL

The particular problem now under review has been summarized in the plea that expenditure chargeable to capital is justified in at least three cases. The first is that of the permanent productive investment, such as the construction of public works, railways, or others which hold out a prospect of return on the capital outlay over a considerable period of time. Second, it is justified in an extraordinary emergency like war. And, third, justification is present in cases of temporary necessity, such as casual deficits or wasting assets. In some States capital expenditure is small, and in that may lie a danger of heavier annual outlay through sheer failure to make appropriate provision for essential public services. In normal cases, however, outlay on productive investment is safeguarded by arrangements for payment of the annual interest and the gradual repayment of the principal amount over a given period, by the operation of a sinking fund which involves setting aside a certain amount year by year for this specific reduction. The value of such arrangement is plain, even where the outlay is productive and remunerative provision for repayment increases public confidence. When the loan is floated, or public subscription invited, sinking fund provision is an important element. It also contributes to much easier transactions in the loan, or to what is called its marketability. Preference is invariably given to stock with adequate sinking fund arrangement by organizations like insurance companies and others; such loans are also appropriate material for trustees, whose first duty is to look to the strict security of their investment.

In non-productive expenditure, financed by loan, the chief example is outlay for emergency, involving large scale destruction such as earthquake or other calamity. Adam Smith directed attention to the fact that borrowing for war expenditure had the disadvantage of removing adequate check on the undertaking and continuance of war, but outlay from such sources is indispensable to war finance, and, as most of the authorities contend, will ease the burden of war if it is used with discretion. Mr. Shirras remarks that the golden rule is to pay off debt as fast as the resources of the country will allow. Up to a point that principle has been recognized in the sinking fund arrangements which have so far been completed in Great Britain and other countries following the European War. Controversy now turns upon the question as to whether these arrangements are adequate; and a clear distinction must, of course, always be drawn between sinking fund for unproductive expenditure of this class and sinking fund for productive outlay, which is usually related to the effective lifetime of the asset.

Broadly speaking, there is in most countries criticism of the comparative weakness of sinking fund arrangements, that is, when related to the total burden of debt arising from the World War. Further, as in Great Britain, even the existing sinking fund provision is often reduced by Budget deficits, and occasionally by other forms of raid; and there is the constant conflict of interest between a severe but ultimately beneficial debt policy and the claims of immediate tax reduction or such other concession as weakens the application of sinking fund arrangement. In Great Britain, after surveying all the ingredients of the controversy, all parties in the Committee on National Debt and Taxation were in favour of stiffer sinking fund policy, although the majority related their plan to avoidance of increase in the aggregate burden of annual taxation.

THE ECONOMIC FUNCTIONS OF THE STATE

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VII

PERSONALITY

SOCIETY A COMPLEX OF CONFLICTING WILLS

IN this search for a clear principle by which to judge what now exists, by which to seek to alter, destroy, or rebuild, we shall be met at the very outset by the objection that the present chaos does not come so much from an absence of theories as to the proper function of the State as by the existence of too many such theories. Is not our confusion, we shall be asked, due to the clash between conflicting views which cannot be adequately harmonized, in a word, to a fundamental lack of agreement on the matter at issue? And does not this lack of agreement make futile any attempt at framing yet another political philosophy that is no more likely to command agreement than any other hitherto put forward, and will only add another note to the present discord? To this statement it could, we think, be replied that the present chaos is due not so much to the conflict of clear policies as to the difficulty of working out any one clear policy in a system which is the result of haphazard growth, marked especially by the fear or incapacity of any party to apply resolutely and systematically their own philosophy of State action. But with this reservation we believe that the criticism is a true one and that the essential defect of most political thinking has been to ignore the truth it contained--namely, the difficulty, not to say impossibility, of arriving at a general agreement. All systems tend to ignore the fact that society is largely, after all, a complex of conflicting wills and desires and that the function of the controlling organ, the State, is not so much to express a general agreement, or "general will," to quote Rousseau's famous phrase, as to allow those conflicting wills and desires to express themselves with the minimum of mutual interference.

DISTINCTIVENESS OF EACH INDIVIDUAL

The most casual observer of any society cannot fail to observe what is so obvious as to be a truism, that it is made up of men who are at the same time extraordinarily alike and extraordinarily different. This contrast is as marked in the mental and moral as in the physical side of life. Similar as we all are in all bodily essentials, no two of us are identical in size and looks—not even twins are absolute duplicates. However universal certain passions and instincts may be, their manifestations vary enormously according to many circumstances which we term education, environment, heredity, religion--and particularly that elusive element called personality.

Now, if my personality contain these elements which I have in common with other men, its distinctive value comes from what is unique to it. What we cherish in ourselves is what makes us "us," not someone else. We do not set as much stress by our elemental impulses—which we share with the whole animal race—as by what makes us men and not animals. We prize yet more that which distinguishes us from uncivilized mankind (remembering, however, how thin is liable to be our veneer of "civilization"). Ultimately we cling most to that complex of emotions, feelings, thoughts, desires, tastes, aspirations, which we call our own self.

Personality, then, is a fundamental social fact, and no system can endure which deliberately ignores it. No organization of society is sound which sacrifices, to the alleged interest of one section, that which makes life worth living to another. Slavery and serfdom are obvious instances, but they are extremes. What is more important is to realize that a healthy society must give to all its members the fullest possible scope for the free expression of their distinctive personality.

NO SACRIFICING OF INDIVIDUAL TO COMMUNITY

This point is absolutely fundamental, and needs stressing at its fullest, for it is ignored in a great deal of current political thought. We were stating, a short while ago, the impossibility of isolating the individual from the society in which he lived, and without which life would be meaningless, but it is no less important to remember that there are no such things as collectivities in the abstract, that it is futile to think of nations, groups, classes apart from the individuals that compose them. Save as a geographical term, "England" is meaningless apart from the thirty odd million of men, women, and children who inhabit the southern half of the island known as Great Britain; and what each of them really clings to, that which gives a meaning to life as far as he is concerned, is the chance of becoming all that of which he feels himself to be capable. Material inventions, territorial expansion, the growth of learning, moral and spiritual development—all these, to have any value, must be expressed in terms of human personality. Our first demand is, therefore, that the organization of the body politic shall reject in all its forms the idea that there is a "common welfare" or "general interest" which can only be attained by the deliberate sacrifice to that welfare or interest of a section of the community. No man

or class exists for the convenience of another man or class. No society can flourish in which some of its members are as it were the rungs of the ladder by which others ascend to prosperity or culture. The full recognition of the importance of the individual, and the organization of society in such a manner as will give each individual his fullest possible chance of development– physical, aesthetic, moral, spiritual—this must be the basis of any healthy society and the starting point of all sound political thought.

PERSONALITY AND SOCIETY

We remind the reader that we are not assuming any "individual rights" prior to society, that, on the contrary, we are prepared to admit that there may be no such thing as an "individual" apart from society. But granting all that can be said about man as a "social animal," incapable of living alone, whose solitary existence would be, in Hobbes's famous words, "nasty, solitary, brutish, and short," the fact remains that society can have no higher function than the development of complete human personalities because there is nothing higher in the scale of values than a fully developed human personality, and that, in fact, there are no values apart from persons. Any other aim that a society might adopt would stand condemned as lower than the highest and would rest on an illusion—that there was a real good to be sought that existed apart from persons. There may be no individual rights as such—but, as a matter of fact, society must act as if these existed, as if their preservation must be its most important care.

IMPOSSIBILITY OF ISOLATED EXISTENCE

As soon, however, as the individual tries to realize himself by himself, he discovers that he needs others if he is to have any real individual existence, and that what he needs in others is not their "common humanity," their unrestrained passions and uncontrolled impulses, but their fully developed and controlled personality. He needs, in fact, just their differences. It is because his neighbours are not just the same as he is that he cannot do without them. The great law of human solidarity ultimately rests as much on that by which men differ as on that which they have in common.

This means, therefore, that only through others, with the help of others, can individuality be expressed. Now, the intensely complex action and reaction of that multiplicity of separate individualities, "moving differently to the attainment of different desires," in Mr. Laski's phrase, will cause indescribable confusion and chaos unless there be some co-ordinating authority, able, if not to direct all these energies into appointed channels, at least to see that the roads do not get hopelessly congested and choked.

NEED FOR PROTECTION AND CO-ORDINATION

In this clash of wills and desires the individual who wishes to be "free" will need protecting against the hindrances set up by those who are stronger than he, and would prevent his self-realization. Hence, the necessity for government. Civilization has grown too complex for each man to be able to realize himself without let or hindrance, leaving uncontrolled his desires and impulses. In one sense it is human selfishness that makes government necessary. At the same time, unconnected individual efforts at individual happiness would soon break down. Concerted action is needed for the realization of those very ideals which are the fullest expression of our most developed personalities. Some co-ordinating power is needed.

The task of the State will, therefore, be the removing of these hindrances which our selfishness would place in the path of our fellowmen, and the setting up of those agencies that will allow our actions so to be co-ordinated as not to run to waste—both these aims being all the time tested by the ultimate end of all society, the recognition of personality as the ultimate value.

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

(*Continued from page 282*)

VII

ORGANIZATIONS IN THE FIELD

(*c*) OTHER OFFICIAL AND SEMI-OFFICIAL BODIES

By J. H. RICHARDSON, M.A., Ph.D.

IN addition to the League of Nations and the International Labour Organization, dealt with in preceding articles of this course, there are at least twelve other official international organizations set up by collective treaties between Governments to exercise co-ordinating influence or control in the economic field. There are also about twenty other international organizations operating in this field with the collaboration and support of Governments. The present article outlines the constitution and activities of the more representative bodies.

Communication and Transport. Nearly one-half of the organizations under consideration are concerned with communication and transport. This is not surprising since practically the whole basis of international economic relations consists in the development of facilities for communication and the transport of commodities.

One of the earliest established international organizations of an economic character is the *Universal Postal Union*. The Union was instituted in accordance with the Postal Convention of 1874, by which the signatory powers were declared to be a single postal territory for the reciprocal exchange of correspondence; also common rules and uniform postal rates were adopted. The Union now has a membership of 175 countries, colonies, and territories.

The International Bureau of the Union at Berne acts as liaison, information, and advisory body to the members. Its chief activity is the publication of all kinds of information concerning the International Postal Service. In cases of dispute on postal questions between Governments, it gives an opinion if requested to do so by the disputants. It also prepares for Conferences of members of the Union.

The cost of maintaining the Bureau is met by the postal administrations of the countries belonging to the Union. For determining their contributions the countries are grouped roughly according to importance into seven classes; the relative contributions of the seven classes are 25, 20, 15, 10, 5, 3, 1. In 1925 the expenditure of the Bureau was about £13,000.

On similar lines and with similar objects are the *Pan-American Postal Union*, the *Telegraphic Union* and the *International Advisory Committee on Long Distance Telephone Communications*.

Railway transport is dealt with by two official and various semi-official organizations which mainly co-ordinate European railway traffic.[1] The *Central Office for International Railway Transport* was established at Berne in 1893 by international Convention. Its objects are to publish information of all kinds concerning international railway transport, to facilitate financial relations between railway administrations in different countries, and, on request of the parties to a dispute, to determine conditions of settlement. Seventeen European States are members, and contribute on the basis of the number of kilometres of railway lines subject, in each country, to the Convention. The *International Conference for Promoting Technical Uniformity on Railways* has held a number of sessions from 1882 onwards. Eighteen countries of Continental Europe are members.

Among semi-official railway organizations are the *International Association of the Railway Congress*, the *International Railway Union*, the *European Conference on Time Tables*, the *Union for the International Use of Carriages and Vans*, and the *International Railway Wagon Union*.

Progress in construction and upkeep of roads is promoted by the *Permanent International Association of Road Congresses*, founded in 1908, thirty-eight Governments being members. With regard to navigation, the *Permanent International Association of Navigation Congresses* was founded in 1902 to promote the progress of internal and maritime navigation, particularly improvement of rivers, internal and maritime canals, and ports. The organization is subsidized by some forty-four Governments. The *International Commission for Air Navigation* was founded in 1922 in conformity with the Air Convention of October, 1919. It undertakes duties prescribed by the Convention, and compiles information of every kind concerning international air navigation. It is under the direction of the League of Nations.

Commerce. In the case of commerce, as in other fields, official and semi-official organizations have hitherto been set up more for purposes of information and co-ordination than to exercise control. The *International Parliamentary Conference on Commerce* was set up in 1914, on the initiative of the British Parliamentary Trade Committee, to co-ordinate the activities of committees on commerce and commercial legislation in order to secure unification of trade laws, regulations and customs. Annual sessions are held, twenty-seven parliaments being officially represented. At the 1919 session, the *International Institute of Commerce* was created to publish information regarding commercial statistics, legislation and treaties. The

[1] Organizations which include the administrations of State railways are here regarded as semi-official.

Institute is financed, as are other official organizations, by contributions roughly proportionate to the importance of the different States. The *International Bureau of Commercial Statistics*, founded by Convention in 1913, publishes commercial statistics supplied by the different countries, including statistics of imports and exports. Twenty-four countries are members.

Accurate information on customs tariffs is essential to those engaged in international commerce. To provide this information the *International Bureau for the Publication of Customs Tariffs* was set up by Convention in 1890. Fifty-five Governments are members and supply their customs laws to the Bureau. These are then published in five languages at common expense.

The protection of rights in trade-marks is safeguarded by two official organizations, the *United International Bureaux for Industrial, Literary, and Artistic Property* and the *American International Union for the Protection of Trade-marks.*

The former of these organizations also endeavours to safeguard rights in inventions and protect authors and artists against the counterfeiting or unauthorized reproduction or translation of their work.

Agriculture. Collaboration of Governments on economic and scientific aspects of agriculture is promoted by the *International Institute of Agriculture.* This organization was founded in 1905 by international convention signed by representatives of forty Governments. Subsequently thirty-three other States and colonies have joined. Its objects include the provision of liaison between farmers, the best utilization of the world's agricultural resources, and the collection and distribution of statistical, technical, and economic information concerning farming and commerce in agricultural products.

The headquarters of the Institute are at Rome, under the patronage of the King of Italy. Its activities are controlled by a General Assembly which meets ordinarily once every two years, and a Permanent Committee which meets at frequent intervals. The ordinary work of the Institute is conducted by a permanent international staff. A valuable library on agricultural questions has been collected. Information is obtained and distributed by telegram regarding agricultural production, including areas under cultivation of different products, crop reports and harvests. Publications on agricultural developments, legislation, statistics, etc., are issued. Studies of plant pests and diseases have been made and the problems of co-operation and agricultural credit examined. The Institute has initiated a world census of agriculture—the first of its kind—to be conducted in 1930-31 on a uniform plan by the Governments. The expenses of the Institute are met by special annual contributions by the King of Italy and contributions of member States according to a scale based roughly on their relative importance.[1]

Miscellaneous Organizations. Various international organizations have been established to promote the general improvement of international relations, including economic co-ordination. They endeavour to attain their objects mainly by publishing information and holding conferences.

Among organizations dealing with special problems is the *World Power Conference*, founded in 1924, with objects which include the study of methods to adjust the industrial and scientific sources of power nationally and internationally. Special attention is given to the potential resources of each country in hydro-electric power, oil and minerals. Over forty countries are associated with the Conference. The *International Institute of Refrigeration* was founded in 1920 by international Convention. Its objects include promotion of the study and regulation of the preservation, transport, and distribution of perishable foods. Nearly fifty countries and colonies have signed the Convention. The *International Management Institute* was founded at Geneva in 1927 to investigate, publish information on and co-ordinate the study of the scientific organization of labour and the rational organization of production and distribution.

Co-ordination. To prevent overlapping and to ensure co-operation between the many official, semi-official and also voluntary international organizations, whether economic or other, some form of co-ordination is desirable. Tentative efforts in this direction have been made by the *Union of International Associations*, founded in 1910, with headquarters in Brussels. The League of Nations Covenant recognizes in Article 24 the need for co-ordination, especially between organizations established by general treaties. In applying this Article, however, the League Council has hitherto adopted a *laissez-faire* policy. Only four general treaty organizations have been placed under the League's direction, and even in these cases a large measure of autonomy is preserved. The Council will interfere only to prevent abuses or duplication of work. With regard to voluntary organizations, the Council recognizes their value in the improvement of international relations, and is undesirous of prejudicing their autonomy or of risking a diminution of their activity " by even the appearance of an official supervision."

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The League of Nations *Handbook of International Organizations*, Geneva, 1926. This gives for almost all official, semi-official, and also unofficial international non-profit making organizations summaries showing their headquarters, date of foundation, object, membership, governing body, finance and activities.

[1] The States are grouped into five classes, the relative contributions of States in each class being respectively 16, 8, 4, 2, 1.

STATISTICS

(*Continued from page 284*)

VII

GRAPHS OF FREQUENCY DISTRIBUTION

BEFORE going on to look for further answers to the question set in the last section, it will be well to see how the method of graphical representation may be used as an alternative or an addition to the method of tabulation in bringing out the statistical nature of a group. We take as illustration the family incomes dealt with in the last section.

In Table II, last column, was shown the distribution of the family incomes of 710 families in 10s. income-groups. Let us represent these 10s. groups by equal divisions marked along a horizontal line starting from the point o, and on each of these divisions let us erect a rectangle proportional to the number of families in the group. (Fig. 11.)

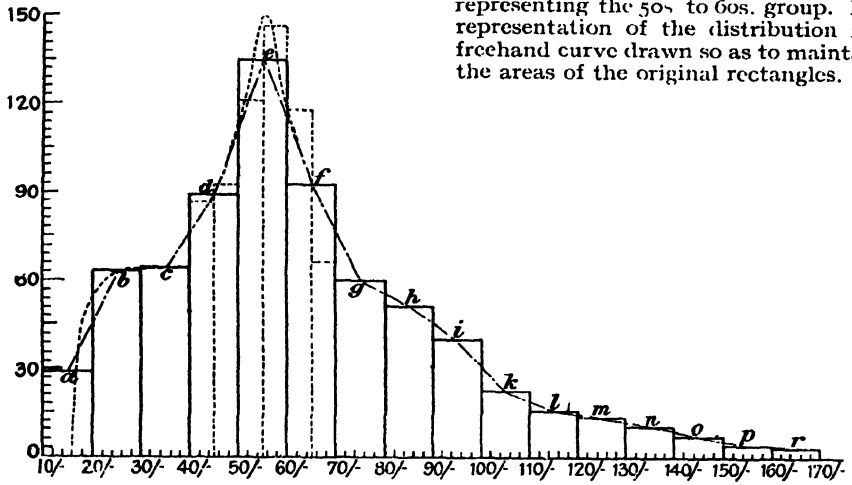

FIG. 11

The defect of a figure made up of rectangles like these is that it suggests sharp divisions between the several groups which do not in fact exist. For instance, it suggests that there are 135 families (represented by the long rectangle) with a certain income, and then 92 families with the next larger income, and so on. As a matter of fact, within each group the incomes vary, and, therefore, the rectangular representation is misleading. If, instead of taking 10s. groups, we had taken 5s. groups, the resulting diagram would have shown a greater number of less abrupt steps. For instance, the groups "40s. to 50s.," "50s. to 60s.," and "60s. to 70s." contain respectively 89, 135, and 92 cases. But, if we split them into 5s. groups, the numbers in the six groups so constituted are 43, 46, 62, 73, 59, and 33, represented in the figure by the dotted rectangles. Clearly, if we carried this process far enough, instead of a series of rectangles abruptly distinguished we should ultimately get a series of vertical lines, the tops of which, being joined, would together give a curve.

Consequently, it is usual to join the middle points of the rectangles in a figure such as Fig. 11 by the curve *a*, *b*, *c*, *d*, *e*, etc. But this is inaccurate, since it reduces the area standing on the base representing the 50s. to 60s. group. Hence, a truer representation of the distribution is given by a freehand curve drawn so as to maintain unchanged the areas of the original rectangles. This is shown by the dotted curve in the figure. If the data are sufficient this freehand curve can be accurately drawn, but if not, it may be uncertain how the curve ought to run, in which case it is better to be content with the original rectangles. Difficulty may also occur as to the shape of the curve at the extremities. For incomes below 20s. we are given no detailed information, and, therefore, it is uncertain where the curve should meet the horizontal. In fact, in this particular case, there were no incomes under 15s., and the curve should be completed as in the figure. At the opposite end of the scale another difficulty arises, as the numbers in the last two income groups show an unexpected upward trend. This introduces a point on which brief comment must be made.

THE BELL-SHAPED CURVE

If we omit the last two income groups in our illustration, we find that there is one group (50s.

to 60s.) which contains the largest number of cases. It is the group of the highest frequency. We also find that, on the whole, the groups nearer to this contain more instances than the groups farther away. Cases tend to crowd towards the group of the highest frequency. When represented on a diagram this means that the frequency curve is bell-shaped. From this we might infer that if we split up any one of our income groups into parts, the part nearer the group with the highest frequency will contain more cases than the part more distant. We have actually found this to be the case in the 40s. to 50s group, the lower half of which contains 43 and the higher 46 cases, and also in the 60s. to 70s group, the lower part of which contains 59 and the higher 32 cases. Hence we might infer that if we carried out the process fully we should get a smooth slope upwards to the apex, and downwards on the other side. But, in practice, working with a limited number of instances, we should find that our curve failed to reach this ideal shape. There would be some

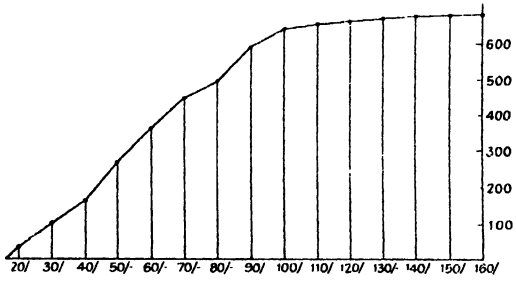

FIG. 12

income groups that contained no cases, and some that contained more cases than those on either side. Nevertheless, the smooth curve is that to which frequency curves trend, and it is the lack of sufficient instances which causes a falling away from the ideal.

Let us recall the question we are trying to answer: What is the size of the family income of working-class families in a given district? A complete answer could be given only from a complete knowledge of all the facts. But we are working with a sample, with a few hundreds of cases instead of thousands. Hence there are gaps in our information. The more cases we could collect, the more would we find these gaps being filled up and the ideal curve being approached, and the more accurately could we answer the question asked. The problem is how, by means of the relatively few instances at our disposal, we can draw correctly the smooth curve that would result if we knew the facts of every case. The answer to that question would carry us into mathematical realms beyond our present scope. A simple illustration of the fact that such ideal curves exist, and that the greater the number of instances observed, the closer does the curve representing them approach the ideal, is to be found in certain chance happenings. Take a well-shuffled pack of cards and turn up four cards at random. These cards may be all red, or all black, or some red and some black. The possibilities are these –

Case	First card	Second card	Third card	Fourth card	Number of cases
Cases of four reds	R	R	R	R	1
„ three „	B	R	R	R	4
	R	B	R	R	
	R	R	B	R	
	R	R	R	B	
„ two „	R	R	B	B	6
	B	B	R	R	
	B	R	B	R	
	R	B	R	B	
	B	R	R	B	
	R	B	B	R	
„ one red	R	B	B	B	4
	B	R	B	B	
	B	B	R	B	
	B	B	B	R	
„ no reds	B	B	B	B	1

Thus, out of sixteen liftings of four cards, the ideal result is 1, 4, 6, 4, 1. It is unlikely that this would be the result of lifting the cards only sixteen times; the result might be 1, 2, 7, 5, 1, or some other arrangement. But, if we continue to do it often enough, the series would approach the ideal, and the curve would be symmetrical. Obtained in other ways (by throwing dice, for instance), are other ideal curves which are not symmetrical, although they are consistent in character. Enough, however, has been said to indicate that curves have their distinctive features, and that, even with imperfect statistical data, the resulting curves are of a nature which conforms to their type.

THE CUMULATIVE CURVE

It should be added that an alternative, and, in some ways, a superior, method of representing diagrammatically the distribution of a group is by the cumulative curve. To draw this curve we consider not the separate numbers of instances within each distinct group, but the numbers of instances up to any given income.

Thus, incomes under 20s are 29; under 30s. are 29 + 63 = 92; under 40s. are 92 + 64 = 156, and so on. We then mark off horizontal divisions representing income groups as before, but, instead of erecting rectangles on a base, we raise at the point indicating each income a vertical line whose length represents the number of cases up to that point, and join the tops of the lines by a curve. This cumulative curve has the merit of being accurate and unmistakable; and we shall see later that it has the additional merit of being capable of yielding useful results. The cumulative curve representing the data already dealt with is given in Fig. 12.

STATISTICAL APPENDIX

(*Continued from page 288*)

IRON AND STEEL

NEXT to coal in importance come iron and steel, which give employment to large numbers of workers and form the basis of the shipbuilding, engineering, and other industries. How closely they themselves depend on the coal industry can be seen in the following graphs (from the *Labour Gazette*, February, 1927), which indicate the effect

The remaining tables in this section of the appendix fall into two groups, the first making certain comparisons of production, exports, and imports, and the second dealing with employment. Table XLIV shows the production of steel by different processes in Great Britain from 1911-25. Tables XLIII and XLV compare pre-war production, exports and imports of iron and steel in

PERCENTAGE OF UNEMPLOYMENT IN 1926

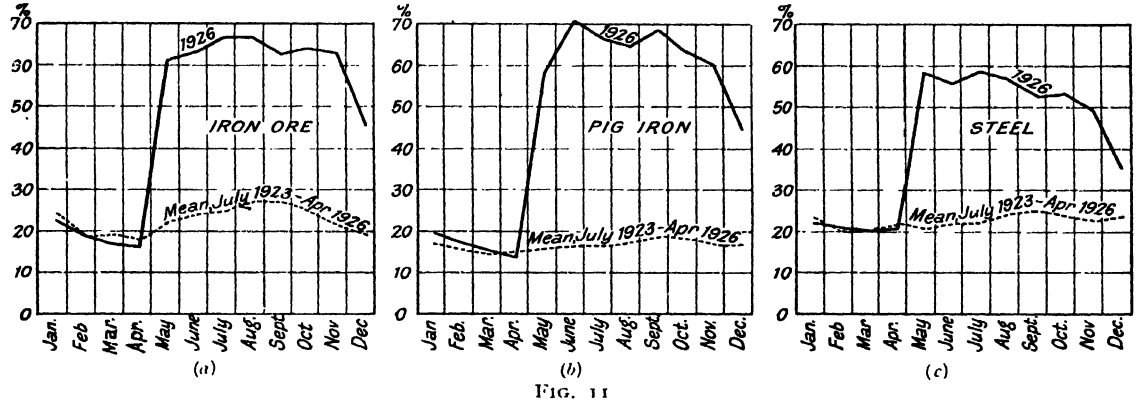

FIG. 11

of the stoppage in the coal industry in 1926 on the percentage of unemployment in different cases. The cases illustrated are iron-ore mining, pig-iron production, and steel production.

Iron and steel are made from iron ore, which in different qualities is found in different parts of the United Kingdom. For high quality steel the best ores are those which are high in iron content and low in phosphorus and sulphur, among which are the magnetites and some of the hematites. Of the latter some are to be found in parts of England, including Cumberland and Lincoln. For forge, foundry, and basic iron the carbonates may be used, and these occur in other parts of the country, including Scotland. But the quantity of iron ore produced in this country has been declining in the course of the past fifty years, and we now depend to an increasing extent on ores imported from Sweden and from Mediterranean countries. The changes in the home output are shown in Table XLI.

Pig iron is the next stage in the conversion of iron into steel. Hematite pig is made from the high grade ores, rich in iron and low in phosphorus. Basic, forge, and foundry pig are made from the lower grade ores. Both hematite and basic pig can be used for steel, but different processes (the acid and the basic) are used in the two cases. Foundry and forge pig are used for forgings, castings, etc. The production of these different qualities of pig iron is shown in Table XLII.

monthly averages. The changes in the production of pig iron in the Overseas Dominions between 1909–13 and 1919–23 are shown in Table XLVI, and in Table XLVII a comparison is made between British exports of iron and steel and those of other countries. The total numbers employed in the

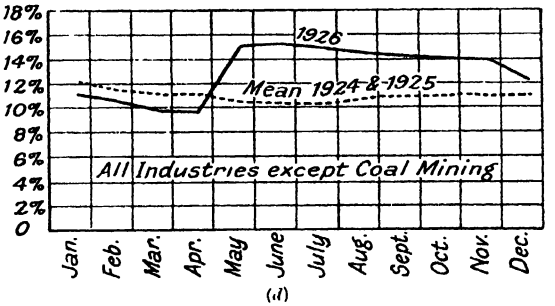

FIG. 12

industries in 1921 and the changes in the numbers of insured workpeople between 1923 and 1927 are given in Tables XLVIII and XLIX. The figures in the latter table are not comparable with those in the former, but they are given as a rough indication (the only one available) of the numbers in the industry in 1927 as compared with 1923.

TABLE XLI

OUTPUT AND IMPORTS OF IRON ORE (IN THOUSANDS OF TONS). UNITED KINGDOM

Years	Output		Imports	
1891–95 (average)	12,055		3,978	
1901–5 ,,	13,556		6,350	
1911–15 ,,	15,472		6,279	
1921	3,471		1,846	
1922	6,848[1]	average,	3,425	average,
1923	10,882[1]	1921–25	5,771	1921–25
1924	11,057[1]	8,481	5,817	4,230
1925	10,146[1]		4,290	

[1] Excluding Irish Free State.

TABLE XLII

PRODUCTION OF PIG IRON AND FERRO-ALLOYS IN GREAT BRITAIN

(From the *Statistical Abstract of the United Kingdom*, 1927)

(Thousand tons)

Years	Hematite	Ordinary		Basic	Direct castings and other qualities	Ferro-alloys	Total
		Foundry	Forge				
1911	3,526	3,813		1,917	Not separately recorded	270	9,526
1912	3,471	3,252		1,772		256	8,751
1913	3,605	2,500	1,301	2,530		324	10,260
1914	3,225	3,370		2,003		326	8,924
1915	3,564	1,574	1,024	2,273	--	255	8,794
1916	4,043	1,419	899	2,291	--	202	9,048
1917	3,922	1,459	920	2,723	--	298	9,322
1918	3,557	1,426	876	2,986	--	241	9,086
1919	2,782	1,237	610	2,357	--	394	7,398
1920	2,942	1,457	605	2,662	125	244	8,035
1921	842	747	240	700	35	52	2,616
1922	1,571	1,166	277	1,570	91	227	4,902
1923	2,431	1,733	423	2,422	147	285	7,441
1924	2,343	1,802	376	2,445	149	192	7,307
1925	1,909	1,631	296	2,065	176	185	6,262

TABLE XLIII

PRODUCTION AND EXPORTS OF PIG IRON, UNITED KINGDOM

(Based on returns in *Statistical Abstract of the United Kingdom*, 1927)

(Tons. Monthly average)

	1912	1913	1924	1925
Production	729,000	855,000	609,000	522,000
Imports	14,007	15,398	23,935	22,031
Exports	105,199	98,682	49,987	46,663
Percentage of pre-war average	—	—	7	6·5
Available for home consumption	637,888	776,716	582,948	497,368
Percentage of pre-war average	—	—	82·4	70·3

TABLE XLIV

PRODUCTION OF STEEL IN GREAT BRITAIN

(From the *Statistical Abstract of the United Kingdom*, 1927)

(Thousand tons)

Years	Converter		Open hearth		Electric		All other steel castings	Total
	Acid	Basic	Acid	Basic	Ingots	Castings		
1911	888	574	3,131	1,869	—	—	—	6,462
1912	980	542	3,366	1,908	—	—	—	6,796
1913	1,049	552	3,811	2,252	—	—	—	7,664
1914	797	482	3,681	2,875	—	—	—	7,835
1915	821	480	4,091	2,959	20	2	177	8,550
1916	914	542	4,356	2,979	43	4	154	8,992
1917	916	585	4,545	3,356	85	14	216	9,717
1918	755	550	3,881	3,986	79	47	241	9,539
1919	493	296	2,960	3,935	47	30	133	7,894
1920	553	268	3,302	4,682	55	34	178	9,067
1921	184	54	1,137	2,214	11	16	87	3,703
1922	273	196	1,681	3,624	21	18	68	5,881
1923	358	137	2,516	5,278	41	23	129	8,482
1924	406	109	2,359	5,117	42	23	145	8,201
1925	447	28	1,969	4,744	40	24	133	7,385

TABLE XLV

PRODUCTION AND EXPORTS OF STEEL, UNITED KINGDOM

(Tons. Monthly average)

	1912	1913	1924	1925
Production of steel ingots and castings	566,000	639,000	683,000	615,000
Production of finished steel (75 per cent of above)	424,000	479,000	512,000	461,000
Imports of finished steel	154,000	170,000	179,000	205,000
Exports of finished steel	295,400	320,400	271,000	264,100
Percentage of pre-war average	—	—	88	85
Available for home consumption	282,600	328,600	420,000	402,000
Percentage of pre-war average	—	—	137	132

TABLE XLVI

QUANTITY OF PIG IRON PRODUCED IN THE UNDERMENTIONED OVERSEAS DOMINIONS, ETC.

(Based on data in *Statistical Abstract of British Overseas Dominions*, 1926)

Overseas Dominions, etc.	1909–13 average	1919–23 average
British India	174,997	359,597
Commonwealth of Australia	36,369	272,691
Dominion of Canada	824,830	730,031

TABLE XLVII

EXPORTS OF IRON AND STEEL FROM GREAT BRITAIN AND FROM CERTAIN FOREIGN COUNTRIES
(Thousands of tons)

	1894	1904	1913	1920
Great Britain	2,706	3,326	4,969	3,251
Germany	752	2,770	6,300	1,750
United States	82	1,167	2,906	4,707
Belgium	402	912	1,575	935
France	154	461	630	945
Total of these countries	4,096	8,636	16,380	11,588
British exports as percentage of total	66·0	38·5	30·3	28·0

TABLE XLVIII

TOTAL NUMBERS ENGAGED IN THE PRODUCTION AND MANUFACTURE OF IRON AND STEEL IN GREAT BRITAIN, JUNE, 1921
(Compiled from tables in *Reports of Census of England and Wales and Scotland*, 1921)

	England and Wales	Scotland	Great Britain
Iron ore mines and quarries	20,147	651	20,798
Smelting, converting, refining, and rolling iron and steel:			
Pig iron manufacture (blast furnaces)	32,044	3,585	35,629
Puddling furnaces and iron rolling mills	26,181	3,059	29,240
Steelworks and steel rolling mills	150,368	31,840	182,208
Iron works (precise branch not stated)	4,632	3,020	7,652
Slag and slag wool	2,831	25	2,856
Founding and other secondary processes:			
General iron foundries	53,230	26,986	80,216
Steel foundries	4,620	3,179	7,799
Forging	43,516	7,232	50,748
Tinplate	37,787	406	38,193
Tubes, iron and steel	22,895	9,046	32,841

TABLE XLIX

CHANGES BETWEEN JULY, 1923, AND JULY, 1927, IN TOTAL ESTIMATED NUMBERS OF INSURED WORKPEOPLE IN CERTAIN PROCESSES IN THE PRODUCTION AND MANUFACTURE OF IRON AND STEEL IN GREAT BRITAIN AND NORTHERN IRELAND
(From the *Labour Gazette*, November, 1927)

	Increase or decrease in numbers	Increase or decrease per cent
Iron and steel tube making	+ 3,300	+ 13·3
Manufacture of tinplates	+ 2,310	+ 7·7
Steel smelting and iron puddling furnaces, iron and steel rolling mills, and forges	− 16,440	− 7·8
Pig iron manufacture (blast furnaces)	− 3,980	− 13·8
Iron ore and ironstone mining and quarrying	− 3,200	− 21·3

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page* 290)

VIII

THE MIDDLE AGES—THE TOWN

"For the growth or decay of towns is due in the first place to routes . . . it is due to routes that they become centres of accumulation and storage of the agricultural or industrial products of a whole district, or, again, centres of distribution for distant and exotic products. Nothing has more influence than the history of routes on the destinies of towns, whether their origin depends on a route, a sanctuary, or a hill fortress." —LUCIEN FEBVRE, *A Geographical Introduction to History*, page 347.

FROM the point of view of economic progress the most significant fact in the history of the Middle Ages is the revival of town life. During the period of the barbarian invasions and settlement, urban centres had suffered severely, and the reconstruction of old towns and the building of new ones demanded long and painful effort. The process is often obscure. We cannot reduce to any simple formula the factors which determined where a town was founded and why it grew in importance. Some mediaeval towns represent survivals from an earlier age. Rome endured much, but was never obliterated by her enemies. New Rome—Constantinople—carried many of the traditions of trade and industry unimpaired through the centuries when Europe was almost reduced to barbarism, and retained so much vitality that she was able to stimulate the development of towns in Italy in the early Middle Ages. Venice was a place of refuge during the troubled days of barbarian inroads into North Italy, and later proved to be well chosen for the carrying on of the trade between the Levant and Western Europe. In Britain a case can be made out for the continuity of town life in London, though it must have been reduced to the most primitive elements at times. The revival of towns in this country is usually ascribed to the influence exercised by the Danish invasions of the ninth and tenth centuries. The Danes themselves were founders of trading towns, as, for example, round the coast of Ireland and in the East Midlands of England, and the terror inspired by their incursions forced the English to build fortified places, which formed the nuclei of towns. There has been much fruitless discussion about origins. A town may have sprung from a fortress or a monastery, which would involve a comparatively highly differentiated population, the needs of which would be supplied by a variety of crafts, or it may have resulted from the fact that it was a convenient meeting-place because of its geographical situation where roads converged or where a river could be forded. But no one explanation is enough. A town may have a castle, one or more famous shrines, and be a ford town, as, indeed, is the case at Oxford.

THE TOWN A TRADING CENTRE

Even if the origin be deliberate and apparently artificial, as in a fortress town built to guard a frontier or to hold down a conquered region, the development of the town will ultimately depend on whether it attracts trade and therefore population. In other words, the ultimate purpose of a town is trade. With it the town can grow indefinitely; without it the town must inevitably decay. Consequently, the geographical factor is the determining one in the long run. The town authorities fully realized this. Their policy was directed to protecting and fostering their trading interests and to encouraging persons to settle within their walls. Step by step the town became the local market. Manors which had hitherto been practically self-sufficing sent their surpluses for sale in the town and purchased there an increasing variety of commodities for their own use. The town influence spread until it had a more or less definite region which depended on it for the performance of important economic services. Many towns were in their beginnings little more than elaborate manors, and they long retained their common lands and fields of arable. As they grew in importance, however, they wished to be quite free of feudal control. They wanted self-government based on fully recognized privileges. The embodiment of such privileges in a charter converted the town into a borough, that is, it constituted a corporate body to which concessions were made and which was jealous of what it had secured and anxious to get more. The charter usually enabled the burgesses to elect their own officials, exempted the townspeople from jurisdiction outside their walls, and granted the right to pay a lump sum (*firma burgi*) to the Exchequer in lieu of all dues to the Crown.

THE MERCHANT GILD

Feudal lords did not always grant privileges to towns on their demesne without a struggle. They often tried to retain rights which would enable them to exact payments from the townsfolk. But as the merchants grew more wealthy they resented any limitations on their activities. They wanted freedom from dues, guarantees that peace would be maintained, and the enforcement of the rules of trade they were gradually defining. So there was a general movement in Western Europe towards the formation of merchants' associations in towns. The Middle Ages had a genius for association. Whenever there was a conscious desire to attain an end, which in the circumstances of the time could not be secured by legislation or State action, there was a tendency to form private groups for the purpose. Hence the

number and variety of *gilds*. There were gilds for the preservation of the local peace, gilds for the performance of religious duties, gilds for the regulation of buying and selling, and gilds for the safeguarding of the interests of particular crafts. Of these the trading and craft gilds played a very important part in the life of mediaeval towns. The trading gilds often took the initiative in agitating for privileges for the town. It is quite usual for a borough charter to contain a clause granting a gild merchant with the rights and obligations such a grant involved. It meant that the members of the gild merchant were empowered to supervise buying and selling within the limits of the town. "Forcigners," i.e. non-members, were restricted in many ways. They could not sell direct to consumers, they had to pay tolls, and they were excluded from trading in certain commodities, such as corn, wool, and leather. Particular importance was attached to the retail trade, and these rules were mainly designed to exclude any but members of the gild from any share in it. The gildsmen were under the obligation not to attempt to overreach one another in trade. If one made a good bargain in a transaction with an outsider he was expected to allow fellow members to share in it. The gild sometimes united as a single person to make a common purchase, afterwards dividing the goods among the members as they required them. It also exercised a general supervision over the quality of goods which its members offered for sale and punished fraud by excluding the offenders from membership. So powerful did the merchant gilds become that it is sometimes difficult to distinguish them from the governing body in some boroughs. They were, however, organizations under their own elected officers, with their own body of ordinances, and quite distinct in theory from the burgesses; but in practice the merchant gild often included the most important burgesses and consequently the government of the gild and of the borough was, in fact, in the same hands.

THE CRAFT GILDS

With the growing complexity of the mediaeval town the merchant gild could not undertake all the economic functions which had to be discharged. So, after the twelfth century, a number of craft gilds came into being in the larger boroughs. These gilds differed from the merchant gild in that they were confined to those who practised a given craft, and membership of them came, therefore, to be based on the possession of certain manual skill. Unlike the gild merchant, the craft gild was rarely the subject of a direct grant from the king or other feudal superior. The boroughs either set them up or recognized their existence as a means of regulating production. Their ordinances were approved by the borough authority and included rules as to apprenticeship, quality of workmanship and general fair dealing. At their best the craft gilds effected a balance between the interests of the producer and the consumer. The producer was assured a fair remuneration, which would enable him to maintain his standard of life, and the consumer was protected against indifferent workmanship and high prices. In England the craft gilds did not come into conflict with the merchant class. On the Continent, however, there were in many towns severe struggles between merchants and craftsmen before the latter won recognition for their associations. It was notably intense in the great towns of the Low Countries, where the merchants wielded considerable power and the central government was too weak to control the democratic movement. The history of the burghs in Scotland resembles that of the Continent. The gildry, which was equivalent to the gild merchant, was an exclusive body. A craftsman had to renounce his craft before he could qualify to become a member of it. The gildry gained almost complete control of burgh government. In Edinburgh the crafts began an agitation to break down this monopoly early in the sixteenth century. There was a sharp conflict arising out of their demands in 1583, and the whole question was referred to arbiters. Their award confined burgh offices, seven in all, to merchants, but admitted eight craftsmen to the council. Since there were ten merchant members, apart from the officers, this gave the merchants a majority of nine.

The cause of this organization of craftsmen in separate gilds must be sought in economic forces. Expansion of trade necessitated a division of labour so that in the larger towns provision had to be made for the training and regulation of specialized groups. Particular classes of craftsmen tended to live in their well marked neighbourhoods, where control was fairly simple. There the masters trained the apprentices who lived with them and the journeymen, who had completed their training, worked for masters until they were in a position to set up on their own account. Each craft gild had its officials elected each year. No one could exercise a craft in the borough unless he was a member of the local gild. The officials were expected to enforce the rules contained in the ordinances of the gild; for instance, there was often a clause which forbade night work. The reason given for this prohibition was that night work was, owing to the defect of light, bad work, and, in some instances, a nuisance to neighbours. These associations with their privileges introduced a ferment of change in mediaeval society, and as the Middle Ages wear to a close it is becoming clear that a new order has been born. The towns are in touch with one another and commodities are carried great distances and offered for sale. By one means and another wealth has been accumulated and capitalistic enterprise is beginning to exercise considerable influence.

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page 292*)

VIII

GRASSLANDS—(*contd.*)

Two points are worth emphasizing, as typical of the proper help which economic geography can give in relation to such problems; and both may be illustrated from tropical Africa, a continent in which we have very wide imperial spheres of influence and responsibility. The savannas are of immense size, and are for the most part more or less level; but they are all at a considerable height, some of them high enough for the climate to be suitable for Britons, even on the Equator. Naturally, of course, the savannas provide pasture, and the great mass of the native inhabitants are essentially pastoral in occupation and organization, and in the course of centuries they have become very skilful—even if unscientific—cattlemen. They keep cattle, however, almost more as the measure of their own importance than as a source of food. And at present the best cattlemen, e.g. the Masai, are unwilling to sell their beasts, especially to the butcher, for the individual's importance is measured by the number of his beasts.

But maize is not only a native of tropical plateaux in South America—and so exceptionally well suited to tropical plateaux anywhere else, e.g. in Africa—it is one of the cheapest foods for fattening pigs and cattle, even though the quality of maize-fed "fat" is not very high. Further, maize is more or less indifferent to rough ground and to rough treatment, such as are typical of the Dark Continent; and the natives have grown it for ages, "mealies" being the typical staple food over a large part of the whole continent. There is every reason, then, why we should encourage the natives throughout all our sphere on the African savanna to grow more and more maize and to use it for fattening cattle and pigs. This would certainly result in a better quality of beef and bacon from the high plateau than is produced to-day on the low prairie of the U.S.A.; and even from the wetter coastal areas the bacon would be just as firm and good as the best American if a little coco-nut meal—easily obtainable from the coastlands—were mixed with the other food given to the pigs.

ANIMAL PRODUCTS

Though the total value of animal products in the world is not half that of the vegetable products, it is more than double that of the mineral products; and the number of "staple" animals is very much less than that of the staple plants. At the same time the relative importance of animal products is falling, not only for transport and draft purposes, but also for food. The main reason for this is the waste incurred in "preparing" animals for the market.

Meat—of all kinds, including game—comes next to cereals in this country for weight of food produced; but it is less important than dairy products because it is relatively dearer and actually less portable. We can, and do, produce two-thirds of our meat at home, contrasted with only one-fifth of our wheaten bread; but much of it comes from animals "finished" on cereals, which could have been largely used directly as human food. A given amount of "fodder," especially in the form of good grass and hay, provides—as milk—more food for man than is provided in any other comparable way; and, of course, the grass is not available directly as human food. But when food available for man is fed to beasts, there is appalling waste in the conversion of it into human food as meat, especially in the form of "fat" meat.

It is calculated that some 50,000 tons of fodder are needed to keep our home stock alive and healthy, but 70,000 to fatten them; and the average proportion of "fodder" to meat is about 40 tons of fodder, of various kinds, to one ton of meat. And of this "fodder" fully 30 tons is in the form of cereals or potatoes, etc., that could be used directly as human food. Indeed, Professor Wood estimates that 3,000,000 tons of maize, barley, wheat, oats, beans, peas, potatoes, etc., which might be used directly as human food, are fed to animals every year in this country.

All animals are not equally wasteful; but even the most economical "converter," the pig, does not produce one-tenth as much "meat" as it does consume of possible human food. The "roast beef of Old England" is the greatest extravagance, for an ox will consume thirteen times as much grain and potatoes as it will ultimately produce beef, and its total consumption is 64 tons of "fodder" for one ton of beef. This is partly due to the stupidity of what we may call fashion. There is more profit to the farmer on an ox sold after three months' fattening than after six months', and the meat is probably more wholesome, if not more palatable; but it is the fashion to keep on fattening them for six months.

At the same time, we must distinguish between beef and dairy products. All things considered (milk, butter, cheese, veal), the milch cow is a more economical "converter" than even the pig. Both animals give about 1 lb. of human food for 12 lb. of "fodder"; but, while the cow is on a basis of grass, the pig—like poultry—is on a basis of grain, and the grain should be barley, i.e. one of the finer cereals. Poultry can develop perfectly well on maize, and—like the pig—

consume a large amount of "offal"; but their total yield, in eggs and meat, is relatively less—1 to 14, instead of 1 to 12. Still, this is nearly twice as good a record as that of the sheep (1 to 24) for meat and wool, and nearly five times as good as that of the ox (1 to 64).

ANIMAL TRANSPORT

The mere fact that motors are replacing animals for transport in Britain must not blind us to the immense historic importance of animals for draught and transport, an importance which still obtains very widely; indeed, but for animal transport and draught work, there could have been no large-scale agriculture on the great grasslands of the world, and motor traction is still far more expensive and less effective than horse traction on hilly and uneven ground. And, unless there is a speedy development of jungle for industrial alcohol, any considerable scarcity of mineral oil would cause a world-wide famine in the absence of farm animals for draft and transport. At present animal transport is *normal* over probably at least nine-tenths of the whole world; and outside a few relatively small areas, especially in North America and Britain, all farm work is done by animals, even in the most civilized areas. Of course, in this connection, the horse is overwhelmingly important in the more civilized continents and the ox in the more backward; and it is probably true to say that the horse is the most important medium of draught and transport in the world, (*a*) for farm work, (*b*) in rough country, especially when thinly peopled, (*c*) for drawing small loads short distances in densely peopled places.

Of course, both relief and climate have an influence in deciding the utility of the particular kind of beast. Sheep and goats, when living wild, escape from enemies by climbing; cattle and pigs escape by hiding in copse or brush; horses and camels escape by their speed. This implies that the sheep and goats are mountain fauna, that the cattle and pigs are typical forest fauna, and that the horses and camels are natives of wide plains. But, in their domestic state, all these animals have learnt to adapt themselves to somewhat unnatural conditions, though cattle still thrive best in England on land that was naturally forested, and sheep on the hills and mountains. Where sheep are kept in large numbers on plains, the climate and the soil must be such as guarantee a fairly dry surface.

But the adaptation to alien conditions seems to be never quite as potent as the natural taste, and so the natural distribution is maintained in several ways, especially when the particular beast is one that tends to be pushed off the better lands. Thus the sheep not only thrives best on the short, sweet grass that is typical of mountain slopes, but is one of the beasts which is relegated to poorer lands—such as on mountains. Even in Britain we have enough highland to have the largest number of sheep to the square mile in the whole world, though we have no land which is too dry for anything but sheep pasture.

This is, obviously, a problem in which climate as well as relief can be traced, and it is difficult to distinguish between the effects of the two; but, for all practical purposes, it is not necessary to do so. Climate may combine with relief to limit the amount of food, or its quality; it may weaken the stamina of the beast, or it may encourage dangerous pests, e.g. the tsetse fly. On the other hand, domesticated animals may live and work with impunity in apparently unsuitable places on imported food, as horses may above the snow-line or in the heart of a conifer forest. In each case the climate is quite healthy, but there is a natural absence of the proper and necessary food.

SOUTH AMERICA

A brief survey of the continents will be the best basis for one of the distribution of domestic animals, and we may begin with South America because it has the simplest structure. It is essentially a triangular mass, tapering to the south, and so having the greatest breadth where the heat is also naturally greatest—along the Equator. It has three highland systems, one of them real mountains, and from these three highlands three great rivers flow which, in the course of ages, have laid down three vast plains made of the waste from the highlands.

Whence comes the water that feeds these great rivers? The moment that we look at a globe, we realize that South America is a comparatively small continent set in the middle of a huge ocean, and along the western edge of the continent runs the mountain system of the Andes—the longest and the least broken in the world. This great barrier lies directly athwart both the N.E. and the S.E. Trades, and also athwart the N.W. Anti-Trades, and forms one of the most effective precipitating media in the world, the precipitation inside the tropics being naturally on the eastern side of the barrier, but on the western outside of the tropics. Where the two Trades meet, in the east of Ecuador, "the *Equator* State," people who measure time by the moon say that "there is 13 months' rain in the year." But, of course, to leeward, i.e. to the west in the tropics, to the east outside the tropics, there is desert or semi-desert, and, in any case, the lowland in the west is very narrow.

The combination of great heat with great humidity throughout the whole year to the east of the tropical section of the Andes has covered an immense area with dense forest—wet jungle; and, however favourable such conditions may be to the growth of rubber, cacao, etc., they are most unfavourable to the grasses on which our domestic animals feed.

PRODUCTION

(*Continued from page 294*)

VIII

THE HUMAN ELEMENT IN PRODUCTION—(*continued*)

What in Fact Does Happen. The technique which has just been sketched is that of Moscow (while it would by no means be rejected out of hand by a Mussolini); but even in Moscow it is only susceptible of an imperfect application. If men must be—as we recognize is inevitable—the sport of some complex of circumstances outside their own control, then they prefer to be the sport of their own and other men's competitive instincts, and not of an office organization. And hence in a community such as ours we rely mainly on the driving force of *competition*, of which something has already been said. Men and women seek naturally those occupations which offer them the best wages and the most attractive conditions of employment. But the wages payable in any occupation or trade depend upon its profitableness, and its profitableness depends upon the demand of the community for its products. Here then is the natural regulator of occupational distribution—public demand for the various goods and services of which society stands in need. That it is an imperfect regulator, which operates subject to many hindrances, physical and psychological, there is no need to emphasize; though we shall need to consider in more detail the nature of these hindrances.

Abstract arguments from time to time put forward have assumed complete mobility of labour; such an assumption is far removed, indeed, from the actual facts of the case.

Some Illustrations from our Recent Industrial History. Let us see how occupational change, in an industrial society such as ours is, effects itself in practice.

There were published, in November of last year, statistics showing what changes have taken place, between July, 1923, and July, 1927, in the industrial classification of those wage-earners who are insured under our Unemployment Insurance Acts. As there are altogether about 12,000,000 wage-earners so insured, these statistics throw a great deal of light on occupational change, though much of the information they afford is of too general a character to answer all the questions that we should like to see cleared up. Even so, we can dimly discern, from the published figures, how changes in the demand for particular goods and services, operating in a competitively organized society, work themselves out in practice.

During these four years there has been, to begin with, an enormous increase—some 327,000—in the numbers of those who are officially registered as employed in the *Distributive Trades*. This is a very significant fact. It is indicative, perhaps, of two economic tendencies—firstly, a tendency to combination in the distributive trades (i.e. the replacement of the small shopkeeper by the large scale emporium and the chain or multiple store); secondly, the tendency to invest more in consumption goods (furniture bought on the instalment plan, gramophones, vacuum cleaners, and so forth) and less in securities which are designated ultimately for the purchase of fixed capital. Both these tendencies—were the data available—would doubtless be still more strongly in evidence in America.

The next largest occupational increase—173,000 is in the group known officially as *Building and Public Works Contracting*. The occupations included cover a multitude of activities; but we may say that, roughly speaking, the great increase in the numbers engaged in them is to be explained by the need for making good the ravages of neglect, and of insufficiency of resources, incurred during the Great War. 1,200,000 dwelling houses alone have been constructed in this country since the Armistice, and the demand for better accommodation is still insistent; the situation, indeed, has only been saved as it is by the accident of a rapidly-falling birth rate. In addition, numbers of roads, factories and other public works have been constructed. The resulting demand for labour has rendered conditions in the building trade sufficiently attractive to ensure the rapid expansion of its personnel.

Other outstanding instances of increase may be noted. The *Brick, Tile, and Cement* industry took on 36,000 additional workers during the four years under review. This expansion is a corollary of that to which reference has just been made. The *Motor* industry increased by 41,000. This does not call for comment. The increase will probably be very much greater during the next few years. The rapidly-expanding industry of *Road Transport* added 50,000 to the number of its employees. The *Printing and Publishing* industry added 29,000 (this, to the writer, is somewhat surprising); the *Electrical Engineering* industry, 18,000; and the *Artificial Silk* industry 18,000 also.

Declining Activities. The aggregate number of wage-earners in employment is, of course, slowly increasing, side by side with an increase in population (though apparently the time is not far ahead when the population will be, roughly, stationary). But the exceptional increases, of which details have just been given, are balanced by striking decreases in some other industries and trades. The largest of these decreases, according to the statistics quoted, has taken place in the *Engineering* trades—a natural result of the enormous

expansion of these trades during the war period, and of the difficulties experienced in transferring their personnel to other occupations, after the collapse of the post-war boom. But in point of fact the great industry of *Coal-mining*, though it has nominally lost only 45,000 insured workers, is in a far more serious plight. There are probably 100,000 workers at least still registered at the Employment Exchanges as coal-miners who, as likely as not, will never handle a pick again. The present position of the industry is, of course, the result of long series of misfortunes, of which the story is too well known, and would in any case occupy too much space, to be recounted in detail here.

Three other significant cases of decrease may be mentioned. The number of workers employed in the *Shipbuilding and Ship-repairing* industries is down by no fewer than 54,000. Here again is an example of an industry of which the personnel was very largely augmented to meet the demands of the war period and of the short-lived post-war boom; since when it has been found necessary to displace a large proportion of the additional workers taken on. Again, the *Iron and Steel* industry has suffered a sharp contraction of its personnel, for somewhat comparable reasons; the aggregate number of workers employed in it has fallen by about 16,000. Finally, we may notice a drop of some 20,000 in the numbers employed in the *Woollen and Worsted* industries. In this case the decrease is roughly comparable to the increase of 18,000, already noted, in the Silk (and Artificial Silk) industry; and this fact is of some significance. Artificial silk products are largely taking the place of those hitherto made of wool. The change in *demand* has reacted automatically upon *supply* (how and why this happens, we shall discuss in *Value and Distribution*) with the result that wages and conditions of employment in the rival industries have been so adjusted as to occasion an outflow of labour from the one and an influx into the other. This is not, of course, to be taken as meaning that the workers who have left the woollen industry are necessarily those who have been taken on in the artificial silk factories. Mobility as between occupation and occupation—even between two competing processes of textile manufacture—is impeded in all sorts of ways, and the chances are that the gradual displacement of workers from an industry means that those who become disabled or superannuated are not being replaced by younger men and women to the same extent as heretofore, and not that an influx into some more alluring occupation is definitely taking place.

(Of recognized obstacles to occupational mobility, under existing conditions, attention may be drawn to three. These are (1) the housing shortage, which is only now being made good; (2) the administrative provisions of the Unemployment Insurance Acts, which tend to weaken such incentives as, in their absence, come into play; and (3) trade union regulations, designed as these are to diminish the virulence of competition in relation to employment. These factors have all, without doubt, been of considerable importance during the last four post-war years.)

OCCUPATIONAL CHANGE—THE ABOVE STATISTICS TABULATED

The particular statistics to which reference has been made, and a few others which, if of less interest, will help to give us a fairer picture, will be set out in a table (Table I) in Part IX of this Section. The statistics so summarized are based upon data made available in the *Labour Gazette* of November, 1927.

A statement of the unemployment position in these industries will be included (see the last column of the table) as necessary to a proper understanding of the position. It will be noticed that unemployment in the industries which are "shedding" their workers is still very heavy—an indication that the process of re-adjustment is probably by no means complete. The transference of coal-miners to other industries is, indeed, the special concern of a recently-appointed Government Committee.

OCCUPATIONAL TRANSFERENCE

We may conclude this brief survey of some of the facts of occupational distribution by considering to what extent transference does *in fact* take place from one trade to another. It is not easy to get authoritative data which are relevant to this question. Perhaps the most useful of figures having recent application are obtainable from one of the "sample" inquiries, into the working of the Unemployment Insurance Acts, which the Ministry of Labour has from time to time conducted. This is the "1 in 218" Investigation of April, 1926. Tables VIII to XI of the Appendix to the Report on that Investigation give particulars of the distribution by industries, at the date of entry into insurance, of workers in different industries. The facts thus brought to light are of permanent interest and importance.

It is not possible here to reproduce these tables fully, but Table II, which will also appear in Part IX of this Section, and which is adapted from the Report to which reference has been made, will serve our immediate purpose. The tendencies which it discloses are deserving of careful study.

BUSINESS MANAGEMENT

(*Continued from page* 296)

VIII

THE SCALE OF ENTERPRISE (3)

DURING the last few years there has been a very marked amalgamation movement in the industries, not only of Great Britain, but also of Germany and other countries. This movement is to be the subject of a special series of articles in the EDUCATOR, and it is not the intention of the present writer to discuss its merits and significance in the present series. Reference has been made to the movement on account of the fact that it is closely associated with a growing faith in mere size.

There are people who are apt to convey the impression that efficiency is a simple function of size: they seem to believe that what is big is necessarily efficient, and that what is efficient is necessarily big. The connection between efficiency and size is not so simple as this statement suggests. There are cases in which the small is inevitably costly; the advantages made possible by large scale enterprise are so pronounced that small scale enterprise is doomed to failure. Nor is it necessary to question the fact that, whereas many of those amalgamations which took place during and immediately after the war were unsound and doomed to failure, the great majority of the amalgamations which have been effected during the last few years of trade depression have tended to increase efficiency through real economy of human effort.

THE OPPORTUNITY OF THE SMALL BUSINESS

But there are many industries in which efficiency is not so clearly reflected by the scale of the enterprise; there is no single scale or group of scales which stands out as clearly more economical than other scales upon which an enterprise may be conducted. Success depends mainly or wholly upon the capacity of the management and devotion to detail. The market may be essentially local in character, or if it is wide it may present no special difficulties; or, again, if a wide market presents special difficulties it may be precisely those which can best be overcome by small enterprises, the owners of which have devoted all their attention to the nature and solution of those special difficulties. The new venturer need not be discouraged by the fact that he appears to be in competition with firms possessing ten times his own capital and employing a highly-equipped staff. By studying the market with great care he may be able to discover neglected patches which can be profitably cultivated. If he is successful his business will increase, his capital will grow, and his enterprise may reach the same scale as those of the others. In such a case large scale enterprise will have proved to be the result of success, not a condition of success. The vast majority of the firms even in the highly standardized industries of to-day (where large scale enterprise is the rule) had small beginnings, and many of the small businesses of to-day will be giant businesses twenty years hence. Nevertheless, it is true to say that success can only follow a close study of those objective factors which may, and often do, determine the most economical scale of enterprise.

A DILEMMA—THE FIRST HORN

In an industry where the conditions dictate a particular scale of enterprise as being more economical or efficient than any other, the new-comer may be faced with a serious dilemma. If he possesses sufficient resources and decides immediately to construct a business of such a size as will enable him to achieve all the available production economies, he may find himself unable to dispose of the products upon a market in which, at the start, he possesses little or no goodwill. He is faced with two alternatives. The first is to spend large sums of money upon advertisement and an elaborate sales organization, hoping to secure a full load of orders without undue delay. Such a policy may prove not only expensive in the initial stages, but also a failure. The alternative is to produce for the market only what can be sold without undue expenditure upon marketing. In this case the employment of the plant at far less than full capacity will entail a heavy burden upon the enterprise.

THE SECOND HORN

In order to avoid heavy expenditure upon sales and distribution or, alternatively, upon unused plant, the new-comer may prefer to forego the savings possible in a large scale enterprise and start upon a small scale. In such a case the layout and equipment of the plant will be different. If and when development takes place the plant, when extended and adapted to the new and larger requirements, may not be of the most efficient design. The immediate cost may, therefore, be considerably higher than it would have been if he had adopted the first method.

The alternatives, when stated in this way, may appear too obvious to be worthy of comment. It may be said that every new-comer would naturally select the scale of enterprise which would be manageable from the first, and yet comprising a plant and organization so designed as to make expansion easy. But in practice mistakes are frequently made. Many people start business on sites that are obviously unsuitable for their ultimate

purpose; they provide equipment that will lose its value in a very short time, and from the beginning set limits to their own powers of expansion. The writer calls to mind two establishments built within recent years which are far in excess of the requirements of the next ten or fifteen years. Already both have been written down in value, not merely on account of the depression in the industries of which they form part, but also on account of the obvious unsuitability of the scale upon which they have been built.

FACTORS DETERMINING SCALE: AN ILLUSTRATION

It is impossible to make a specific statement, applicable to all types of industries, regarding the factors determining the most economical scale of enterprise. The factors which operate, and the relative importance of those factors, must be determined by the facts of the case. The important problem may be a purely technical problem—either physical, chemical, metallurgical or engineering—or an administrative problem. We may begin by considering a specific case. A steel manufacturing plant consists of a number of furnaces together with a rolling mill. The iron is mixed with steel scrap in the furnaces, and the molten product is run out into a ladle and from the ladle into ingot moulds. The ingots are then placed in soaking pits, where they retain a great part of their heat until they are required for rolling. After being reheated they are rolled down into blooms, slabs, billets or bars, which are known as semi-manufactured steel. If we consider that case alone, it is obvious that plants which did not contain sufficient furnaces to keep the mill fully employed would be maintaining unused capacity and thereby producing steel at a higher cost than plants in which a proper balance had been struck. Again, an examination of the statistics published by the National Federation of Iron and Steel Manufacturers shows that the size of the average steel furnace is steadily increasing; for this reason working costs are steadily being reduced.

INTEGRATION OF PROCESSES

In the average steel plant the iron is received cold at the furnaces, but in the most modern plants the blast furnaces and the steel works are built side by side, and the iron is conveyed from the blast furnaces and poured into the steel furnaces while still in a molten state. Further, a coke oven plant is built near the others. Not only is the coke used with limestone to burn the ironstone in the blast furnace, but the gas which is given off, together with the gas given off by the blast furnace itself, is used to drive all the necessary machinery and also to heat the steel furnaces. It will immediately be evident that by bringing these stages of manufacture together a firm is able to conserve heat and to secure important metallurgical economies which would not otherwise be available. Further, there is a marked tendency for the blast furnaces to increase in size and for the business to control a greater number of blast furnaces in juxtaposition, thereby securing economies of a different order.

Again, considerable labour economies are effected if the finishing sections of the steel industry are built near the steel works, and make possible what is known as continuous rolling. Financial economies of the first order of magnitude can be effected by standardizing the production of the rolling section.

SPECIAL CASES

It is clear from what has been stated that a new-comer into the industry cannot hope to be successful by merely copying the methods of thirty years ago. He must be prepared to undertake that scale which will make it possible to adopt those methods of production which experience has shown to be most economical; in other words, in the absence of any reason to the contrary he must be prepared to build the German or American type of plant, that is, one in which the successive stages of production are brought together to form one industrial unit. There may, of course, be special reasons to the contrary. The new-comer may decide to concentrate upon the production of a special quality of steel for which the method already described is unsuitable. When the British industry is compared with the German and American industries it should not be forgotten that, whereas the last two are mainly concerned with the production of steel of ordinary grade, many, if not most, of the plants in Great Britain are devoted to the supply of special grades of iron or of steel.

The most recent British plant erected for the production of standard steel is of the type already indicated. But even in such a case there remains another problem to be solved, namely, that of determining the most economical size of the new type of production unit. It is necessary, first, to secure a balance between the different stages, and, secondly, to compare the relative merits of "balanced" units of different sizes. The latter must still be regarded as an unsolved problem. The most modern British unit is still smaller than that unit which is regarded both in Germany and in America as necessary to secure the maximum production economies.

FINDING CAPITAL

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VIII

DEBENTURES—(*continued*)

INCLUDED among the conditions referred to in paragraphs 1 and 4 as endorsed on the debenture are two very important ones. The first is to the effect that the loan secured by the debenture becomes immediately payable on the following contingencies—

1. If the company is two months behindhand in paying the interest on the debenture.
2. If an order is made by the Court, or if the company by an effective resolution decides to wind up the company.
3. If a distress or execution is enforced against any of the property of the company and not paid within seven days.
4. If a receiver of the company is appointed.
5. If the company stops payment or ceases or threatens to cease to carry on its business.

The second conditon empowers the debenture holder, at any time after the loan has become payable as above, to appoint a " Receiver " of the undertaking, property and assets of the company. This official is authorized to take possession of all the property and assets, to realize them, and to repay the loan to the debenture holder.

THE FLOATING CHARGE

The essence of the modern debenture is the floating charge described in paragraph 3 of the example. It gives the debenture holder the security not only of the whole assets of the company in its possession at the date of the debenture, but of all the assets thereafter coming into its possession from day to day and from year to year until the loan is repaid. When a debenture is issued, the company receiving the loan is at liberty to deal with its assets as it pleases in the ordinary course of business, but if it should fail to pay the interest on the loan, if it should get into difficulties, or even appear to be in difficulties, the debenture holder may obtain the appointment of a receiver, and instantly take possession of all the existing assets of the company to the exclusion of the ordinary creditors of the company. The courts have likened the debenture holder to a hawk, and at times the comparison is an apt one. He hovers over the company. If he considers that his security is in danger and the assets in jeopardy, he can swoop down and seize everything.

The conception of a floating charge is alien to the law of Scotland and of the Continental countries. It certainly seems extraordinary that a company, by a single document, can pledge its future assets. The person unlearned in the law is familiar with the usual method of obtaining a loan against property by handing the property to, say, a pawnbroker. By a legal fiction, the completing of a debenture operates as if the whole property, present and future, of the borrowing company were put into the custody of the lender. The procedure in England is so easy. The directors pass a resolution authorizing the issue of the debenture, the company's solicitors prepare it—a simple task, for they can obtain a stock form from a stationer for a few pence—it is signed and sealed on behalf of the company, and registered at Somerset House.

Owing to the simplicity of the procedure and the overwhelming nature of the security, the limited company has, in the debenture with a floating charge, a means of attracting capital that is not available to a private individual or to a firm. With the exercise of ordinary precautions, the debenture holder need run no risk, and a loan secured by a debenture is usually regarded as a safe investment. Armed with its latest balance sheet, a statement of its position, and a proposal to issue a debenture, a company has rarely much difficulty in finding a lender on reasonable terms. If the lender does not wish to trust only to the floating charge, the debenture can be associated with a mortgage of specific assets, such as land, machinery, or plant. He is made doubly secure in this way, for after the registration of the mortgage the company must obtain the debenture holder's consent before it can raise further moneys by mortgage, and a second mortgage would naturally rank after the first mortgage held by the debenture holder.

THE BANK OVERDRAFT

The debenture is often used in connection with bank overdrafts. Expenditure must go before receipts, and when a company is doing well and expanding its business, it will often have to approach its bank for an overdraft on its current account. In granting an overdraft, a bank usually insists on the personal guarantee of the directors, to whom, in turn, the company issues debentures by way of indemnity. In many cases the debentures are registered directly in favour of the bank. Indeed, in the last few years of industrial depression, when so many companies have had to be reconstructed, it has become quite a common practice to persuade large creditors to postpone their claims by accepting debentures.

DEBENTURES AND CREDIT

In the case of financial companies and the like, the issue of debentures is a usual way of obtaining capital at a low rate of interest, but an issue by a

trading or manufacturing concern is often an indication that the company is in difficulties. This need not necessarily be so, but from the far-reaching nature of the instrument, finding capital by means of a debenture is in most cases resorted to when all other methods have failed. The registration of a debenture on a trading or manufacturing company has an immediate effect on its credit. The Registers at Somerset House are open to the public, and the trade papers keep a watchful eye on them in order to report the issue of all debentures that may affect their readers. The issue of a debenture does not in any way interfere with the company carrying on business as usual; but when a trade supplier knows that if the company's affairs go badly the debenture holder may seize everything until the loan secured by the debenture is repaid in full, he is naturally chary of extending much credit to the company.

THE ABUSE OF DEBENTURES

Largely because the debenture is the result of trade usage, and has been little controlled by law, it is, unfortunately, subject to abuse. It has been condemned, in its present form, again and again, by lawyers, bankers, and business men, but hundreds of millions of pounds have been invested under it, and, in view of its enormous popularity, nothing has been done to control it. It is almost an everyday occurrence, when it is seen that a company is getting into difficulties, for a favoured creditor—often a director—to be granted a debenture. The company will go on trading till the last moment until some exasperated creditor obtains a judgment against it. The debenture holder, so long as the debenture has been registered for three months, at once secures the appointment of a receiver and seizes the assets. The general body of creditors gets what is left after the debenture is paid off in full, and that in many cases has meant that they receive nothing.

DEBENTURE STOCK

When the position of a company is very strong —and this applies in particular to financial companies such as investment trusts, or to public undertakings such as railways—it is able, as we mentioned above, to obtain capital very cheaply by the issue of debentures. The period of such debentures is generally a long one; it may be fifty years or more. There are usually a large number of debenture holders, and the procedure we have outlined is, therefore, modified a little. The loan to the company takes the form of debenture stock, usually issued in multiples of £50 or £100, trustees on behalf of the debenture stockholders are appointed, the debenture is associated with a trust deed on the property of the company, and the stock is repayable to the trustees. These are modifications only; the principle remains the same

MARKETING

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VIII

FUTURES

THE legitimate uses of futures call for further explanation. In the cotton trade contracts for future delivery were common before their use for the purpose of hedging was appreciated. As first practised hedging does not appear to have been understood by those who adopted it to more than a limited extent; Professor J. G. Smith remarks that by them it was simply regarded as a device by which genuine cotton merchants could make use of the natural inclination of foolish speculators to buy for a rise in price, turning this into a form of protection, or insurance, for themselves against a decline in the value of their unsold stock of cotton. He adds that it was soon perceived that it was just as feasible to obtain protection against loss in transactions contemplating delivery in the future, to hedge by buying contracts for future delivery, as it was to protect oneself against a fall in prices by selling contracts as hedges. At the start both buyers and sellers would look upon these hedge contracts as primarily credit transactions. So soon as their protection was no longer required they would be terminated. The essence of hedging has been described as the making of two contracts at about the same time of an opposite though corresponding nature. A former president of the New York Cotton Exchange defined a hedge or future as the purchase or sale of contracts for one hundred or more bales of cotton for future delivery, made not for the purpose of receiving or delivering actual cotton, but as an insurance against fluctuations in the market, which might unfavourably affect other ventures in which the buyer or seller is actually engaged. One is a genuine trade contract with a view to obtaining the ordinary trade profit of a dealer; the other is an insurance or protective contract for the purpose of counteracting speculative loss (and profit) on the first transaction.

COUNTRY ELEVATORS

Farmers in the United States deliver their wheat to country elevators, of which there are independent, farmers', and line. The independent are single elevators owned by individuals at selected country points. The farmers' elevator company is usually an organization of farmers run on a co-operative basis. On the other hand, a line elevator company is a corporation with headquarters in Chicago, or other primary market for grain, owning and operating a large number of elevators which are situated along the railroad extending through several states. The farmer receives the price which prevails at the moment in the primary market, subject to deduction for freight and probable deterioration. By letter or telegraph lists of prices are sent each day from headquarters, and the changes conform to those which take place in the primary market. The companies which cover the farmers' elevators act on somewhat similar lines; but since they have not always seats on the exchanges, they have to employ commission men. The fact that they can obtain readier control of the available supplies of grain gives them an advantage over the line company. Since the profits of these undertakings depend on the aggregate amount of produce which they handle, their members give them a preference. Authorities on this phase of marketing point out that these statistics indicate a continual annual increase in the operations of the farmers' elevators, and there is apparently a marked decline in the line and also in the independent houses. Independent elevators proceed on management substantially similar to that of the farmers, apart from the principle of co-operative ownership which applies in the latter case. The independent elevators are regarded as a competitive force in sustaining prices, which gives them an advantage over the line elevators.

TYPES OF CONTRACT

When the sale is made to a terminal elevator company there are generally three types of contract in use, the first being the "to arrive" contract, the second the "on track" sale, and the third the "in store." In the case of the "to arrive" contract, the country elevator sells large lots with an undertaking to deliver within fifteen days; the wheat is then dispatched without delay to purchasers, and this arrangement removes the trouble of selling each railroad car lot on its arrival. In an "on track" sale, wheat is sent forward from the country elevator unsold. When it arrives in the primary markets it is sold in car lots, and the unloading is done under the supervision of State officials. In an "in store" sale, the wheat is not sold immediately on arrival in the primary market, but is stored in a terminal elevator company's store for the account of the country owner. Professor Smith points out that a line elevator company, having usually large capital and having always its own direct representative on the exchange, is not confronted with the same difficulties in financing its business as the farmers' elevator companies and the independent elevator, which have to employ commission men. Most of the wheat which reaches the primary market is sold to the large terminal elevator companies and to millers for local use; the latter is particularly true of Minneapolis, perhaps the largest milling centre in the world.

METHODS OF COUNTRY ELEVATORS

All country elevator companies hedge; the keeping of their purchases properly hedged is an essential condition of their receiving credit or advances from the commission men. What is true of the country elevator companies applies equally to the terminal elevator organizations. Millers who sell flour in advance also find it advantageous to hedge; if in August a miller enters into a contract to supply flour in January, he will require the wheat in November and December; and he, therefore, bases his price upon the August price for wheat to be delivered in November or December, and at once buys futures of the latter month. In this way he obtains the wheat at the time he wants it, and also at a price which secures to him his legitimate milling profits. In having to buy up large quantities of wheat and hold it for varying periods, the exporter's position is often similar to that of the terminal elevator companies. As regards the Canadian wheat trade, the chief regulation is supplied by the Dominion Government in terms of the Canada Grain Act of 1912. Canadian methods are similar to those of the United States. Canada had, however, the advantage of American experience in the guidance of much of its later development; many improvements were adopted in Canada from the very beginning, which even at this date are only in the realm of discussion in other countries. Although many of the country elevators in Canada still belong to ordinary commercial concerns, they are mainly owned and conducted by co-operative companies consisting of large farmers. From these country elevators the wheat passes on to the public or Eastern elevators after it is inspected and graded. It is then sent forward to terminal elevators, where it is again graded at both entrance and exit, passing afterwards to the exporter or miller. Under the Canada Grain Act, the Dominion Government may itself operate terminal grain elevators. Canadian prosperity depends to a large extent on the Western grain trade, yet it was only in 1884 that wheat was first exported from provinces other than Ontario. Generally speaking, tariff restriction has hindered trade in wheat between Canada and the United States; and Canadian wheat passed in bond to American ports, an arrangement which still obtains notwithstanding the absence of tariff restriction. The object is chiefly to maintain identity and Canadian grades.

PRINCIPLES OF HEDGING

American or Canadian exporters of wheat purchase largely in the primary market of the United States and in Winnipeg; they sell by means of brokers on the exchanges of the United Kingdom and the Continent. Over and above his own export business the American exporter, in a seaboard market, may act as the agent for an exporter in a primary market, or for Canadian exporters who have to use American ports; in some cases he may also act as the representative of a Liverpool or a continental importer, and for all these additional duties he receives payment in terms of an agreed commission. The Liverpool Corn Trade Association, Ltd., now provides the only market for futures in wheat in Europe. Under its form of contract a fairly large number of grades or types may be tendered, an arrangement which is of distinct advantage to millers and others who use the Liverpool grain futures as hedges. The general principles underlying hedging in the Liverpool grain market are similar to those which have already been discussed in connection with hedging operations in other grain markets and also in the cotton markets, so that, as has been seen, hedging is universal in the cotton and wheat trades. It has been remarked that merchants rarely or never take up an uncovered position, and "not to hedge is to be a speculator or a gambler of a reckless kind." Professor Smith has summarized the case for the system in the following way: In brief, the case for dealing in futures rests on the contention that it facilitates the banks in financing the movement of produce; it increases the security for loans, and also the liquidity of the security, since there is always a market for futures; and, moreover, it permits those engaged in crop movement to work with considerably less capital than they would otherwise require. In the second place, it is advantageous to these interests in another way, for it enables them to insure against the risk of price fluctuations, and thus to trade on a smaller margin of profit. And finally, it is advantageous to the producer because it frees him from the risk of price fluctuations to which otherwise he would be exposed; it secures him more competition for his produce, in that way reducing his marketing costs; and as a consequence wheat and cotton are marketed at less cost to the farmer than the other farm products which are not the subject of dealings in futures.

VALUE AND DISTRIBUTION

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VIII

55. EXAMPLES of commodities of which the supply is fixed are books, prints, postage stamps and so forth, of which there has been a definitely limited issue. The demand for these by collectors varies from time to time; with every change in the demand the value (as represented by the price) will vary in response. Such variations in demand are quite irrational, and the variations in price not less so—fashion, caprice, and so forth play a large part in both. The "Seven Pillars of Wisdom," which was published, I believe, at £30, is selling in the open market at a price of £500 or thereabouts. Why? No reason can be given—save that, under conditions of limited supply, competition has forced up the price to this level. These conditions of limited supply are, of course, all-important. An unexpected discovery of a hundred copies of Shakespeare's first folio in the basement of some forgotten warehouse would have surprising effects upon the market for this particular volume.

56. A more important example of commodities of which the supply is definitely fixed is the shares of limited companies. Every business man has experience of the fluctuations which occur in the demand for these—fluctuations which are susceptible to the slightest rumour, whether well founded or no. I turn to the financial columns of to-day's paper, and I learn that the prices of certain classes of industrial shares (the supply of which is fixed) have recently fluctuated within wide limits. This is because there have been sudden and considerable changes in the *demand* for them. The demand, in such cases, depends, of course, upon the expectation of the return which the investor will receive upon the capital invested. And the share market is an exceedingly sensitive one. Every factor which *may* affect the future prosperity of a concern is taken into account, by those who are buying and selling the right to participate in that prosperity, the moment its possibilities are realized. Thus among shares which have rapidly appreciated in value during recent weeks have been those of wireless and cable companies. This is because negotiations have been going forward for a working agreement between them which, if consummated, will put an end to the competition now existing and increase the profit-earning capacity of both. Again, the shares of companies producing gramophones and gramophone records have greatly appreciated in value. This is a consequence of a greatly-increased demand for their products, fortified by an expectation of new developments (such as the wholesale distribution of cheap records in connection with advertising schemes) which will result in its yet greater extension. Every such anticipation of an increase in the demand for the product is reflected in an increase in the demand for shares. And yet again—to take one more example—the shares of concerns manufacturing road-transport vehicles have risen appreciably. This is due to a more or less intelligent anticipation of the results of legislation now under consideration by Parliament, which will give to railway companies the power, at present denied to them, to carry goods by road. The Bill providing the necessary facilities was carried on its second reading by a large majority, and the price-quotations of shares affected, reacting as a sensitive barometer reacts to a sudden change in the weather, immediately leaped forward. If in the end the Bill were rejected or drastically amended, there would be a not less spectacular set-back. If, on the other hand, the Bill (as is probable) is carried, speculation will become certainty and the shares of the companies concerned—provided their profits have not already been overestimated—will once again advance in price.

Similarly, examples can be found of a falling-off in the market value of shares, which reflects a falling-off in the demand for them as expectations of their profitability diminish. Thus, the shares of rubber companies have "slumped" recently on the announcement that an inquiry is being conducted by the Government into the advisability of continuing the restriction of rubber output which has been for some years in force. The removal of restriction would mean a fall in the price of rubber and intensified competition, and would create uncertainty as to the future of producing concerns. They might, under such conditions, do better, but many, almost certainly, would fail to do so well. Hence every fresh announcement of the Government's intentions—every rumour of a forthcoming announcement, even—immediately reacts upon the demand for rubber shares and, in the result, upon their price.

It should be added that, though the number of shares in a joint-stock company can, for the purpose of this discussion, be regarded as definitely fixed, conditions in actual practice are less simple than the argument implies. The number of such shares of which the holders are actually willing to dispose will vary from day to day, and every change in the situation will affect not only the demand for them but also the supply—it will react, in other words, upon the volume of shares "on offer." This, for the moment, we can regard as a secondary consideration. But we must not lose sight of the fact that demand and supply are, nearly always, *inter-acting* forces, and later on we shall need to go to some trouble to satisfy ourselves that this is so.

CONDITIONS OF FIXED DEMAND AND OF FLUCTUATING SUPPLY

We will now return to the restatement of our Law of Supply and Demand.

In Section VII there were set out two ways in which the " law " can be expressed, on the assumption, which we have been discussing, that the conditions of supply are fixed. Similarly, assuming conditions of fixed demand, we can give expression to it in two further ways, as follows—

3. *The demand for a given commodity in a given market being fixed, an increase in the supply of it will result in a decrease in its value.*

4. *The demand for a given commodity in a given market being fixed, a decrease in the supply of it will result in an increase in its value.*

These and the two previous expressions, taken together, complete our proposed restatement.

It is more difficult to find, in real life, examples of a demand which is definitely fixed than it is to find examples of fixed supply. The reason for this is obvious—that the conditions of supply depend, in the end, upon *physical* considerations, while those of demand are ultimately determined by *attitudes of mind*. The one set of considerations clearly lend themselves to quantitative evaluation ; the other set, equally clearly, do not.

Nevertheless we can, without much difficulty, find examples which will serve our immediate purpose well enough. The demand for the necessaries of life, in such a community as ours, is relatively constant ; to use a technical term which we shall discuss later, it is highly *inelastic* ; it does not respond readily to price changes. One of the first necessaries of life is accommodation, and the total demand of the community for house-room, over quite considerable periods, can be ascertained with a fair degree of precision. This statement calls for qualification to this extent—that the *kind* of accommodation demanded varies with the standard of life recognized from time to time. If the total demand for house-room were analysed into its components—i.e. the demand for one-roomed tenements, for two-roomed tenements, for three-roomed tenements, and so on—it would be found that the elasticity of demand for each of them was much greater than is the elasticity of demand for accommodation as a whole. To this point we shall return. But it is a refinement of the argument which, for our present purposes, can be ignored.

Given, then, that the demand for accommodation is fixed, its price is at once to be dependent upon the circumstances of supply. Before the war, houses, as a consequence of the activities of the speculative builder, were relatively cheap ; competition forced down the price of them to the lowest point compatible with a reasonable profit to the producer—and very often to a point considerably lower Every addition to the supply, whether as a result of the speculative builder's activities or otherwise, tended to reduce the price of existing houses or to lower the rents payable by their tenants. During the war, building operations, owing to scarcity of labour and materials, were almost entirely suspended ; but the demand for house-room was little affected and its market price rose rapidly. The end of the war saw prices so much enhanced—as a consequence of the ever-increasing strain upon the available accommodation—as to create a social problem which it was very difficult to cope with. The rapidly-increasing cost of house-room imposed upon the incomes of wage-earners generally a greater strain than they could bear. The Government was therefore forced to come to their rescue ; it passed a Rent Restriction Act, artificially limiting the price of certain classes of existing accommodation (which was tantamount, obviously, to a forced levy upon landlords), and it provided subsidies in aid of house-building, which enabled the houses so subsidized to be sold or let more cheaply than would otherwise have been the case. But for these measures (as to the soundness of which, from the standpoint of economic policy, no opinion is expressed here) the shortage, during and since the war, in the supply of house-room relatively to the demand for it, would have shown itself in a very considerable rise in its price. As things are, that rise in price was transferred, partly to the shoulders of landlords as a class and partly to those of the community generally, by the expedients referred to.

THE PRICE OF SERVICES

Other examples of a demand which is, to all intents and purposes, fixed, are provided by certain *services*. Services, as we know, are not, in the ordinary sense of the term, goods ; but the value (and therefore the price) of them is determined in much the same way. The demand of the community as a whole for some kinds of services is very nearly constant. The establishment of the Army, for example, normally varies little from year to year ; similarly, the numbers of administrators, teachers, etc., required by the community, and of officials of different types, are relatively stable. The price which the community needs to pay for their services depends, therefore, upon the conditions of supply. If the pay of a soldier were adjusted at frequent intervals (as that of the industrial wage-earner is) his services could be obtained much more cheaply in time of bad trade than would be possible if trade were booming. In fact, such adjustments only take place at long intervals. But, since demand is fixed, the all-important factors are still those which govern supply, and which determine what is called the *supply price*. By this, as we shall see, we mean the price which is just high enough to attract into the market, in sufficient quantity, the commodity or service required.

CURRENCY AND BANKING

(*Continued from page 304*)

VIII

CONVERTIBLE AND INCONVERTIBLE NOTE ISSUES

In the previous section it has been indicated that under certain conditions a demand may arise for a paper circulation, because of advantages and economies which are thereby secured. Given a demand for such forms of currency, coupled with a supply of notes, the paper which is issued will command a definite value or power of purchase over goods and services in general. It has also been shown that notes which were issued were originally promises to pay coin on demand, and that character of convertibility has survived, although with important exceptions. It is necessary at this stage to consider in more detail what influence this convertibility, or lack of convertibility, has upon the value of paper money.

EFFECT ON VALUE OF COIN

There is, first, the influence exercised upon the existing coinage by a note issue which is either convertible or inconvertible. If the use of paper money merely replaced coins already in circulation, the demand for coins would be reduced to the extent to which notes were issued. On the other hand, some reserve against the notes issued would probably be kept. It is possible that some displacement of coin does occur, but the greater convenience of paper money under normal conditions may have the result that individuals keep a larger amount of currency, including both coin and notes, than they would otherwise do. In that case the displacement of coin by notes may be smaller than might be expected. What is important, however, is that whatever displacement of coin does occur as a result of a note issue tends to reduce the demand for coin, and so tends to lower its value. In consequence, the metal of which the coin is made may also be affected. Thus the tendency among Continental countries in recent years to replace silver token coinages by inferior metals and by paper has been one among several factors which have contributed to the rapid fall in the value of silver.

The same result obtains as regards coin into which the paper currency is convertible. The reduced demand for coin will lower its value and tend to raise prices, but unless this occurs on a large scale and in a number of countries together, the effect on the value of the metal is not likely to be great in practice. So far we have been concerned with paper note issues in general. Where a note issue is maintained under conditions of convertibility, the value of the note will still be held at the value of the coin which it represents, provided the coin which is obtainable can be melted down or freely exported. Thus a convertible paper issue only raises prices to the extent to which it reduces the demand for coin. The proviso which has been given above is of some importance. Although not generally known, British Treasury notes issued during the war were convertible into gold sovereigns at the Bank of England. An appearance of legal convertibility was, therefore, preserved. But the gold sovereigns obtained could neither be melted into bullion nor exported, so that in practice the currency note issue could be made under conditions which were virtually those of inconvertibility. An excessive issue of currency notes, therefore, could raise prices and depress the value of these notes below the value of the coin which they represented.

The extent to which coin will be displaced by notes will depend upon the denominations of the notes issued. The Bank of England, for example, from 1826 was not allowed to issue notes for amounts less than £5, and prior to 1906 the German Reichsbank could not issue notes below a denomination of 100 marks (£5). Under these conditions a circulation of actual gold coins was important, but in Sweden, where the National Bank could issue notes for as little as five crowns (about 5s. 6d.), the actual gold circulation was negligible. The minimum denominations, moreover, are generally fixed by the legislature even where the bank of issue is not a State bank. Since the war, however, the tendency has been to authorize note issues for small amounts, so that some permanent displacement of gold from circulation is likely to be effected. In this country, where the amalgamation of the Treasury note issue and the Bank of England issue is likely to occur before long, that will mean an alteration in the Act of 1826, to which reference has already been made.

CONVERTIBLE NOTE ISSUES

Provided full convertibility is maintained, the value of a note must equal the value of the coin which it promises to pay. If, through excessive supply, the value of a Bank of England £5 note fell below that of five sovereigns, notes would be taken to the Bank to be cashed, and this would continue until equivalence was again restored, or the issue was paid off, or the Bank had failed. The possibility in the case of inconvertible notes is greater. It is, of course, true that an inconvertible issue may be maintained at par value with the coin which it represents without any adverse effects, provided it is strictly limited in supply. Suppose, for example, that there is an issue of convertible paper, and that the Government suddenly intimates that the notes which have been issued are no longer convertible into coin on demand. If no

other change occurs, the value of the notes may remain unaffected. But inconvertible notes can be issued to excess, and so raise prices that the value of the unit of money is depressed below the metallic contents of the standard of value.

What form will this take? It might be suggested that under the conditions mentioned a paper pound would only pass for, say, 16s., i.e. the note would pass at a discount in relation to the gold sovereign; or, alternatively, the gold sovereign might pass at a premium, i.e. it might pass for 23s. in comparison with the paper pound which passed for only 20s. What is more probable is that the gold coins would disappear from circulation. It has been shown in Section V that the Mint price of gold in this country was fixed at £3 17s. 10½d. per standard ounce, and that that was equivalent to practically £4 5s. per fine ounce. If the market price of pure gold rose above this latter figure it would be profitable to melt gold sovereigns into bullion for sale as metal. Now, where there is a convertible paper issue and where also gold coin can be melted down or exported freely, a rise in prices will not affect the price of bullion, because any tendency for the price of bullion to exceed £4 5s. per fine ounce would be followed by a redemption of notes for sovereigns, and the coin obtained would be sold as bullion for the larger sum obtainable. The supply of money would thus be reduced and prices would tend to fall.

INCONVERTIBLE NOTE ISSUES

With inconvertible notes the position is different. An excessive issue of these will raise prices, *including* the price of bullion, and it is that fact which would tend to make gold sovereigns disappear from circulation. They could be sold as metal for a higher price than they would obtain as money, and legislation restricting the melting of coins or their export would hardly be effective in preventing the movement. It is probable, however, that the influence of excessive issues of inconvertible paper money will be disputed when they are first made. The rise in prices may be small in the first instance, and, since the excessive issue will probably have been made under abnormal conditions, such as those which prevail in wartime, attempts will be made to explain whatever price movement does occur by reference to factors on the side of commodities. These factors, however, will diminish in importance as the direct influence of the increased supply of money becomes more apparent. As the "inflation" proceeds and prices rise definitely and more rapidly, it frequently happens that a vicious circle is generated. Thus, when prices are found to have risen, it is said that still more money is required to enable people to transact business at the higher level of prices. But it is never explained why a fall in the value of a commodity should *require* that the supply of that commodity be further increased, and if this particular argument of the inflationists is true, "money" must be taken as obeying economic laws which are not applicable to other commodities. "Money," however, is no exception, but the confusion of the inflationist argument is such that its application may lead to the ultimate collapse of a currency system. The fall in the value of an inconvertible paper issue which is issued to excess becomes greater and more rapid as the process is repeated, and in the end, as has happened in history, there may be a public unwillingness to hold amounts in paper money which will depreciate during the short period in which it may be held. Such an unwillingness will be the forerunner of a general collapse of the monetary system.

Such collapses have been numerous. In France, outstanding examples occurred in 1720 and again during the Revolution with the issue of *assignats* which, in 1796, became quite worthless. Elsewhere in Europe and also in America during the Wars of Independence examples were to be found, and during the late war many of the Continental currencies became totally disorganized through the over-issue of inconvertible paper, and in Germany, Russia, and Austria in particular paper money became altogether worthless.

METALLIC RESERVES

The value of an inconvertible note issue thus comes to depend in large measure upon the restraint with which it is issued. Clearly there is no check to its issue apart from that exercised by the discretion of the government or bank which is responsible for the issue. This is true no matter how large a metallic reserve may exist against the inconvertible issue. In respect of such an issue a metallic reserve is of no moment, and it is a mistake to imagine that the value of a paper issue is somehow derived from the size of that metallic cover. To all purposes such a reserve is non-existent. Nevertheless as late as July, 1926, the Bank of France was authorized by an Act to purchase gold coin and bullion, and to increase its note issue for that purpose. Prior to 1819 the Bank of England did the same thing. But the increased supply of notes will tend to lower the value of each still further, while the new demand for gold will tend to raise the value of the metal still further. Thus, instead of bringing the value of the note and the value of gold closer together, the action which has been described tends to have the opposite effect of driving them still farther apart. The desired result would be obtained by adopting precisely the opposite method of selling whatever gold is held and purchasing notes which might then be destroyed.[1] The supply of notes would then be reduced and the value of each would rise. The effect of the sale of part or all of the gold reserve would probably be small, but its tendency would be to lower the value of gold bullion, and in any case the gap between the value of the note and the value of gold would be reduced.

[1] Cf. Cannan: *Money*, Fourth Edition, page 88.

INTERNATIONAL TRADE

(*Continued from page* 306)

VIII

THE CASE FOR PROTECTION

(*continued*)

In the previous section the political argument and the infant industry argument in favour of protection were examined. The case for protection may next be considered by reference to certain arguments which have been prominent in the post-war period. These are variants on the general theme that protection should be afforded to industries which experience "unfair" competition from abroad. Unfortunately, it is never indicated how precisely the term "unfair" is to be defined for this purpose. But it has been possible to point to special factors of temporary duration, which bore harshly upon certain domestic industries. One of these factors resulted from the depreciation of certain European currencies. But the problem here is complex and not easily resolved. A country enjoys an apparent advantage for its exporting industries not because its currency is *depreciated*, but because its currency is *depreciating*. The distinction is vital. The problem is discussed in more detail in the series on "Currency and Banking," but it may be referred to here in general terms. When a currency is falling in value, the external value of that currency (as reflected by the foreign exchanges) tends to fall more rapidly than its internal value (as reflected by the rise in prices within the country), and the rise in wages tends also to lag behind the rise in internal prices. It is this disparity which gives to the exporting industries of the country in question a special advantage over competitors in other countries with stable currencies. The exporter in the first country is able to secure a larger margin of profit and to undercut foreign competitors in a world market. But given a period of stability the disparity must tend to disappear. The temporary advantage, however, is frequently exaggerated. It is too often forgotten that a rate of exchange which makes exports cheap also makes imports dear; and if the exporting industry has to import its raw materials from abroad, the apparent gain through a depreciating currency is at least partially offset by the high price which has to be paid for imported raw materials.

SAFEGUARDING OF INDUSTRIES

This phenomenon of "exchange dumping" was the subject of frequent comment during the period of depreciating European currencies after the war, and under the Safeguarding of Industries Act a depreciating currency duty of 33⅓ per cent *ad valorem* was imposed on a group of articles imported from Germany. This group included fabric gloves, illuminated glassware, domestic hollow-ware of certain types, and incandescent mantles, etc. Under the same Act a number of "key" industry duties had already been imposed on certain articles imported from abroad, but not from the colonies. At this point it may be useful to summarize the financial yield of these duties to the Treasury, together with the yields of the McKenna duties first imposed during the war on imports of luxury goods, and the purely revenue or non-protective duties. The following table gives the *net* revenues obtained for the financial years from 1921–22 to 1926–27—

IN THOUSANDS £

	McKenna duties	Key industry duties	Depreciated currency duties	Revenue duties
1921–22	1,098	140	—	123,302
1922–23	2,428	336	231	120,067
1923–24	2,591	383	248	117,023
1924–25	111	451	26	99,532
1925–26	3,068	462	(*Dr*)–1	99,176
1926–27	9,096	506	—	97,705

It is apparent that as sources of revenue the first three groups represented only a small proportion of the total net income from customs duties on imports.

"UNFAIR" COMPETITION

For the present, however, we are concerned with the problem of adjusting the amount of duty to be imposed under a protective policy. This is important, especially in cases where a tariff is imposed to counteract some particular cause of "unfairness" in competition. We have already mentioned the "unfairness" of depreciating currencies. In other cases the "unfairness" is said to result from the employment of sweated labour in other countries. The test which would suggest itself is that of ascertaining how much it costs to produce the article in question, and how much it costs to produce the same article in other countries which enjoy an "unfair" advantage. When that is done a tariff might be imposed sufficient to neutralize the difference in costs.

But the practical application of this principle necessarily involves important difficulties. There is first the difficulty of ascertaining the cost of producing the article in question in some foreign country. The production costs of different producers will be different, and the selling price in each country would appear to constitute the sole available test. The other difficulty occurs if in different foreign countries there are different costs of production for the same article, and in that case the practical application of the principle would appear to involve different rates of duty on imports from the different countries from which

supplies are obtainable. Thirdly, every relative change in the production costs in any foreign country would involve a revision of the tariff against that country, and there is the practical point that a constantly changing scale of tariffs introduces additional difficulties into commercial operations. This third point would be applicable particularly in the case of the depreciated currency duties, already mentioned, if they had been imposed upon "scientific" principles. The "unfair" advantage enjoyed by German exporters was never constant, but was subject to continual fluctuation and the adoption of a 33⅓ per cent *ad valorem* duty appears to have been a somewhat arbitrary selection.

"SCIENTIFIC" TARIFFS

Experience, moreover, tends to confirm the view that protective duties are rarely if ever imposed upon "scientific" principles. They are rather the result of political bargaining. Politicians consider the effects of duties on the industries of their own constituencies; industries consider their own position in relation to the amount of protection afforded to other industries; and, finally, the trade of a country is governed by a heterogeneous selection of different tariffs, which are more harmful in their operation than a single uniform tariff applied to all imports. In 1875 Dr. Marshall visited the United States "to study the problems of national industry and international trade from the American point of view . . . and prepared to learn . . . that the American system . . . might contain ideas capable of adaptation to English conditions." In 1903 he wrote:[1] "I came back convinced that a protective policy, in fact, was a very different thing from a protective policy as painted by sanguine economists, such as Carey and his followers, who assumed that all people would be as upright as they knew themselves to be and as clear-sighted as they believed themselves to be. I found that however simple the plan on which a protective policy started, it was drawn on irresistibly to become intricate, and to lend its chief aid to those industries which were already strong enough to do without it. In becoming intricate it became corrupt, and tended to corrupt general politics. On the whole, I thought that this moral harm far outweighed any small net benefit which it might be capable of conferring on American industry in the stage in which it then was."

PROTECTION AND EMPLOYMENT

Finally, we may observe the influence of protection on employment, and particularly in relation to the industries of the United Kingdom. It has frequently been suggested that a protective policy would materially reduce the volume of unemployment in this country, presumably since the protected industries would experience some expansion in the course of which more persons would be employed. Two simple considerations in that connection may be suggested. Let it be granted that by restricting imports certain domestic industries will improve through the concentration of the demand for the protected goods into domestic channels. At the same time the restriction of imports is also a restriction of exports, and while the domestic industries may improve, those industries which have a large export trade will suffer. Is it probable, then, that what is lost on the swings will be more than made good by what is gained on the roundabouts? On that point the second consideration is relevant. It is difficult to draw any clear distinction between exporting and domestic industries, but in April, 1927, out of a total of 1,133,090 of unemployed insured persons, 517,251 were attached to coal-mining, shipbuilding, iron and steel, engineering, textiles, chemicals, and shipping, and another 116,828 to commerce, finance, canals, rivers and docks and miscellaneous metal trades. These various trades and industries are either mainly concerned with export trade or are largely connected with overseas trade, and it may be concluded that the industrial distribution of unemployment is concentrated in those trades which stand to gain only by an improvement in exports and to lose by a contraction in imports. Any improvement in the export trades, moreover, reacts favourably on the so-called purely domestic trades.

So far we have dealt merely with the general effect on exports of a contraction of imports. The particular reactions may, however, be considered in relation to the particular articles of import on which a protective duty is imposed. If the taxed articles are foodstuffs, and the price of foodstuffs is increased, real wages will tend to fall unless demands for wage increases are successfully secured. If these are secured, the position of wage-earners will be apparently unaffected, but the exporting industries will be confronted by higher labour costs, while they are still unable to control selling prices in the world market. If the taxed articles are raw materials and the prices of these are increased, the competing power of the export trades will also be impaired. And there is the technical problem in framing a tariff that no satisfactory definition of a "raw material" has yet been devised. What is the finished product of one trade becomes the "raw material" of a succeeding trade. Consequently, the suggestion that only manufactured articles should be taxed by way of import duties frequently fails to safeguard the position of exporting industries which are dependent on other countries for their supplies of "raw material."

[1] *Memorandum on Fiscal Policy of International Trade*, 1908 (H. of C., No. 321), § 44.

THE TRADE CYCLE

(*Continued from page* 308)

VIII

THE MONETARY THEORY OF THE TRADE CYCLE[1]

DURING recent years a number of economists have inclined to the opinion that the trade cycle is essentially a monetary problem. This does not necessarily imply that they consider non-monetary causes to be of negligible importance, but rather that, while recognizing the existence of non-monetary causes, they nevertheless believe the *dominant* cause of the trade cycle is a monetary cause, and, in any case, that appropriate monetary measures are capable of eliminating the trade cycle almost entirely. Professor Irving Fisher in the United States, and Mr. J. M. Keynes and Mr. R. G. Hawtrey in England, are among the leading economists holding some such view.

MONEY, PRICES AND TRADE

The monetary theory of the trade cycle in bare outline is (*a*) that fluctuations in the quantity (and/or velocity) of money (including bank credit), relative to the growth of trade, are primarily responsible for fluctuations in the general level of prices, and (*b*) that fluctuations in the general level of prices constitute a major factor in the fluctuations of trade activity.

We have here a chain of alleged causation—money affecting prices and prices affecting trade—which requires exceedingly careful examination.

TWO TYPES OF FLUCTUATION

In the first place we must distinguish between two types of fluctuations in the price level. There are short period (cyclical) fluctuations—the price level rising for some two or three years, and then falling for a year or so—and there are long period (secular) fluctuations—the general trend of the price level being upwards for some twenty, thirty, or more years, and then downwards for about the same space of time.

SECULAR FLUCTUATIONS

So far as the long period (secular) fluctuations are concerned the general contention of the monetary theorists would appear to be well-founded. Most economists would probably agree that fluctuations in the quantity (and velocity) of money relative to the volume of trade are responsible for the general trend of the price level. These long period movements, moreover, would appear to have a definite effect upon trade prosperity and trade depression—at least in England and the United States over the last 130 years.

Thus we have in both countries five periods of alternately declining and advancing price trends. From 1790 to 1814 wholesale prices rose unsteadily; from 1814 to 1849 wholesale prices declined unsteadily; from 1849 to 1865 in the United States and to 1873 in England wholesale prices rose unsteadily; from 1865 in the United States and 1873 in England prices declined unsteadily until 1896; from 1896 to 1920 they rose unsteadily. For the periods thus marked off . . . (the National Bureau of Economic Research) has obtained the following ratios of years of prosperity to years of depression—

Years of prosperity per year of depression			Years of prosperity per year of depression		
ENGLAND			UNITED STATES		
1790–1815	Prices rising	1·0	1790–1815	Prices rising	2·6
1815–1849	Prices falling	0·9	1815–1849	Prices falling	0·8
1849–1873	Prices rising	3·3	1849–1865	Prices rising	2·9
1873–1896	Prices falling	0·4	1865–1896	Prices falling	0·9
1896–1920	Prices rising	2·7	1896–1920	Prices rising	3·1

These results are so uniform and so striking as to leave little doubt that the secular trend of the wholesale price level is a factor of great moment in determining the characteristics of business cycles.[1]

CYCLICAL FLUCTUATIONS

So far as the short period (cyclical) fluctuations are concerned, however, the chain of causation would appear to be weak in both of its links.

To take the first of these links, it is exceedingly doubtful to what extent changes in the quantity (and velocity) of money relative to the volume of trade can be considered as responsible for the cyclical fluctuations of the price level. There is little question, it is true, that such extraordinarily violent changes in the quantity (and velocity) of money as occurred in Germany, Austria, and other countries during the post-war period were directly responsible for the accompanying violent fluctuations in the general level of prices. But such abnormal fluctuations are quite distinct from the usual type of cyclical fluctuations. In the "normal" trade cycle, changes in the quantity of money would not appear—at least, superficially—to be the dominant causal factor in the fluctuations of the price level. It is usually observed, for instance, that the quantity of money goes on increasing for some while *after* the price level has begun to decline. On the face of it, if changes in the quantity of money in circulation were primarily responsible for the downward turn in the general level of prices, it would seem logical to expect that the decrease in the quantity of money would occur some while *before* prices started to fall, not some time after.

[1] A working knowledge of the quantity theory of money is essential to an understanding of this section.

[1] *Business Annals*, Thorp and Mitchell, page 66.

THE INFLUENCE OF PRICES ON TRADE

The second link in the chain of argument is also weak so far as cyclical fluctuations are concerned. That there is a close connection between the rise and fall of the price level and the course of trade has been statistically demonstrated.[1] There can be little doubt, moreover, that the relation between fluctuations in the general level of prices and fluctuations in trade activity is a *causal* relation.

> . . . When the price level is rising, a business man finds his receipts rising as fast, on the average, as this general rise of prices, but not his expenses, because his expenses consist, to a large extent, of things which are contractually fixed, such as interest on bonds; or rent, which may be fixed for five, ten, or ninety-nine years; or salaries, which are often fixed for several years; or wages, which are fixed sometimes, either by contract or custom, for at least a number of months. For this and other reasons, the rise in expenses is slower than the rise in receipts when inflation is in progress and the price level is rising . . . The business man, therefore, finds that his profits increase. Employment is then stimulated--for a time at least.
>
> On the other hand, when prices are falling, expenses likewise lag behind and reduce profits, for exactly the same reason turned about. Consequently, during periods of falling prices profits are reduced, bankruptcies are increased, concerns shut down entirely or in part, and men are thrown out of work.[2]

While there is, in all probability, both a correlation and a causal relation between fluctuations in the price level and fluctuations in trade activity, it by no means follows that the cyclical fluctuation of the price level is the dominant cause of the trade cycle.

Let us apply the same critical test here as we applied to the theories previously considered. How is it that, in spite of the vicious spiral set up by progressively increasing unemployment, trade eventually revives? The monetary theory would not appear to afford any very convincing answer. Statistics show that trade usually revives some time *before* any considerable rise in the price level has taken place, so that it would hardly seem possible to consider that the movement of the price level is the dominant factor in the trade cycle—in any case during this particular phase.

[1] Cf. e.g. "Our Unstable Dollar and the So-called Business Cycle," Irving Fisher, *Journal of the American Statistical Association*, June, 1925, pages 179–202; but see also Wesley C. Mitchell, *Business Cycles: The Problem and its Setting*, pp. 128–139, 260–270.

[2] "A Statistical Relation between Unemployment and Price Changes," by Professor Irving Fisher, *International Labour Review*, Vol. XIII, No. 6, June, 1926, page 787.

IS THE MONETARY THEORY SATISFACTORY?

From this brief examination it would appear, therefore, that while the chain of causation traced out by the monetary theorists is probably valid as regards long period (secular) fluctuations in the price level and in trade activity, it can hardly be considered valid so far as the short period (cyclical) fluctuations are concerned, at least until further evidence has been adduced. In most trade cycles the quantity of money does not decrease until *after* the price level has started to fall; moreover, trade usually begins to revive *before* the price level has risen to any considerable extent. Superficially, in any case, it would seem more likely that, so far as the cyclical fluctuations in trade activity are concerned, instead of changes in the quantity (and velocity) of money affecting the price level and the price level in turn affecting trade, it is a fluctuation in trade activity (brought about by some other factor or factors) that is primarily responsible, the cyclical fluctuation in prices and the quantity of money being not so much causes as effects.

Nevertheless, although changes in the quantity (and velocity) of money relative to the volume of trade, and the fluctuations in the price level so caused, can hardly be regarded as dominant factors in the trade cycle, there is no doubt that they are factors of importance, materially affecting the length and severity of the various phases of the cycle. And although changes in the quantity (and velocity) of money may not be the dominant factor in the trade cycle it may still be possible that wise control of the quantity of money in circulation would go far towards eliminating the cyclical fluctuations in trade activity. Consideration of this latter question, however, must be deferred to a later stage when the proposed remedies of the trade cycle are discussed.

NOTE.—The most interesting books appearing on the monetary theory of the trade cycle are Professor Fisher's *Stabilizing the Dollar* and Mr. Keynes's *Monetary Reform*. Mr. Hawtrey's *Currency and Credit* is rather more difficult for the general reader to follow.

SURVEY OF INDUSTRIES

(*Continued from page* 311)

VIII

THE ELECTRICAL INDUSTRY

By HUGH QUIGLEY

Of the British Electrical and Allied Manufacturers' Association

ELECTRICAL manufacture, belonging as it does to the newer industries, has been subject to greater change within a short period of time than almost any other industry, while its rate of expansion, owing to the general introduction of electricity as a main motive force in industry, has only been paralleled by that of automobile construction and artificial silk production. Practically the same economic principle has been at work in the expansion of this industry as in artificial silk. In the one case, the predominance of direct mechanical drive based on steam propulsion appeared at one time to be a most powerful obstacle to the penetration of electricity into the economic system of the country, and in the early years there is no doubt that rapid expansion was hindered by this factor, which, combined with the natural inertia concerning any great innovation, sufficed to relegate the new industry to a position of very little significance. When, however, after a difficult struggle, lasting for many years, the industry was able to consolidate its position and assert its true economic justification, the very existence of an enormous market already controlled by mechanical power alone was sufficient to ensure a future of increased production, largely through conversion of industrial plants from mechanical to electrical power. The victory of the latter meant really the substitution of a new commodity of a better and more efficient type for the old commodity, which had already created a market and brought into existence a large volume of demand. Similarly, artificial silk has been steadily ousting other textiles, notably wool and cotton, from their position of supremacy and occupying their market, although the future of the industry will probably lie along the lines of co-operation rather than of direct attack and elimination of its competitors.

One important characteristic of the electrical industry lies in its dependence on close scientific calculation and on the results of research and mathematical knowledge. The main commodity at issue—namely, electricity—is entirely inorganic. It cannot be found, like coal or iron or oil or cotton, in Nature, and territorial advantages have played a less important part in the production of electricity as such than in other industries of importance. It is true, of course, that the greater part of the world's output of electricity is still derived from steam generating stations, where coal is almost wholly used, and that the proximity of large coal deposits would represent an influential factor in reducing working costs, but electricity can be generated from water-power even more cheaply, and the great water-power countries, such as Switzerland, Italy, France, Austria, Southern Germany, Spain, and Scandinavia, have practically no fuel deposits at all.

The electrical manufacturing industry, since it depends above all on the demand for generating plant and equipment, is not confined necessarily to special territories in the sense that iron and steel and coal mining are confined. It can be located close to the points of demand, and in this respect no country enjoys any overwhelming advantage. Against this reason, it can be stated that the existence of dense industrial zones each requiring power-driven machinery must make for greater production of electrical goods in certain countries, while financial resources and manufacturing enterprise also contribute towards the expansion of the industry.

Thus, at the present time, the principal electrical manufacturing countries are the United States, Great Britain and Germany, largely owing to the fact that they were already highly industrialized and that they have had sufficient capital resources to furnish the capital necessary for the adoption of new motive power. Their state of development is high compared with the rest of the world, but there is no guarantee that, many decades hence, for example, when the process of industrialization is already far advanced in many countries, the world production of electrical goods will be concentrated in Britain, Germany, and the United States. There may well be a widespread diffusion of manufacturing concerns, and this work of diffusion has already assumed remarkable proportions.

Before the war, for example, Germany and the United States accounted for over 70 per cent of the world production, with Britain a poor third, and the only other countries which could be considered at all in this connection were Switzerland and Austria. Now, however, France, Belgium, Holland, Sweden, Italy, Czecho-Slovakia, Spain, Hungary, Russia, Canada, Austria, and Japan, have manufacturing plants which are meeting an appreciable proportion of the home demand. It is true, of course, that a number of these undertakings are already controlled by manufacturers or power finance concerns located in the United States, Britain, and Germany, but their percentage of world production is rising steadily every year, and it is almost sufficient to meet the natural growth in the world demand. Thus, during the four years 1924-27 inclusive, the world market, as represented by the exports from the main

manufacturing countries, has increased only to the extent of 20 per cent, while there is no doubt that the production of electricity in the world as a whole has almost doubled.

It may be useful for the purposes of this survey to devote attention to four main sections—

1. Technical changes and characteristics of the industry.
2. Organization of production.
3. Exports.
4. The competitive position.

TECHNICAL CHANGES

It is impossible to go into any of these subjects in very close detail, since they touch on many questions of a universal economic interest, and one is forced, therefore, to outline developments with the minimum of explanation. From the technical point of view, the industry falls into four principal divisions, which are not mutually exclusive—

1. The provision of plant and equipment for the production of electricity.
2. Main transmission and distribution apparatus which transport, transform, and control current.
3. Consumers' apparatus used in industry as a whole.
4. Small apparatus and accessories required for lighting and domestic purposes.

The first two groups account for almost 60 per cent of the entire national output. Generating plant and equipment consists of steam or water-driven turbines attached to electric generators, with the supply of all the apparatus and equipment used in the modern generating station, including transformers, switchgear, meters, steam condensers, motors, pumps, and other turbine auxiliaries.

The whole tendency in the industry has been towards the large unit, both in power stations, the zones supplied from the power stations, and in the central administrative organization. At one time, a turbo-alternator of 10,000 kw. operating at 3,000 r.p.m. was regarded as about the limit of development, but now we are designing turbo-alternators of 30,000 kw. capable of revolving at high speeds, and there appears to be no limit to the actual capacity of the generating set. In America, for example, the Southern California Edison Company has already installed one unit of 125,000 h.p. and proposes to complete the equipment of a super-power station rated at 1,000,000 h.p. with eight such units. An order for 200,000 kw. has also been placed by an American supply undertaking. While, in Britain, owing to economic conditions, such enormous units have not hitherto been possible, and the largest single unit produced in 1927 was one of 45,000 kw., the manufacturers are quite prepared to supply units of the very highest known capacities, once the demand for them is developed.

In addition to this, the growth of the super-power zone and the pooling of power production over whole counties, and ultimately over whole countries, have tended to displace the point of importance away from the generation to the transmission and distribution of electricity. The sections of the industry manufacturing transformers and switchgear are, therefore, almost certain to be much more important in the future than now. In transformers, orders in connection with the national power scheme, for example for three-phase units of 75,000 k.v.a., weighing 120 tons each, have already been placed, and there is no reason why even these enormous capacities should not be exceeded, both for home and export business.

To facilitate the development of such large power zones, many of them extending over 20,000 sq. miles and above, it has been found necessary to introduce the highest possible pressure into transmission, so that a greater power capacity can be transmitted economically over long distances—in certain cases, 700 miles in length. At one time, such transmission was carried out by underground cables operating at pressures of a maximum of 6,600 volts, but now cables have been designed for 100,000 volts, while transmission and overhead lines operating at 132,000 volts, 220,000 volts, and, in some areas, 380,000 volts, have been widely adopted. Such changes have constituted a factor making for the construction and utilization of the largest possible units in the generation, transmission, and distribution of electricity. The problems to be met, especially in insulation, have been exceedingly difficult, but they have not proved insuperable, and we may in time be confronted with the necessity of supplying plant dealing with transmission pressures for 500,000 volts.

The development of such enormous projects has necessitated considerable expansion in the manufacturing capacity and financial resources of the manufacturing firm. When a contract amounts to well over a million pounds, for example, and requires to be financed for three years or so, only the largest possible firm with strong cash resources and an assured credit position can deal with it. The time is past for the small specialist firm to maintain its position, both in home and foreign competition, when large schemes are under consideration. Technical requirements have undoubtedly forced on the formation of large manufacturing amalgamations or combines, capable of dealing with conditions which were inconceivable even a decade ago. There is no doubt that, as time goes on, there will be a marked tendency for such combines to become international in operation, with close connections established with foreign combines which otherwise would be in competition with them. The losses to be incurred in connection with very large contracts which are certain to materialize in the future, through quotation of prices below costs, are so great that no electrical

manufacturer would attempt to meet international competition on his own resources and defeat it merely on price. Greater importance will be attached to quality production in the future than in the past, owing to the very great strains to which generating plant and transmission and distribution equipment will be subjected.

ORGANIZATION OF PRODUCTION

Those circumstances explain in great measure why the large manufacturing unit is already fairly well established in the industry. In electrical engineering proper, four firms, with a total labour force of over 45,000 and an annual turnover which fluctuates between £25,000,000 and £29,000,000, and, in cable manufacture, five firms, with a labour force in excess of 40,000 and with a turnover of much the same value as that of the four engineering firms, are responsible for almost 75 per cent of the national production. The remaining 25 per cent is spread over a number of firms, about 200 in all, which are largely specialist in type. Thus, the four main producers in electrical engineering manufacture practically every product with the exception of cables, but they are flanked by certain firms which specialize in generating plant only, by other firms which manufacture switchgear and have secured a world-wide reputation in this particular product, by transformer and meter manufacturing companies, by meter and instrument companies, while the small industrial motor has generally been supplied by purely specialist enterprises.

These firms are generally very highly efficient and occupy a strong competitive position, so that the accusation of inefficiency owing to small size can scarcely be applied to them. Their position has been established on a quality rather than on a mass production basis. It is true, of course, that technical changes will tend more and more to encourage the formation of the large manufacturing unit, capable of carrying out a complete contract in all its details, and the movement towards amalgamation in industry has already assumed considerable proportions. In cable manufacture, where horizontal combination is possible, the industry is being rapidly consolidated into one or perhaps two main combinations which will cover the home and foreign markets. In engineering, however, the position is much more complicated, since a horizontal combine cannot be adopted easily and made wholly efficient, but there is no doubt that, in time, closer co-operation between manufacturers will also take place.

From this point of view, the industry is one of the most progressive in Britain. It has grown up in an atmosphere of the most intensive competition, with no advantages of any kind, and it has been forced to adopt very early the most modern and most effective methods of production. The great British manufacturing organizations can bear comparison easily with American or German organizations of a much greater size.

The total output of the electrical industry alone is given, in the 1924 *Census of Production*, as almost exactly £70,000,000, but to this should be added a number of products which are manufactured principally by electrical and allied firms, namely, steam turbines, condensers, pumps, and other auxiliaries, scientific instruments, coal-cutting machinery, as well as a small section of the gas and oil engine industry—so that the real output of the electrical manufacturing group, according to the Census of 1924, was actually in excess of £80,000,000. The number of employees, as established in the same Census, was 156,508, 20 per cent of which was female, but, here again, must be added a proportion to cover allied products, with the result that the total personnel of the industry may be given as 180,000. Of this, manual labour accounts for 76 per cent and staff labour for 24 per cent.

The average wage paid for the whole manufacturing group lies in the vicinity of 14·5d. per hour. The standard wage per week for the skilled employee is £2 18s. 6d., but, owing to the fact that the greater part of production in the industry is carried out on a piece-work basis, where the skilled worker earns as a minimum £3 17s. per week, the effective average, inclusive of unskilled workers, women, and apprentices, is almost exactly equal to that of the standard wage paid to the skilled employee. In cable and lamp manufacture alone, owing to the greater use of machinery and necessity for producing a large number of small articles on a purely mass production basis, the average wage paid is slightly less, and may be given as a little under 1s. per hour, while in the heavier sections the average lies in the vicinity of 1s. 4d. to 1s. 5d. per hour.

It belongs, therefore, to the small group of industries in Britain, in which the employee secures a fairly high standard of remuneration, and, in addition to this, the activity of the industry has been so well maintained since 1922 that almost complete security of employment has obtained. Since 1924, it has added 15 per cent to its number of employees, and shows an annual increase of about 6 per cent. Unemployment has fluctuated round about 4·5 per cent of all insured workers, largely owing to the fact that a considerable body of labour is required in connection with local erection work or other schemes of a temporary nature. Labour turnover is remarkably small, and conditions have been almost entirely stable in the industry since 1922.

Some part of this success must be attributed to the main central organizations representing and governing the industry. The manufacturers have already developed large productive units of a high standard of efficiency; a strong technical and scientific staff has been created, capable of dealing

with the most advanced developments in the industry, while labour, through security of tenure, has evolved into a highly trained and, on the whole, efficient force, which, in itself, has led to considerable economies in workshop practice and in overhead expenditure.

In addition to these factors, however, the manufacturers themselves, through the two main organizations, the British Electrical and Allied Manufacturers' Association and the Cable Makers' Association, have been able to realize a high standard of co-operation, have introduced intensive standardization throughout the industry, have solved many competitive difficulties in common, have financed co-operative research both of an economic and technical nature, co-operative publicity, and have developed, through their educational schemes, close connections with the Dominions and other countries. As a result of this, cut-throat competition of the most uneconomic nature has been eliminated, the industry has presented a fairly solid front to foreign competition, and has exerted its influence as a whole in many directions, both political and industrial, with very great effect.

In this way, it has been able to secure a margin of profit sufficient to allow it to keep abreast of the most modern technique in the machinery for production and finance modernization and reorganization wherever necessary. It has been able also, as a result of this, to carry the cost of intensive selling and distributing organizations in the main firms, and to develop, with a considerable measure of success, export trade; so much so that, during the three years, 1925, 1926, 1927, Britain was the leading exporting country of the world in electrical manufactures.

THE EXPORT POSITION

Largely owing to improved organization, the electrical industry has developed a very strong export position. This must be regarded as a purely post-war development, and a direct consequence of the decline in German production caused by the economic disturbances of the war and of the inflation periods. In the pre-war years Germany had almost a monopoly of the world's export trade outside of the British Empire, and it exported a very high value of production to Great Britain, with the result that the British manufacturers were unable to compete either at home or abroad. The industry was working almost always at a loss and was unable to secure a reasonable return on its capital, owing to the fact that the level of prices obtaining in Britain was actually beneath its production costs. Its goodwill was overshadowed by that of Germany, and it had still to make a world reputation in its main products.

The war period and the inflation years up to 1923 gave the British manufacturers time to carry out an extensive work of reorganization, to secure a hold on many important markets, to develop their technique so that the British product could secure a reputation for high efficiency and economic operation. By the end of 1923, the industry had reached a very high standard of progress, with an international reputation for quality. Its output was large enough to allow it to cut down its production costs per unit and so remain on a sound competitive basis, while its goodwill as an industry had improved very considerably and was definitely higher than that of the German or even American industry.

Examination of export statistics suffices to illustrate the improvement which has taken place in the economic position of the industry. In 1913, Germany, with exports valued at £15,888,000, was responsible for 48·5 per cent of the total exports from the five main countries—Britain, Germany, the United States, France, and Switzerland—who were responsible for over 80 per cent of the world's exports. Britain's percentage stood at 23·4, the total value of her exports being £7,676,000. In 1923 British exports had risen to £14,346,000, while German exports had fallen to £14,204,000, and America had jumped into first place with a total of £15,500,000, which was 108 per cent above its 1913 total. In that year the British percentage stood at 28·9, the German at 28·7, and the American at 31·3. In 1924 the upward movement in American exports continued, its new total being £16,500,000, and its percentage 30·9, but Britain showed an even greater improvement at £16,229,000, equivalent to 30·4 per cent, while Germany remained practically stationary in actual value, with a decline in percentage to 26·7.

Since 1925, however, the rate of increase has been less marked in the case of Britain and the United States, while Germany has moved towards what may be considered a more normal competitive position. Thus, in 1927, the British total was equivalent to £18,800,000, the American total was £17,800,000, while the German stood at £18,475,000. At that time the British percentage was 31·2 and the German percentage slightly less than 31, while America had lost ground. Even so, British exports in 1927 were 146 per cent above those of 1913, and this increase must be regarded as a net increase without reduction, since technical changes in the industry have been such that a much higher value per tonnage of machinery and apparatus is now secured than in 1913, with the result that the price per physical unit, either horse power or kilovolt ampere, is now much the same as it was in 1913. It is impossible to apply wholesale price indices or changes in price per ton to these statistics in the attempt to reduce them to 1913 values.

In electrical machinery alone, which includes motors, generators, transformers, switchgear, rotary converters, the greatest advance has been recorded. In 1913, exports accounted for

£2,310,000, but in 1923 they had risen to £3,951,000, in 1924 to £5,263,000, in 1925 to £5,672,000, in 1926 to £5,817,000, and in 1927 to £6,711,000—an increase over 1913 of 192 per cent. In wires and cables, the improvement has been distinctly less, the 1913 total being £3,940,000 and the 1927 total £7,211,000—an increase of 83 per cent. Some explanation for this discrepancy may be found in the increasing importance attached to overhead transmission, where, in certain cases, bare copper wire without any insulation is employed, and in the higher transmission pressures adopted which require a smaller weight of copper per mile, and, to a much less degree, the increasing competition from countries like Belgium, France, Holland, and Germany. At one time, the British cable manufacturers had almost a monopoly of the world market, but this position could not be expected to continue when greater experience of production and operating efficiency became available to the Continental manufacturers. To this should be added also the point that the United States, which still constitute one of the main markets for cables, has been meeting its own requirements more and more completely from home production.

One factor also of considerable importance has been the rapid improvement in the home market for cables, which has made it less necessary to export to maintain a high volume of production. There is no particular advantage for any firm in developing a strong export position with a very low margin of prices, if its requirements are met by an increasing demand of a more remunerative type.

In other directions progress has been very great, notably in batteries and accumulators, lamps, and in instruments generally, but in meters progress has not been remarkable, largely owing to the fact that the British manufacturer is not in a position to employ female labour on the same wages conditions as his Continental competitor. He must pay wages several times greater than those ruling in Belgium, for example, or even in Germany, and in the manufacture of lamps and instruments almost the entire cost goes into labour, the materials accounting for singularly little. It is doubtful, therefore, whether under existing labour conditions any real expansion in this direction can be expected in the future.

In heavy engineering products, there is no doubt that the British electrical manufacturer occupies an exceedingly strong position, owing to the fact that, in these products, quality and efficiency have a well-defined market value, and it has been on a quality basis that export trade has been developed. In this lies the explanation for the very high percentage of the home market which is supplied by the plant and machinery manufacturers. As a general average, imports of all electrical products represent about 10 per cent of home consumption, but in generating plant the actual average since the conclusion of the war has been in the vicinity of 7 per cent, and in control and switchgear and in transformers less than 2 per cent, while in motors, rotary converters and other machinery items the average lies in the vicinity of 5 per cent. The highest percentage of imports is to be found in small apparatus, like meters, instruments, small motors, domestic apparatus, wireless material, and small cables.

The annual balance of trade in favour of the industry is now in excess of £13,000,000, so that its contribution to the favourable national balance of trade is already quite considerable. The Dominions, notably Australia, India, South Africa, New Zealand, and Canada, to place them in order of importance, with other British possessions, now account for almost 60 per cent of the total shipments, and in a number of countries, notably Japan, China, Argentina, Brazil, Peru, Chile, Spain, and certain countries in Central Europe, the British manufacturer has been able to improve his position and secure a higher volume of the total trade available.

This expansion has been rendered possible through the exact consideration of market requirements, through the development of high quality rather than mass production, and through the judicious employment of financial resources. In a considerable number of markets, notably in Europe and South America, electrical development has generally been retarded through lack of financial resources, and to develop the potential demand extensive power finance operations have been undertaken whereby the manufacturers, through a special company or special organization, advance the capital to the consumers and finance the contracts granted to them over a period which amounts in certain cases to five years.

Prior to the war, Germany had developed this form of trade penetration and depended for a high percentage of its total exports on its financial connections, but the war, inflation, and stabilization periods paralysed German financial effort and allowed the British and American manufacturers to develop a policy of financial penetration practically unchecked. Such penetration has undoubtedly been beneficial in accelerating the industrialization of many markets.

THE COMPETITIVE SITUATION

Although, in electrical manufacture, competition has always been excessively keen and threatens to become keener through the struggle of the three main exporting countries, Great Britain, the United States, and Germany, to rise to first place among the world's suppliers, the possibility of a rapid improvement in world demand through stabilization of financial and trading conditions may result in a much more satisfactory disposal of output generally. The battle for electricity has undoubtedly been won, and progress in the future

depends on the speed with which conversion to electric drive takes place in industry, on the rapid industrialization of countries which have already entered on a first period of expansion, and on the opening up of new territory which may be rendered capable of greater economic activity.

The problem confronting the electrical industry is the problem confronting almost every basic industry, namely, that of increased production and increased demand, but, in its case it should be possible to accelerate developments through the action of the electrical manufacturers themselves. In the United States, Germany, Belgium, Austria, Sweden, and, to some extent, Great Britain, the manufacturing capacity of the industry is considerably in excess of the demand for its products, and, with few exceptions, large volume production has not been carried out extensively. With the improved demand which may result from more stable trade conditions, a closer adjustment of manufacturing capacity to consumption may be possible, and this adjustment will be a factor making for reduced costs.

In Great Britain, the development of the national power scheme represents one very important move towards stimulating and creating a demand for electrical equipment, and when the scheme is in full operation, within three or four years, the manufacturer should be in a position to produce in very large volume indeed, to reduce his overhead expenditure per unit of output, and thus develop a much stronger competitive position. When this occurs, less importance will probably be placed on exports as such, since the function of exports is primarily to maintain a constant load on the manufacturing plant, with no real margin of profit. If the home market, in itself, is large enough to maintain a constant pressure on manufacturing equipment, exports will probably become less important. There are indications even now of a considerable expansion in the home market, while foreign competition is steadily losing its grip, so that there may be actually a real decline in exports and export shipments. This decline may be only of a temporary nature, prior to a rapid expansion, but the manufacturer has certainly less incentive to penetrate into unprofitable markets, very often at considerable loss to himself.

There are indications that, for a number of years at least, the prices of electrical machinery and apparatus will not be lower than they are at the moment, either for home or export work, but, with the expansion in the home market which is confidently predicted, there will be at the end of that period a very real reduction. Such a reduction should lead, in turn, to increased trade and to higher margins of profitable activity. The electrical industry is fortunate in the sense that it is still capable of very great expansion before the question of saturation may be considered. It is not like iron and steel, where the greater part of the output depends on renewals. It has still a wide territory to cover and a wide demand to develop, both at home and abroad, before the question of renewals comes into consideration at all.

In addition to this, the technical advance of the industry has become so rapid that obsolescence may play an important part in increasing demand. It may pay the consumer to install new plant and equipment even within a short period after finding his requirements in the market, simply because the economies to be effected by the new type will be sufficient to justify displacement of the old. No one can decide what a real rate of depreciation is, especially in generating plant, and it is to the interest of the electrical manufacturer that he should, through research and development and steady experiment, be in a position to improve his designs and his efficiencies so greatly that the rate of depreciation in existing equipment will be as high as possible.

These two factors, market expansion and technical changes, will undoubtedly make for increased activity and a higher margin of profitable business in the future than now.

LABOUR ORGANIZATION

(*Continued from page 316*)

VIII

TRADE UNION GOVERNMENT

EVERY trade union, whatever its size, type or age, requires some form of centralized control. A study of trade union government is necessary if the reader is to understand not only the internal organization of a particular union, but also the attitude of that union to society generally or to a particular social class. By ascertaining how and by whom a union is governed, much that might otherwise appear inexplicable is easily accounted for. If, for example, it is known that the government is autocratic, and that the aims of the few in control lie in a certain direction, it is fairly easy to predict what course that particular union will take in the event of an industrial dispute.

In the early days, when a trade union consisted of a small local society complete in itself, there was little or no formality about the method of government. The membership was not, as a rule, large, since it was only open to those engaged in a certain craft within the locality. The members met together more or less informally to discuss trade union problems. Resolutions were carried by a show of hands, a simple majority being sufficient. The necessary clerical work was done by a secretary, who was usually unpaid except for a small honorarium at the end of the year. Occasionally a president would be elected, but as a rule a chairman would be nominated at each meeting to maintain order.

As we have just seen, these local unions, at first extremely jealous of their autonomy, soon began to link up throughout the country with others in the same craft, with the result that the problem of government rapidly became of considerable importance. With the growth of industrial unions this problem has become still more important, for upon a satisfactory solution depends the unity of these large organizations.

PROBLEMS OF CONTROL

In a national union, or a federation of unions, the degree of control to be given either to the rank and file, or to a small body of officials, can only be determined after full consideration of certain questions peculiar to the industry or craft concerned. Of these the chief will be the degree of unity among the employers and the extent to which the industry is concentrated in certain areas. Generally speaking, the members of a union will have to give their executive body more and more freedom of action as the industry concerned becomes more and more widely scattered. It is true that with modern methods of communication much can be done to maintain fairly close touch between the scattered members and the central body, but, nevertheless, we find executives of large unions acting in most cases upon their own responsibility. The exceptions are those concerning general policy, especially in the case of an industrial dispute, when care is usually taken to ascertain the wishes of the members as a whole.

Control of federated trade unions is especially difficult, for the various sectional interests of the member-unions have to be borne in mind when any line of action is being considered. This has been well illustrated in the case of the recent wages dispute in the shipyards. An offer was made by the employers to the representatives of the Engineering and Shipbuilding Trades Federation. Since, however, this Federation is composed of thirty separate unions, no answer could be given until the matter had been considered by the executives of these unions. Besides the Federation, there were six important craft unions, namely, the boilermakers, shipwrights, plumbers, painters, woodworkers, and electricians, which also had to consider the employers' offer. These unions, for the most part, proceeded to call separate conferences of delegates, and subsequently sent representatives to meet together to make their decision.

These sectional difficulties hinder the formation of industrial unions, so that in many industries a federation is, for the present, the nearest approach to unity.

THE CENTRAL FUND

Whether a craft union, an industrial union, or a federation of unions is being considered, the problem of government is bound up with the question of the control of the central fund. This fund is the aggregate of the weekly, fortnightly, or monthly contributions of the individual members, and is the sole means of support in the event of a strike. Government of a union, therefore, means control of this vital support of trade union policy and progress. Branches of a single union, or member-unions of a federation, are often jealous of the amount of control they enjoy over this fund. In the case of a federation the cumbrousness of the methods which have usually to be adopted in disputes with employers may be traced ultimately to the control of, or access to, the central fund. In other words, either the sectional interests of the member-unions have to coincide, or, as is often the case, the wish of the majority has to over-ride that of the minority. A similar though not so intense a conflict of interests has also to be met in industrial unions. In order, therefore, to give due weight to the various branches or sections, representative government is customary, and questions of policy are decided

by a conference of delegates. These delegates are informed by their electors of the policy they are expected to follow at the conference. In large unions and federations the wishes of members are sometimes ascertained by the distribution of ballot papers through the post, the delegates voting in accordance with the replies. This method of government satisfies the claims of branches or unions to control the central fund, and therefore the general policy, according to the share of that fund subscribed by their members.

THE CENTRAL EXECUTIVE

While the annual conference of delegates or representatives decides the general policy of the union or federation, the carrying out of that policy devolves upon a body known as the executive. In the early days of trade unionism the executive consisted of unpaid officials drawn from branches or sections. With the advent of the "new model" union in 1850, the practice began of employing paid officials, and the executive was constituted a permanent body. In a craft union there is little difficulty in setting up this body, for the members' interests are, generally speaking, identical, or at least non-sectional. In the case of a large industrial union, or a federation, the problem is often complicated by the fact that the various sections wish to be represented on the executive, usually through one of their own local officials. Where this is feasible without increasing the size of the executive to such an extent that it becomes unwieldy, the inclusion of an officer from each section tends to eliminate friction. Where, as in the case of a federation, this method is likely to result in an unwieldy executive, the better solution lies in the appointment of members who are not officials of their own branch or section. This method gives the central executive greater independence of action, especially in times of emergency.

A federation is merely the linking together of a number of unions; herein lies the danger that at some crucial moment disaffection in one or more of the member-unions will result in the failure of a proposed plan of action. To obviate this difficulty, certain unions, notably those in the engineering industry, have formed an amalgamation, known, in this case, as the Amalgamated Engineering Union. This type of organization is considerably stronger than a federation, for it approaches very closely to the industrial union. There seems little doubt that federations and amalgamations among employers, with their resultant unity of action, will encourage among trade unionists a closer form of organization than the federation.

AN ILLUSTRATION

Let us now examine in greater detail the government of the Miners' Federation of Great Britain in order to see how a large union or federation governs itself in practice. In the mining industry there are approximately 1,200,000 workers. Of these about 800,000 belong to the Federation. The primary unit of organization is known as the lodge, which consists of members working in a single pit or a small group of pits in a certain locality. These lodges have their own officers, of whom usually only the secretary is paid. Meetings are held at frequent intervals, generally once a week, at which all matters affecting the local pits are discussed. In such questions the lodges are autonomous.

The next larger unit of organization is the district association, consisting of a group of lodges. As a rule, the county is the district covered by an association, as, for example, the Yorkshire Miners' Association. In a few areas, notably South Wales, we speak of a federation rather than an association. There are altogether thirteen associations and four federations in the coal industry of Great Britain. These bodies are supported financially by the respective groups of lodges. Each association has its own executive for dealing with questions that are outside the scope of any single lodge.

These associations are, in their turn, members of the Miners' Federation of Great Britain, which again has its own executive. The autonomy of the lodges and of the district associations leaves in practice little to be done by the federation as a whole, except the shaping of general policy and bargaining for national minimum conditions of work. The National Conference, held annually, affords opportunity to associations to express their views through delegates, and therefore to have a voice in questions of policy. The Central Executive of the Miners' Federation is then entrusted during the ensuing year with carrying out the policy laid down at the Annual Conference. The officers constituting the executive are appointed at this Conference, but the general secretary is the only full-time paid official. Others, including the president, are full-time officers of certain of the associations. The Miners' Federation is probably the best example of industrial democratic government.

METHODS OF REMUNERATION

(*Continued from page* 318)

VIII

MINERS' LEGAL MINIMUM

In this paragraph we shall consider certain features of piece-work as found in the coal mining industry prior to the war. Certain post-war changes are referred to in a later section. In the coal mining industry the lists are fixed for pits, or for seams in pits. Generally, there is no definite recognition of the principle of uniformity of earnings over a coalfield; there is, in most districts, no formal recognition of a district piece-work basis time rate. Only comparatively recently was formal and general recognition given to what in a special sense of the term may be called a guaranteed time rate. Taking first the question of the "piece-work basis rate," only in certain districts—Durham and Northumberland—has it been customary to refer the prices to a definitely agreed basis of earnings for the whole district. In these counties the "county average" method has been operative for many years; the "county average" is similar to a piece-work basis rate in that it is a shift wage which the list prices are expected to yield to the worker. If prices actually yield a certain amount more or less than this average, then reconsideration of the prices may take place at the request of one or other of the parties. Coal hewing lists are made for work which continues over long periods of years, and the bargaining for a new list is a very serious matter for both employers and workers; in districts where the county average system is not operative a list once agreed may determine the basis prices of a pit for a generation or more. Sometimes, a preliminary list is first agreed upon, e.g. it may be a condition of the original list that reconsideration of the prices should be made, if this is desired, at the end of a short period. The use of pit lists without reference to a defined county average tends, of course, to greater differences in the level of piece earnings than would otherwise be found. Turning now to what has been referred to as the introduction of a guarantee for piece-workers in the coal mining industry, it is necessary to indicate the circumstances in which the legal minimum wage—as it is properly described—was introduced. The piece-working coal hewer finds himself on occasion working in conditions in which it is impossible to "make his wage"—i.e. impossible even with excessive exertion to earn what is regarded as normal in the pit. The reasons may be those summarized in the phrase "abnormal place" (e.g. unforeseen difficulties of working the seam) or they may be due to a breakdown in the means of transport or some other cause. For many years, in different coalfields, there were in operation various more or less unregulated methods of meeting such contingencies; thus wages were "made up" to specified amounts when it was agreed by the employer that the lists did not meet the special circumstances. The problem, however, was, in many instances, difficult to deal with owing to the conditions under which the coal hewer works. Following upon a strike in 1912, on this and other questions, the Coal Mines (Minimum Wage) Act was passed. One result of this Act was to provide a minimum (district) wage for coal hewers when in abnormal places. This district minimum wage for piece-workers was a specified sum per shift. It may be referred to as a time rate guaranteed provided certain conditions are satisfied. Thus, the minimum was not payable when, in the words of the Act, "the worker has forfeited the right . . . by reason of his failure to comply with the conditions with respect to the regularity or efficiency of the work to be performed by workmen laid down by these rules." (In a later section—Inter-relations—a district award made under the Act is quoted.)

PAYMENT BY RESULTS IN ENGINEERING

In the payment by results found in the engineering industry the guaranteed time rate has an importance which it does not have in some industries. This industry also is the one in which there has been the greatest degree of experiment with premium bonus methods. Price lists in the sense in which the term has hitherto been used are practically non-existent. These are all aspects of one general difference between such an industry as general engineering and one such as cotton. The characteristics of the latter which make *uniform* price lists possible are generally absent—but to a less extent in some branches than in others—from general engineering work; the work is not standardized as it is in cotton manufacture. A result of these circumstances is that bargaining as to piece prices (or—what is essentially the same thing as to premium bonus times) is carried on in the individual shops. The principle on which this bargaining is carried on has been called "mutuality"; in the 1907 national collective agreement, under which also a guarantee of the worker's time rate was given, the terms included "the prices to be paid shall be fixed by mutual arrangement between the employer and the workman or workmen who perform the work."

The guarantee of the time rate was not included in the earlier 1901 collective agreement on piece-work, but when terms as to the introduction of premium bonus methods were arrived at in 1902, the payment of the time rate was one of the recommendations. It is not necessary here to recount

all the stages in the history of payment by results in the engineering industry. The general developments since the beginning of the present century may be summarized as (*a*) the definite establishment of the principles of the time rate guarantee and the "piece-work basis rate," (*b*) a tendency to increase the ratio which the "piece-work basis rate" bears to the time rate, (*c*) an increase in the proportion of work performed in systems of payment by results, and (*d*) a tendency for the system of "mutuality" to develop into a more definitely shop form of bargaining with an approximation, in some cases, to price lists. The development referred to as (*c*) is related to an increasing degree of standardization of work; (*d*) is related to the same factor and to changes in trade union organization and collective bargaining resulting from the war, including the recognition of shop stewards and of works committees. For our immediate purpose it will suffice if we deal a little more fully with the use of the premium bonus method. An explanation of the arithmetic of the method has already been given. The point of interest is that the arguments for its application to engineering were based on the difficulties of piece price fixing. It was thought that the premium bonus method provided a way out of the many disputes over piece-work; disputes as to whether or not piece prices should be cut, as to whether or not there had been an alteration in methods of work to justify a cut. An examination of the method, however, will indicate that there may be some doubt whether the premium bonus is better calculated to eliminate disputes as to price fixing than is piece-work (with a time guarantee). As has already been shown, the principles are the same in essentials. If piece-work (with a time guarantee) be considered as premium bonus, in which the whole time saved is paid for, then, if the average workman is to receive time and a third, the difference between piece-work and what is usually called premium bonus (50 per cent type) comes to this: on piece-work a job is timed at 12 hours, and the average workman performs it in 9 hours; on premium bonus the same job is timed at 15 hours, so that the same workman performing it in 9 hours is paid for 9 hours plus 3 hours, i.e. for 12 hours as on piece-work. Both systems, of course, differ from pure piece-work (without a time guarantee). The differences between the two systems, however,—if they are related to the same principle of a piece-work basis rate—are not fundamental; it is noteworthy in this respect that payment by results—taken as covering the various forms in which the time rate is guaranteed—has come to be treated as one system, in which the essential conditions are, in addition to the time guarantee, the establishment of a piece-work basis rate, and the increased recognition of changes in prices (or bonus times) as dependent upon alterations in methods of working (accompanied by a growth in the negotiation machinery).

DIFFERENCES IN RESULTS

Though there is the above-mentioned essential similarity in principle, this does not mean that there are no minor differences in the results of the various methods. The reader will be able to develop for himself what he may consider—human nature being taken to be what he thinks it is—necessary results of the application of each method. It is sometimes held that premium bonus of the Halsey 50 per cent type, let us say, is unfair as compared with straight piece-work—because the fast worker loses in comparison with his slower fellow; on the other hand, a little consideration will show that—provided the average results are the same, that is, provided both methods are, in fact, related to the same piece-work basis rate for the average worker—the loss of the fast worker may be made up by the gain of the slower worker; this means that the premium bonus method, applied in the manner indicated, tends to a greater equality in earnings about the same average. The reader who wishes to illustrate this argument may do so by taking an example in terms of output bonus which—see above, Output or Premium Bonus—is the same in principle as premium bonus. If the time rate is 1s. per hour and the average of three workers gets 1s. 4d. on either system of payment by results, then there is a greater degree of equality in earnings when the others get 1s. 3d. and 1s. 5d. respectively, than when they get 1s. 2d. and 1s. 6d. respectively. The former would result from an output bonus of ½d. per piece for pieces in excess of 8 pieces per hour (paid at 1s.); the latter from straight piece-work in which 1d. per piece is paid for pieces in excess of 12 per hour (paid at 1s.) The more important consideration—from this point of view—is not the bonus rate but the limit at which bonus begins; or, in premium bonus nomenclature, the time allowed. The diagram already given may be added to so as to indicate what is here stated.

UNEMPLOYMENT

(*Continued from page 320*)

VIII

PERSONAL CAUSES OF UNEMPLOYMENT

THEIR NATURE AND IMPORTANCE

APART from the industrial causes so far considered, there are personal influences which lead directly or indirectly to unemployment. These are of various kinds. Some, like old age, accident or infirmity, affect men's physical capacities, and others, like drink, gambling, laziness, injure their general character and competence, as does inadequacy of training.

The importance of these personal causes has been much discussed. Some regard them as a leading influence in determining the amount of unemployment. The old views, indeed, that the unemployed are mostly the unemployable, or that drink, gambling, and laziness completely explain unemployment, are largely exploded, though surviving in the idea of armies of unemployables "living on the dole." But much considered opinion still holds personal causes responsible for a considerable proportion of the total unemployment. The opposite view maintains that such influences are mainly secondary. Admitting that the general level of efficiency affects employment by influencing production, it is yet argued that personal causes concern less the amount than the incidence of unemployment. The former is determined by general industrial causes, and the personal character and competence of the workmen merely decide which individuals shall be unemployed. The truth probably rests between the two views. Before discussing this, however, the actual influences at work must be considered.

OLD AGE

The workmen's physical or mental health affects their capacity, and through it their employment. Definite infirmity reduces their value, and, if pronounced, renders them more or less unemployable. Old age is often regarded as an important cause of unemployment. It is suggested that many of the unemployed are old or elderly men, who are slower and less energetic than their younger competitors, and their disadvantage is increased by the greater "speeding-up" of modern industry. Where there is actual infirmity, which prevents a man doing an average day's work, this, no doubt, is the case, though some trade unions allow such men to be employed at wages below the full rates. Otherwise, unemployment does not appear especially heavy among older men. Employers do not find all the advantages to rest with the younger. If more vigorous, energetic, and enterprising, they are also more restless and more inclined to make trouble. The older men have greater knowledge and experience, are more careful, which is especially important where expensive materials or plant are used, and are generally steadier and more open to reason. Thus in trade depressions the younger men may be dismissed and the older retained. The latter have the advantage where they are known, especially as employers, on general grounds, prefer to keep old hands. When, however, an elderly man has to change his firm, his position is more difficult, since employers are sometimes chary of engaging men whom they do not know, and older men, though more careful, seem otherwise more liable to accidents.

The available figures do not, on the whole, suggest a definitely higher unemployment of elderly men. Analysis in 1907-8 of the unemployed applicants to distress committees, the class in special distress by reason of unemployment, showed that, in proportion to the total numbers employed, fewer men over 50 were unemployed than between 25 and 50.[1] Again, up to 1907, at least, the average age of superannuation in the Amalgamated Engineers', and Ironfounders', Societies[1] steadily increased, suggesting that capacity for work was lasting longer. At the same time the percentages of men superannuated also increased, though this may have been at least in part due to larger numbers qualifying for this benefit. Some unions relieve the labour market in bad times by increasing the numbers superannuated.

PHYSICAL INFIRMITY

Men suffering from definite infirmity, through ill-health or accidents, are more liable to unemployment. For they are, in consequence, incapable of full work, some always, some at particular times. They are thus less useful to employers and apt to remain on the fringe of industry, being employed only when labour is scarce. Sometimes, particularly with the disabled, relatively few suitable jobs are available. This was a special difficulty after the Great War, since the seriously disabled competed for jobs reserved for infirm civilians. The mentally weak are peculiarly hard to deal with.

DEFECTS OF CHARACTER

Defects of character often seriously decrease capacity for work. Drink reduces competence and increases irregularity. Gambling chiefly concerns home life, but may also distract attention from work. General irregularity is also bad, and apt

[1] Beveridge, *Unemployment*, pages 117–120, 121–123.

to encourage employers to casualize employment. Casual labour creates the casual worker, but the latter, because he cannot or will not work regularly, makes it more difficult for employers to employ him continuously. The " unemployable " are a further difficulty, whatever the cause of their refusal to work.

TRAINING AND BOY LABOUR

Finally, the problem of training influences both entrants to skilled trades, who have been inadequately trained, and workers in blind alleys. The former are at a disadvantage compared with fully trained men, and may only be employed in busy times. Where they have been specialized and learnt only part of their trades, they may be displaced altogether through relatively small changes and sink into the ranks of casual labour. Where inferior training is general, a trade is hampered in competition and its expansion checked, especially in export markets. The blind alley problem is even more serious.[1] It tends to create a class of men incapable of regular work, and to cause an excessive supply of low-skilled labour, for which there is inadequate demand, that is still further reduced if these influences also restrict the training of skilled men.

EFFECTS OF PERSONAL INFLUENCES

Thus, personal causes exert considerable influence. The results of old age, infirmity, and disablement are largely inevitable, though capable of mitigation by improvements in public health and prevention of accidents. Some special provision can also be made, but care must be taken to avoid unfair displacement of fully efficient men to the ultimate loss of production. Faults of character and defects of training exercise a much wider influence, but are more capable of removal by improved conditions.

The general effects of these influences can now be more fully examined. In favour of the view that they are mainly important in determining who shall be unemployed rather than how many, is the fact that definite industrial causes are at work to create unemployment, independently of the character or competence of the unemployed. Cyclical or seasonal fluctuations, for instance, will continue so long as their underlying causes remain. But, when they occur, the character of individuals is important. The incompetent, irregular, and incapable are first dismissed, and then the average men, whilst the best are kept on. Even in highly fluctuating trades really good men can get work at all times and are seldom unemployed. Indeed, firms employing a high grade of labour have often to take special measures, like making for stock, to keep their men at work, when other firms resort to dismissals or short time. Moreover, personal causes of unemployment are sometimes the result of industrial influences, as when casual labour creates casual workers incapable of sustained effort. So far, therefore, these personal causes affect the incidence of unemployment.

Nevertheless, they do appreciably influence its character and amount, particularly by affecting the progress of production and industry. Provision of ample employment for a growing population requires steady progress. If the workpeople as a whole are not fully competent, progress will be hindered, and the supply of labour will tend to exceed the demand. Moreover, if much labour is unsteady, irregular, and badly trained, it will affect the industrial organization. Competent, well-trained labour encourages, and, if scarce, may even compel, employers to regularize employment. But if labour is plentiful, and much of it is inferior in quality, they tend to casualize their work. This sets up a vicious circle. Casual labour and blind alley employment produce unsteady and irregular workmen, who cause employment to become more irregular, and this further injures their efficiency.

LABOUR SUPPLY AND DEVELOPMENT

Moreover, these influences may bring about maldistribution of labour by creating a surplus of low-skilled, and unduly restricting the recruiting of skilled, workers. For full employment, balance between skilled and unskilled workmen is needed. With a shortage of skilled men, openings for the less skilled are correspondingly reduced, and the unemployed surplus is further increased. Finally, the general capacity of labour affects the development of industry. Rapid progress, due to increased efficiency of labour, creates a good general demand, and so mitigates fluctuations. Whilst, as Beveridge argues, rising demand in itself does not cure industrial fluctuations, it can reduce the consequent unemployment. For, with trade expanding rapidly, there will be better employment and more overtime in good years, and less unemployment and short time in bad. The reverse takes place where industry fails to develop with sufficient rapidity.

To sum up, personal causes determine largely who shall be unemployed, and help to create the unemployable. By injuring efficiency they hamper development and may prevent proper distribution of labour. The result is a surplus of casual labour, which promotes casualization and accentuates the industrial influences leading to unemployment. Improvement in the capacity of labour, on the other hand, by better organization and training and special provision for the unemployable, will increase productivity, cause general expansion, and eventually encourage regularization of employment.

[1] For its general effects, see *Boy Labour and Apprenticeship*; V. " The Problem of Boy Labour."

BOY LABOUR AND APPRENTICESHIP

(*Continued from page 322*)

VIII

THE START AT WORK

PROBLEMS OF RECRUITING

TRAINING and preparation of boys for their future work involve necessarily a further problem, since there must be a proper supply of boys to train. The various trades and occupations, therefore, must get the right numbers and types of boys Otherwise the best methods cannot be fully effective.

This problem of recruiting falls into two main sections—choice of employment, and supply. The former covers not only choice of jobs, but, when they are chosen, the finding of suitable openings. Supply is concerned with so distributing the boys that different trades and occupations get neither too few nor too many. The two problems overlap. If too many boys, or boys capable of better things, enter blind alley jobs, the numbers available for skilled work may be inadequate and the types unsuitable. Similarly, undue restrictions on apprentices will prevent the skilled trades from employing their fair share of the boys, so that ultimately they cannot provide adequate employment for the less skilled.

CHOOSING HIS WORK

A successful start involves both a right choice of work and the finding of the right job. Failure in either respect will have bad results, as when a boy of capacity, compelled to start in unskilled work, forgets his ambition to learn a trade. More often inadequate foresight is the trouble. Those who know what they want may not always get it, but are far more likely to do so than those who do not. Thus the attitude of boys and parents is the determining factor.

WHAT THE BOY DOES

An initial difficulty is that, when the boy leaves school, his wishes and impressions are often no sure guide to his real aptitudes. The change from school to employment is often welcomed as a change from tutelage to freedom. The boys are proud to be earning money and to have money to spend. At first any work is fresh and interesting, and they do not stop to think whether they really like it. Thus they easily make initial mistakes.

Some boys start with definite views as to their future work, others have only indefinite ideas, and many have given it little thought. Frequently they have no clear reasons for wanting any particular trade nor do they realize what it involves. Some choose a job because a friend or relative is in it, others because it is common in the locality, and certain trades, like motor engineering, are generally popular. Again, a trade may be chosen because it is "clean," like joinery, or "respectable," like clerking. Thus some boys become inferior clerks who might have been competent "tradesmen," whilst others look down unduly upon the "pen-pusher." Such preferences, indeed, having little relation to a boy's real bent, often fail to survive contact with working conditions.

WHAT THE PARENTS DO

Similarly, many parents know what they want, and have even found places for their boys. Many others do not give the matter adequate thought, or do not take sufficient care that the chosen job suits the boy. "It is not what the boy wants, but what his father wants," a mother will say Frequently, however, lack of care is due not to lack of interest, but to failure to realize the need of doing anything before a boy leaves school. Difficulties in finding suitable work often affect the choice, and these, more perhaps than desire for the "big shilling," cause parents to fall back on the stock openings of errand or van boy.

HOW THE ELEMENTARY SCHOOL HELPS

In these matters the elementary school can assist greatly. Headmasters often interest themselves in finding places for boys and keep in touch for the purpose with suitable firms. School Care Committees bring home to them and their parents the need of foresight, and Juvenile Employment Committees help them to find work.

Moreover, the elementary school can do something to discover a boy's aptitudes. The standard reached helps to distinguish the clever from the stupid. Manual training, much developed of recent years, can show that a boy is good with his hands, though not with his books. The teaching of drawing is also helpful. It is not suggested that schools enable choice of individual trades to be made, especially as manual training conditions are so different from those of the workshop. But boys can be classified generally according to capacity, as fitted or not fitted for skilled work, and according to suitability for manual or clerical jobs. Finally, whilst manual training can probably do little to teach particular trades, it provides valuable general training of the eye and hand.

FINDING THE RIGHT JOB

But, whether or not he has chosen his future work, the boy on leaving school has still to find the right job. The problem is most serious in big

cities with varied trades, and in particular much blind alley work. Towns with a few large industries are better situated, though, as in the textiles, there is sometimes a good deal of blind alley employment. The first difficulty is that openings with good prospects may be few and hard to find, whilst unskilled jobs are numerous. Secondly, the merits of particular openings are difficult to judge, some appearing promising but leading to nothing, whilst boy labourers' jobs in good firms often give real chances. The consequent uncertainty and lack of knowledge lead to an attitude that the boy "must take his chance, like his brothers did." Thirdly, the demand for boy labourers is much stronger than for learners at the age of leaving school, since some important industries do not take apprentices till 15 or 16.[1] Many, therefore, must necessarily begin in blind alleys.

In face of these difficulties, things have often to be fixed up in a hurry, and the boy has frequently to fend for himself since his father, at work all day, may be able to give little help. He is told, therefore, to find some job quickly, which is so far right that almost anything is better than hanging about the streets unemployed. Often only a blind alley job is available, and the learning of a trade is, therefore, put off, and too often forgotten altogether.

EARNINGS AND PROSPECTS

Both parents and boys are accused of sacrificing future prospects to immediate earnings, and in some cases undoubtedly they do so. Frequently, however, this occurs not when a boy leaves school, but later, when the influences of blind alley work have taken effect.[2] Often to the boy "earning looms larger than the more laborious but less remunerative learning." The parents are prepared for sacrifices, but, at the same time, regard leaving school as the time when a boy begins to contribute to the family budget. They will submit to some loss in wages for a good opening, but will not, and often cannot, accept a "nominal" wage. Here the prevailing conditions have serious effects, leading parents to exaggerate the differences between learners' and labourers' wages, which are less than is commonly supposed. Further, they do not know where to look, nor what to look for, nor yet the real value of particular openings. Thus, they often come to think chiefly of wages as being the one definite thing when everything else is indefinite.

HOW EMPLOYERS ENGAGE BOYS

Moreover, employers' methods of engaging boys are at times irregular. Many choose them carefully, obtaining them through elementary schools, from their workmen's sons, or from business connections, and frequently for highly skilled work require previous secondary or technical training. They are careful to examine the boys and their capacities before engaging them. Others are far more casual. Notices are put up and boys engaged from those who call and, by a sort of natural selection, more or less suitable ones are eventually secured. Meanwhile boys are continually coming and going, and employers often complain that many leave too soon for anything to be done for them.

THE DIFFICULTY AND THE REMEDY

These combined influences constitute the difficulties of choosing a trade. But their bad results must not be over-estimated. Some boys do not find their bent till they have been at work, and experienced social workers sometimes advise the putting of boys quickly into decent work to give time to look round. The important thing is that, where the original jobs lead to nothing, boys should leave them at the right time for the right thing. As it is, lacking help and guidance, many fail to do so and remain blind alley workers, and some are deteriorated by their work and lose ground intellectually.

These facts indicate what is required. Juvenile Employment Committees, assisted by after-care workers, already do much to place boys as they leave school, and to keep in touch with them subsequently. But, to cover the ground, this organization needs to be fully developed and generally used by employers, boys and parents, whilst the work of elementary schools in interesting boys and parents in their future should be similarly expanded. The work involved is considerable. Probably about one quarter of the boys under 17 will require systematic supervision and others occasional help. Employers could assist by making greater use of the organization, by notifying it of all engagements and discharges of boys and by better regulation of their own methods. For other difficulties continuation schools can give valuable help.[1]

[1] E.g. London (1911 Census), boys of 14–15, over 11,000 in chief blind alleys, about 1,700 in chief skilled trades.

[2] See V, "The Problem of Boy Labour."

[1] See VII, "The School and the Workshop."

LEADERSHIP IN INDUSTRY

(*Continued from page* 324)

VIII

HUMAN EXPANSION

It will have been observed that this course of study fixes itself before a background of history. By history I mean the record of the past in quite an old-fashioned way, the record of kings and kingdoms and of wars and conflicts. I am not at all likely to discount the value of specialized history, particularly that of industrial and social development. Yet I am sure that in the study of industrial leadership we are making a mistake if, in a much more general way, we do not analyse the leaderships of the past. I can see light for industrial leadership from the great trek of the children of Israel, from the conflicts of Greece and Persia, and above all from the expansion of Rome. It was said by one of the writers who described the Economic Conference at Geneva for the benefit of the American public, that the new empires would be economic empires cutting across the frontiers of the empires of the past. If that meant that industrial aggregations in the future will banish the bounds of race and nation, I think it is a wild though picturesque conjecture, though I would admit that such an organization as the European Rail Manufacturers' Association is a significant development. If it means that there are points of kinship in respect of structure and in respect of leadership between the vast empires of history and the vast industrial organizations of to-day, I am inclined to agree. Certainly at this stage of our study there is much to be learned from the fall of Rome.

THE NEEDS OF MAN

Thus we may quote Gibbon as Mr. de Burgh quotes him in *The Legacy of the Ancient World*: "If a man were called to fix the period in the history of the world during which the condition of the human race was most happy and prosperous, he would, without hesitation, name that which elapsed from the death of Domitian to the accession of Commodus." Then, again, he quotes Mommsen: "If an angel of the Lord were to strike the balance whether the domain ruled by Severus Antoninus was governed with the greater intelligence and the greater humanity at that time or in the present day, whether civilization and national prosperity generally have since that time advanced or retrograded, it is very doubtful whether the decision would prove in favour of the present." For, as Mr. de Burgh sums up, the Roman Empire "realized the ideal of paternal government in a degree to which history affords no parallel." Mankind wanted something more than to find itself cared for and protected. "The spirit of man craves not comfort, but liberty, not economic stability or equitable administration, but the right, at the cost of infinite toil and tribulation, to work out its own salvation."

THE EMPIRES OF INDUSTRY

Thus we may say that in industry there is something more in leadership than accepting full responsibility for equity in treatment, for safeguarding health, for encouraging moral qualities as well as skill in the immediate work. Leadership simply means going before and not vicarious action. More than that, there must be some scope left for initiative to those who are led, or at any rate for the sense of freedom. When the moralists tell us that the sense of freedom at the moment of moral action is a mirage which deceives us, we may well reply that it is a very precious mirage. There can be no doubt that if we are to attract loyalty we must present the face of our own loyalty to those whose lives, so to speak, are in our hands, but the loyalty we seek will be worthless unless, having been attracted, it has in it something of the spontaneous just as our loyalty to them is spontaneous. In Miss Clarke's history of *The Mediaeval City State* there is a striking passage: "A degree of order is essential to social well-being; a degree of progress is, less universally, admitted to be desirable; the best government is that which makes progress possible without sacrificing order. Every social unit, however small, was moved by two psychological forces; a sense of individual right and a sense of the value of leadership . . . Human societies illustrate the continued action of these two forces. Sometimes they balance each other, sometimes one is in excess."

THE PROBLEM OF LEADERSHIP

Here lies the problem. We wish to lead, as part of our legitimate sense of organization. Over against us is the demand for individual right. Just as all history proves that authority is fearful of individual right, so we are fearful. The darkest of dungeons showed authority in the Middle Ages to be afraid; just so the tumbrils of Paris at the time of the Revolution showed the fiercest of democrats to be afraid. We are tremblingly afraid of fear. Instead of facing with courage and calmness of consideration that which may arise, we are afraid of any suspicion arising that we have fear. Thus there comes to us an ideal of domination which hides an appreciation of the difficulty of our task by an assumption of strength. It was said of the pillars in St. Paul's Cathedral that they trembled so violently as to throw off the chips at an enormous pace when the masons had to cut them. The truly strong thing trembles. It is pinchbeck strength which is afraid of trembling. The

industrial leader who looks hopefully to the day when he will lead a developed and expanded humanity, when leadership becomes true leadership, and neither leader nor led is afraid of fear he will know that he must not presume on his strength. He will remember all what history has to tell him of the dangers of despotism. When he remembers it he will reflect very modestly that if he is to lead it will be for his worth and not by his declarations of his strength.

CONSCIOUSNESS OF STRENGTH

Yet this does not mean the type of mock modesty which pretends even to itself that it is not conscious of its strength. Just as leadership cannot be the irritant which is always declaring and demonstrating its strength, so it cannot be that assumed unconsciousness of strength which pretends to be modest in its self-estimate. The idea is rather that it is the strength which supports, and the strength which supports does not go about seeking that which it may be able to support, nor does it seem to deny its readiness to support. The true strength of the true leader is there, a sure prop to all who need it. But it is not always insisting on the recognition of the strength. We have come to regard the "strong silent man" as something of a joke because we have seen so much of him in current fiction and drama. But it points to a sound instinct that he should be preferable to the swashbuckler type. At least he is there ready to help. Those who need his help will be attracted to him and then they will find it. But they will never find it assertive on the one hand or, on the other hand, ungenerous towards the strength of others. Rather it is a strength which evokes strength.

NO JEALOUSY

Thus in the conception of progress in the heart of a true leader there will be no jealousy. It is strange how jealousy has marked the history of industry. Sometimes when I have read histories of the earlier industrial days -say the 'seventies - - and have been told that employers wished to keep the men to subsistence level, I have been led to protest that this was only partly true. I knew employers who had risen themselves, and I found them singularly jealous of the rising of their brethren. Sometimes when I have read of piece-work rates being cut I have remembered that there were employers who had certain fixed ideas, based upon jealousy, as to the total income of the worker. The leader to-day must banish from his mind every stimulus towards jealousy. He will be a successful leader if he fixes no bound to his visualization of possible advance. It all comes round to the point at which I began this contribution. We must allow for man's expansion. In our organization there must be some allowance for mental scope. Even if we can do no more we can put pictures on the walls by which the final product will be indicated and its place in the scheme of things. Organization must involve some narrowness and circumscription of the parts which men play. That cannot be helped. But the leader must not be content with that as the last word. He must seek some means whereby at least he can indicate some possibility of a wider mental vision, some acceptance of responsibility. It may be that corporate interest in the management of the industry will be more nearly achievable as an actual factor after we have made some effort at widening the vision.

PUBLIC FINANCE

(*Continued from page 326*)

VIII

FURTHER examination of certain principles underlying capital and other expenditure by the nation or by local authorities is now possible. The conditions which should apply to loans which cover non-revenue yielding or non-productive expenditure are tolerably clear. It is necessary to recognize that the benefit attributable to the enterprise will be conferred upon posterity as well as upon the present generation, especially where the work will last, as it often does, for a long period of years. In these circumstances it is unfair that the present generation should bear the whole of the burden of immediate outlay and provision for repayment; and that argument is strengthened if in fact the financial obligations of the present generation are already heavy. Further, it is reasonable contention that such a step may be taken if, in the weight of existing taxation, there is substantial inequality in the distribution of the burden. The view that all non-revenue producing expenditure should be met from revenue or income is, of course, in keeping with the best financial tradition and principle. It is undeniably sound. But the problem to-day is largely one of practical politics. In all circumstances careful attention must be devoted to the object of the outlay; but this has very much greater force in the other sphere of productive or remunerative public expenditure.

ALLOCATION OF BURDEN

The amount of the national income must always be regarded as a leading factor; and in the modern State there is also the question of the distribution of forms of wealth, and the effect that such outlay may have on the allocation of spending power. Even where outlay is abnormal, and where its treatment covers more than one year, taxation should be increased to meet the charge so far as that is practicable; but in permanent productive investment repayment of capital spread over a term of years may be a better proposition for the people than suddenly increased or specially heavy taxation. In any event, from the beginning of the work of the undertaking commercial methods should be adopted, although in public enterprise, both of the State and the local authorities, it is not always easy to get a strictly comparable commercial basis; that is, a basis which affords accurate comparison with ordinary privately-run business enterprise. In the case of emergency, several writers consider that the ideal system is to impose the heaviest possible amount of taxation from the outset. In that way a contribution is secured in the form of taxation from the unwilling as well as a contribution, usually in the form of loan, from the willing Further, in temporary necessity, public credit will not be adversely affected by provision for the casual deficit of a bad year being carried forward. In that matter taxpayers and the State may derive benefit from the avoidance of constant changes in the system or amount of taxation.

It has been observed that sinking funds for the redemption of productive and unproductive expenditure increase confidence. But success depends upon the regular investment of sums obtained from taxation or from earnings, and also upon the accumulation of all the interest on such sums. Almost everywhere important distinction is drawn in the time limit or period for the repayment of productive loans; in some cases the sinking fund may cover as much as eighty years. In other cases it is kept in line with the effective lifetime of the asset. In unproductive loans much shorter periods are usually enforced; and they may be comparatively brief where a wasting asset is involved. That is usually described as an asset which is consumed in the process of use.

INCREASE OF EXPENDITURE

All writers on public finance have debated at considerable length the methods of measuring the amount of State expenditure. No uniform basis or test is possible; and the simplest analysis of post-war finance, either in Europe or in the United States of America, proves that an infinite variety of fact must be taken into account. Attempts to relate public expenditure to area would be mainly unreliable. The method of testing the charge per head of population is more effective, although in that case also many qualifications must always be introduced. In short, there is probably no mechanical method of judging the sufficiency or legitimacy of public expenditure, as Professor Bastable plainly emphasized. Widespread tribute is paid to the importance of economy. The literature which analyses the benefits of retrenchment is again crowded with qualifications; certain forms of retrenchment are undeniably valuable, while others would probably involve waste in one of its most painful forms in the failure of annual provision for the protection of the asset. In any event, outlay in practically all modern States is steadily increasing; and in existing conditions it is much more important to try to understand how that almost inevitably increasing outlay can be made, so far as possible, definitely remunerative in character. Many of the critics have regarded this increase as one of the general laws of progress. They explain it by extended reference to the increasing demands which are made by society or the people on the modern State. Much more

technical is the argument that one of the causes of the general increase in outlay is the depreciation of the precious metals. That consideration need not be examined at length ; it raises problems on which there is widespread difference of opinion. More interesting, perhaps, is the growth of population, with the consequent growth of national income where nations or localities are making any kind of progress at all.

WAR AND POST-WAR CONDITIONS

Excluding the disturbing factor of war conditions, incessant inquiry surrounds the point as to whether in all countries the proportion of public outlay to national income is increasing without the real pressure on the people becoming greater ; popularly stated, that means that the public back has broadened to meet the additional load, which may in fact be carried with comparative ease. In other cases, however, the load has undoubtedly increased without corresponding expansion of public resources, or of industry and commerce, for the purpose of meeting the strain. In such cases the real or effective pressure on the people has undoubtedly become greater. But whatever the decision, public expenditure all over the world has increased ; and the analysis of that increase is one of the most important elements in the present-day problem. The tendency is traceable to several clearly-defined causes, of which the chief are the cost of preparation for war, the expansion of administrative action, and, in the view of several authorities, what is loosely described as the progress of democracy. Prior to, during, and after the European War enormous expenditure on armaments effected in most countries a revolution in public finance ; in Great Britain at the present day, more than nine years from the Armistice of 1918, the annual outlay on naval, military, and air force preparation is nearly £120,000,000. International conferences on disarmament may pave the way for all-round reduction. For the time being the burden is undeniably heavy ; and of itself it is one of the commanding features in the universal expansion of public expenditure.

COST OF PROGRESS

Extension of administrative action and the cost of democratic progress may conveniently be regarded together. It is often urged that legislatures or public authorities, which are widely representative in character, are much more inclined to embark upon costly schemes of social and other reforms. Very often the promise of such schemes is a condition of electoral support ; for most countries this is in present conditions a problem of exceptional difficulty. More attention should be directed to the influence of public expenditure on national and social economy. The analysis of public accounts shows that the State is each year one of the largest purchasers of goods, if not, in many countries, the largest ; it is also a very large employer of services of almost every kind. In that way State or public outlay can make a powerful impression upon prices and wages, and within that sphere there may also be considerable influence on the distribution of wealth. For it is an axiom that the demand for commodities will to a material extent settle the direction of production. The form of labour may, therefore, in many cases depend upon the policy of the State ; and public expenditure will be strongly represented in the factors which settle the rates of remuneration and the conditions of employment. Many lessons may be derived from observation of the special direction of State activity in Germany and in the United States of America Further complication is introduced where there is direct employment of service or of labour by the State itself. Fundamental to all these considerations is the constant effort to relate expenditure to the objects to which it is or may be devoted ; that involves an attempt to measure the benefits which are obtained in return, and to ask whether they are commensurate with the sacrifices which are made in raising the necessary revenue or income to finance them. There is, of course, a plain fallacy in the suggestion that all State or public expenditure is bad ; and in existing conditions it is largely irrelevant to plead that, at all events, the less public outlay the better. By far the sounder course is to recognize, especially in the circumstances following war exhaustion, that certain duties will fall clearly and emphatically to the State ; and the next step must be to provide for the discharge of such duties on the most remunerative or productive terms, chiefly in the sense of seeing that maximum return in human and material progress is obtained in respect of the expenditure involved.

THE ECONOMIC FUNCTIONS OF THE STATE

(*Continued from page* 328)

VIII

INDIVIDUAL RIGHTS

CONDITIONS OF FREEDOM

THE State appears therefore in two aspects, each of which is the inevitable counterpart of the other, both as the guarantor and as the restricter of individual freedom. It fixes limits to individual freedom, but secures that freedom within those limits. It must do both, because there can be no personality without freedom to develop and express itself, and because unlimited freedom is a contradiction in terms: if we are all free to do as we like, no one is free to do anything, because he has no assurance that his neighbour's freedom will not block his path.

"Freedom," in fact, is a much ill-used and over-used word. To be worth anything, it has to be rigidly defined, and in this connection we would advise our readers to turn to the searching criticism of the term given by Professor Seeley in his *Introduction to Political Science*. Seeley's conclusions are negative, and therefore only partly helpful, but the whole chapter is an invaluable training in logic and exactness, and a wholesome warning against the slovenly use of vague expressions. "What is freedom?" says Seeley in conclusion—"in political science it means absence of actual restraint." "But," says the reader, "in that case it may not always be a good thing!" "Well," answers Seeley sardonically, "whoever said that freedom was a good thing?"

We are less cynical than Seeley, and declare most emphatically that freedom, even in this narrow sense, is a good thing, in that restraint cannot be in itself a good thing. It may be a necessary means to a very clearly specified end, but that end must always ultimately be the development of personality. In other words, absence of freedom can only be justified if it can be shown either that only by such a restriction can the real freedom of all be attained, or that some have so misused their freedom that it has become incompatible with the freedom of all.

CONDITIONS OF RESTRAINT

Thus it is only in the name of freedom that freedom can be restricted. It must always be shown that the real freedom of all to develop their personality will be helped rather than checked, before apparent freedom can be denied. In other terms, we have to consider the effect of restraint not only on society as a whole (and here it may be remarked that coercion often has a more demoralizing effect on the coercer than on the coerced) but on the individual as well. This leads us to the valuable criticism given by T. H. Green, who, in his *Principles of Political Obligation*, lays down the principle that "those acts only should be matter of legal injunction or prohibition of which the performance or omission, irrespectively of the motive from which it proceeds, is so necessary to the existence of the society in which the moral end can be realized that it is better for them to be done or omitted from that unworthy motive which consists in hopes or fears of legal consequences than not be done at all."

It will be noticed at once that this fits in much more closely with the standpoint we have been adopting, since it makes the individual as much as society an ultimate standard. In these matters which do not directly or mainly affect personal development in its essence—namely, the spirit and the will—the State can interfere to order or forbid, in these matters which are vitally bound up with this development, then the State only interferes at the peril of what constitutes the only true justification of its existence.

THE STATE MUST BE TRUE TO ITS REAL PURPOSE

This point—to which we shall return—is of fundamental importance. The State can only claim our allegiance, if it is faithful to itself, if it uses its authority for the purpose for which it exists. If it forgets this and seeks to use it for an end which is only the negation of its true function, namely, the development of moral personalities, then resistance becomes a duty. There can be no obligation of obedience to power that is trying to coerce me into a crime. And if the State and I do not agree as to whether this particular action be a crime or not, I must take my own line rather than allow my individual conscience (i.e. my sense of right and wrong) to be coerced. In the long run I am a better citizen, I am helping the State more, by resisting it, even in an emergency, rather than by stifling my conscience into doing that I believe to be wrong. The greatest service I can render to society acting through the State is to keep myself morally pure, because the development of moral personalities is its only ultimate purpose. We are, therefore, brought to the next question—What are the conditions essential to the expression of personality, the circumstances without which there can be no true individual self-expression?

The answer to this question really involves a twofold search. We have first of all to try and define the primary "rights" of the individual, those guarantees we can claim as essential to this individuality; we next have to see in what manner, in what type of social organization, we can use these rights to the best advantage.

IDEAL AND ACTUAL RIGHTS

By a "right" we mean the recognition by society of the citizen's freedom to act as he thinks best in those matters in which free action is essential to the development of a moral personality. We may, if we wish, term these "ideal" or "necessary" rights. In most societies of to-day the citizen enjoys a number of legal rights, some of which would belong to that category of "ideal" rights, others of which (mainly in the use of property) may be unnecessary and even socially dangerous; few if any States, on the other hand, grant at present all the rights which we should call ideal. The power of political development is very largely the conquest of rights felt to be "ideal," or necessary to a full life, against an individual or class that was reluctant to see its powers curtailed. We may describe political progress, in fact, as the ever-continuing process of making legal rights coincide with ideal rights, together with a perpetually expanding view of what constitutes ideal rights—in other terms, with a constantly widening and deepening conception of what constitutes a really full and complete life.

A few instances will make this clear. A century ago the English working-man possessed, indeed, some essential ideal rights. He was free to worship God as he pleased; the law secured his life and property (such as he had); he could organize his family life as he chose; he had the (legal) right to follow whatever occupation he desired. He was fairly free to express his opinions in speech or writing. But he had in most cities no political rights, either local or national; he might not combine with his fellow workers for higher wages or shorter hours; no law limited his day's work so as to secure him a measure of leisure; neither education, nor hygiene, were held to be commodities which anyone could claim as a due. In other words, many rights which we now consider essential to a free life were then denied or ignored, and were only ultimately obtained by him as a result of bitter struggle.

PRIVILEGE THE DENIAL OF RIGHTS

Among the rights then unrecognized, and now only partly admitted, was that to social and political equality. By this we mean the recognition not of any hypothetical "natural equality" of man, but of a fact which is of the greatest importance in the economic sphere, that a "right" not enjoyed by all is a privilege, and therefore a denial of a true right. Privilege is, in fact, the negation of the equal right of all to their full moral development; it implies that there are individuals or classes that have a richer personality requiring more instruments for self-expression, a view that cuts at the root of any spiritual conception of the universe. The struggle against privilege in any form is, therefore, an essential part of any social progress, and in so far as it is the refusal to countenance privilege, democracy is essential to any society that claims to rest on a moral foundation. Thus it may be said that what really differentiates States from each other is not so much the outward form of their governments, monarchy, republic, etc., as the nature of the rights they recognize - or deny, since those rights are the expression of each State's conception of its own function. In most States they will be a mixture —many old rights, remnants of bygone traditions and struggles (as in Great Britain the subject's right to petition the Crown), some of recent acquisition; they will rarely, if ever, form a coherent whole, in harmony with a clearly thought-out conception of the nature and ends of that particular State. But although conscious purpose may be difficult to discern, the fact remains that the system and character of legal rights, the degree to which they are really guaranteed, form a far truer expression of the true spirit of a State than the largely illusory distinctions by which we are apt to classify constitutions.

WHAT RIGHTS MAY WE DEMAND?

This digression over, we return to our original question: How shall we define those rights which may be said to be "necessary" to individuality? And the answer is, all rights that we desire, provided that they are in harmony with the true purposes of human life. The assumption upon which this argument rests is that this ultimate purpose must be of the moral order. It cannot be the search for material wealth, and it cannot be achieved at the expense of anyone else. This may seem a truism, but is really a principle with far-reaching consequences.

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

(*Continued from page* 330)

VIII

ORGANIZATIONS IN THE FIELD

(*d*) PRIVATE NON-PROFIT-MAKING BODIES

By J. H. RICHARDSON, M.A., Ph.D.

THE three previous articles in this course have dealt with the League of Nations, the International Labour Organization, and other bodies with which governments are associated in an official or semi-official manner. The present article describes some of the chief private non-profit-making bodies exercising an influence on economic conditions by international action.

INDUSTRY, COMMERCE, AND TRANSPORT

The most influential private organization dealing with industry, commerce, and transport is the *International Chamber of Commerce*. This body was founded in 1920 to express the opinion of the business world.[1] Its main objects are to develop co-operation between the nations and to remove causes of economic disputes, thus contributing towards the maintenance of peace. Its active members are associations of bankers, industrial employers' associations, chambers of commerce, shipowners' federations, and other national or local associations or institutions of a financial, commercial, or industrial character which are representative and have no political aims. Individual bankers, industrial employers, and private and public companies may be associated members. Organizations or individuals in more than thirty countries are members. International conferences are held biennially, and between the conferences international committees of inquiry meet to examine problems of finance, commerce, industry, and transport. The Chamber has set up a Court of Commercial Arbitration to settle disputes between traders, industrial employers, and bankers of different countries, with a view to saving the costs and delays of the law courts. Representatives of the Chamber attended the World Economic Conference organized by the League of Nations in Geneva, May, 1927, and documents submitted by the Chamber had a considerable influence on the decisions of the Conference.

On somewhat similar lines certain more specialized organizations have been created. The *International Shipping Conference*, founded in 1921, co-ordinates the views of the shipping industry, and develops co-operation between shipowners internationally. Its members consist of the central organizations representative of the shipping industries in about fifteen countries. The *International Air Traffic Association* was founded in 1919 to establish unity in the exploitation of international air lines. A number of national air companies in various Western European countries are members. The *International Federation of Master Cotton-Spinners' and Manufacturers' Associations* was founded in 1904 to protect the common interests of the industry and to prevent speculation in and the cornering of cotton. Associations of cotton spinners in about twenty countries are members. Congresses are held every two years, statistics are published, and a court of arbitration has been set up to settle disputes between cotton spinners and weavers in different countries. Flax spinners, motor manufacturers, master tailors, and publishers have also formed international associations.

The co-operative movement is co-ordinated internationally by the *International Co-operative Alliance* and the *International Co-operative Wholesale Society*. The Alliance was founded in 1895 to promote co-operation in all countries; in 1924 it covered 32 countries with 74 national organizations consisting of 85,000 societies with a membership of 40 millions. The Wholesale Society was founded in 1924 to promote trading relations and interests between co-operative societies in all parts of the world.

EMPLOYERS AND WORKERS

On the employers' side, the *International Organization of Industrial Employers* was founded in 1920 for the joint study of social problems affecting industry and labour throughout the world. Attention is particularly directed to questions being dealt with by the International Labour Organization, with the object of formulating a common policy for the employers' group at the International Labour Conference. Several organizations of employers in special trades have also been created, including the *International Shipping Federation*, founded in 1909, to protect the interests of the shipping trade internationally, in so far as they are affected by labour questions, and to promote co-operation in industrial matters affecting the trade. Shipowners' associations in most of the chief maritime countries of Europe are members.

International organization on the workers' side is more highly developed. The most powerful body is the *International Federation of Trade Unions*, with headquarters at Amsterdam. The original Federation was founded before the war, but its development was interrupted during the period of hostilities. In 1919 the Federation was reconstituted and now includes the national trade union amalgamations of over twenty countries representing an active membership of about 13 millions. A congress is held every third year. An executive council and a general council manage the current

[1] Before the war periodical international congresses of chambers of commerce and of industrial and commercial associations were held.

affairs of the Federation. The finances are based on annual contributions from national amalgamations at the rate of 12 Dutch florins per thousand members. The objects of the Federation include promotion of the national and international trade union movement, the establishment of international social legislation, especially through the International Labour Organization, and the prevention of war by means of arbitration and disarmament. Mediation is offered in disputes within the trade union movement. The policy and objects of the Federation are accepted by the national amalgamations, which, however, retain complete national autonomy ; there is no dictation from Amsterdam. Support is given to national trade union activities only at the request of the national group.

The national amalgamations affiliated with the "Amsterdam" Federation are composed in most continental European countries of Socialist unions of workers in the different trades. Many other workers in these countries are combined in Christian trade unions, which have formed national amalgamations. These, in turn, are combined in the *International Federation of Christian Trade Unions*, with headquarters at Utrecht. The objects of this Federation are generally similar to those of the Amsterdam Federation, but as action taken is based on Christian principles its spirit is more conciliatory, and the class struggle is not emphasized as is often the case in Socialist unions. National amalgamations in about twelve European countries, representing some two million workers, are affiliated.

In addition to these two general organizations, there are many international federations of workers' unions for special trades. Most trades have two international organizations, the Socialist and the Christian. Among the trades for which international federations of these types have been formed are mining, building, textiles, printing, clothing, tobacco, and transport.

Of very different character is the *Red International of Labour Unions*. Founded in 1921, with headquarters at Moscow, the object of this organization is the amalgamation of all revolutionary class elements in the international trade union movement. Hostility is shown to the Amsterdam Federation, against which a vigorous campaign is conducted. Attempts, especially by the British Trade Union Congress, to reconcile the two organizations have up to the present signally failed. Unlike the Amsterdam and Christian federations, which support the International Labour Organization of the League of Nations, the Red International has hitherto shown strong opposition to the Geneva organization, which it regards as based on the capitalist system. The chief adherent of the Red International is the Russian trade union movement, with about 4½ million members. Its adherents from the Communist trade union groups of other countries total about three-quarters of a million.

MISCELLANEOUS ORGANIZATIONS

Various other international organizations exercise an influence on economic relations and conditions. The *International Society for Economic Entente* was founded in 1925 to work for world peace by the improvement of economic understanding between States. The *Pan-European Union* was set up in 1924, its chief object being to develop the economic unity of Europe. It endeavours by propaganda, research, and congresses to secure reduction of the economic barriers between the various countries. The *Pan-American Union* aims at developing better economic and other relations between American states. The *Institute of Pacific Relations* endeavours to promote the well-being of the peoples in the Pacific area.

Of more specialized character is the *International Committee to Promote Universal Free Trade*, which aims at a diminution of customs duties. It groups the national free trade organizations of about fourteen countries. The *International Association for Social Progress* endeavours, by means of research and of national and international conferences, to prepare public opinion in favour of social reforms. It also undertakes propaganda for the ratification and application of international conventions, especially those for the improvement of workers' conditions adopted by the International Labour Conferences.

Two organizations deal with agriculture, viz., the *International Agricultural Commission* and the *World Agricultural Society*. International organizations have been set up for the study and defence of the economic interests of the middle classes, to deal with certain aspects of migration, and to co-ordinate the activities of League of Nations unions in different countries.

. . .

The above review of international organizations, together with the reviews given in previous articles, shows the extensive development of bodies exercising international control, co-ordination or influence in economic affairs. The development is recent, extending in most cases only over the last thirty years, and many of the organizations are merely tentative in character. But the establishment of these organizations is a natural consequence of progress in communication and transportation, which is rapidly transforming the world into a more compact economic unit. Therefore, although many modifications will be necessary in the objects and structure of international economic organizations, the need for and development of machinery for economic co-ordination and control may be regarded as a permanent feature of international relations.

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STATISTICS

(*Continued from page* 332)

VIII

THE MEAN OR AVERAGE

WE have seen that one approximation to an answer to the question: What is the size of the family income? can be obtained by showing the frequency distribution, either in a table or on a curve. Other methods will now be considered

THE COMMON AVERAGE

The common average or arithmetical mean is probably the most familiar of all the methods employed for giving an indication of the nature of a group whose items differ quantitatively from one another. In some ways it is as good an answer as can be given to the question asked. Its advantages are obvious. If the values of the several items of the group are known, it is easily calculated by adding up the values of the constituent items and dividing by the number of items. Thus if the incomes of five families are 40s., 45s., 50s., 55s., and 60s respectively, the average is 50s. Or, again, if an aeroplane crosses from New York to Paris, a distance of 3,600 miles in 32 hours, we know that the average speed of the plane was 112·5 miles per hour. Or, thirdly, if in a population of 100,000 people, 1,700 children are born in a year, we know that the average birth rate per 1,000 of the population is 17 These are three examples of averages, easily calculated from a mass of varied information, and giving in a concise form income per family, speed per hour, and births per 1,000 of the population. The average thus presents the essence of the information contained in possibly hundreds of cases in one concise statement which is the kernel or gist of the whole; and we know that for the calculation of the average every single item must have been taken into consideration, not even the most extreme instance having been ignored, so that it sums up in brief form all the information available. Again, for comparative purposes, it has great merits. There is no simpler or more telling way of comparing rates of wages, or any other social fact, at different times or in different places, than by stating the average under each set of conditions. If we know that the average earnings per wage-earning family were £95 in 1911 and £190 in 1924 (according to Stamp and Bowley, *The National Income*, 1924) we have a telling contrast established which drives us to look for explanations. Or, if we know that the average height and weight of boys of a given age is less in poor districts than in well-to-do districts, again we have a comparison, put in a striking way, which, though not necessarily conclusive in itself, will lead to further inquiry and possibly become the occasion of social action.

There are other advantages in the use of the average. It can become the basis for further arithmetical computation. If we know that the average earnings of 100 men in a single week were 50s., we know that the wage-bill for the week was £250. And, again, it may become the basis for important and instructive estimates of future tendencies. Thus, on the assumption of certain average birth and death rates, Professor Bowley has made estimates of the population of this country at certain dates in the future which are of importance in the consideration of future economic policy. (See Statistical Appendix, I, page 48.)

ITS DISADVANTAGES

But while the average has these undeniable advantages and has proved its use for statistical purposes, there are decided limits to its application, and there are dangers if its legitimate employment is not understood. For one thing, it does not really tell us the nature of, say, the family income of a large group of working-class households; it only answers the question: What would the family income be on the assumption that the incomes are all equal? It tells us nothing about the dispersion of the instances; whether they are all nearly alike or whether they exhibit very great differences. Thus seven incomes of £1, £3, £5, £7, £9, £11, and £13 respectively yield an average of £7; but so also do seven incomes of £7 each. In the first case, the instances are widely dispersed, and the extremes £1 and £13 show a great deviation from the average or mean. In the second case the incomes are exactly equal, and the deviation from the mean is nil. The two groups are in fact totally different from each other, but the average conceals this fact and presents them as exactly the same. The average income per head in two countries might be almost identical; while in the one country there was an approach to equality of distribution, and in the other the greatest extremes of riches and poverty. In such a case the average is abstract and conceals rather than reveals the nature of the case.

Again, the ease with which the average can be calculated leads to its use in cases where it is invalid or at the best meaningless. It should be carefully noted that an average can be legitimately struck only where there is some feature common to the terms of the numerator and some feature common to the terms of the denominator, and where there is a real relation between these two features. Thus it is legitimate and useful to strike an average of the earnings of ship's platers in the shipbuilding yards on the Clyde; because in that case the terms of the numerator, namely, earnings, are similar in kind, and the terms of the

denominator are alike in that they are men working in the same occupation in the same district. But except for the most general purposes there is little meaning in stating the average number of rooms occupied per person in a whole country, for the only thing common to the terms of the numerator is that they are spaces enclosed by four walls: they may be large or small, well or badly lighted, in healthy or unhealthy surroundings, and so on; and the terms of the denominator are simply persons, who may be infants or adults and of either sex. Similar illegitimate or useless averages appear in statements of density of population in persons per square mile, where the land differs in quality from marshes to rich agricultural land or city areas; or, again, in statements of the amount of foreign trade per head of the population, where the results are reached by adding together exports and imports and dividing by the aggregate population of the country.

The following points may be briefly noted. (1) The larger the number of items, the more reliable is the average based on them. If we are dealing with few cases, the inclusion of a single exceptional case may make the average look absurd. (2) The average of a series of items may never actually occur in the series itself. Thus the average of 2, 4, 8, 12, 14, and 20 is 10. In such a case the average reveals nothing typical of the group. (3) An average may be "fictitious." The number of rooms occupied by private families in England and Wales in 1921 was 39,785,926, and the number of persons in private families was 36,179,946. This gives an average of 99 persons per room; but since people are not chopped up into decimal fractions and distributed over the available accommodation, this average is fictitious, though for comparative purposes it may be useful.

WEIGHTING

So far, we have spoken only of the simple arithmetical average. But it is sometimes necessary, if our result is to be accurate, to "weight" the average. From a knowledge of the fact that 5 per cent of the members of one trade union, 10 per cent of another, 7 per cent of a third, and 12 per cent of a fourth were unemployed in a given week, we cannot deduce the average amount of unemployment among those trade unions taken together. We must know in addition the number of members in each trade union and weight each percentage accordingly. If the membership of the first were 10,000, of the second 5,000, of the third 8,000, and of the fourth 4,000, the total membership being 27,000, the average amount of unemployment would be—

$$\frac{5\% \times 10{,}000 + 10\% \times 5000 + 7\% \times 8000 + 12\% \times 4000}{27{,}000} = 7{\cdot}5\%$$

In this case its due importance is given to each item by weighting it by its appropriate number. The numbers 10,000, 5,000, and so on are the "weights." A weighted average, therefore, is got by multiplying each of a series of quantities by the number of persons or things connected with it (the weights), and taking the sum of these results as the numerator and the sum of the weights as the denominator.

It will be seen from the above example that it was unnecessary to take the actual numbers of members as the weights; we should have reached the same result by using as weights the numbers 10, 5, 8, and 4 respectively, and so saved ourselves some unnecessary writing. Even when the originals are not round numbers, it will usually be sufficiently accurate to take as weights their nearest submultiples, which may greatly simplify the calculations. The slight difference made by using the actual numbers or using their approximate submultiples may be seen from the following case

Unemployment percentage of four trade unions	Each union counted as one	Actual membership of the unions	Weighting by approximate submultiples
1	2	3	4
5%	1	10,373	10
10%	1	4,964	5
7%	1	8,211	8
12%	1	3,875	4
Average	8·5%	7·49%	7·5%

There is thus a great difference between the unweighted average, 8·5 per cent shown in column 2, and the weighted average, 7·49 per cent shown in column 3; but the difference between the latter, in which the original numbers were used as weights, and the average, 7·5 per cent shown in column 4, which resulted from using the submultiples as weights, would be for many purposes negligible.

In the above illustration we have used only four cases, and they differ considerably from one another in the percentage of unemployment which they exhibit. In a case like that weighting is absolutely essential for accuracy of result. But if we are dealing with large numbers of cases, differing slightly from each other, the absence of weighting makes no serious difference to the result. It is necessary, however, when making use of these simplified methods, either by using sub-multiples, or by omitting weights altogether, to test the validity of the method.

STATISTICAL APPENDIX

(*Continued from page 330*)

SHIPBUILDING

THE outstanding features of the British shipbuilding industry are its great growth in the last forty years, its extreme irregularity as measured by the output from year to year, and, recently, the very great depression from which it has suffered. These features can be seen in Fig. 13 Table LI gives the number and net tonnage of vessels produced, in annual averages over five-year periods from 1886 to 1925.

The next table (LII) is designed to illustrate the position which has been and is now occupied by the United Kingdom as a builder of the world's ships. The table shows, in annual averages of five-yearly periods, from 1892 to 1925, the gross tonnage of merchant vessels built in the United Kingdom, the British Overseas Dominions, other countries, and the world as a whole, and in the last column is shown the British output stated as a percentage of the world's total. It will be seen that after being responsible, in the nineties, for as much as 80 per cent of the world's output of ships, the production of the United Kingdom stabilized itself during the first fourteen years of the present century at approximately 60 per cent of the total world output, but the way lost during the war has never been recovered. By 1925, however, Great Britain and Ireland were producing practically one-half of the world's output of tonnage. The disastrous year, 1926, saw a drop to 34 per cent; but in 1927 there was a recovery, and the provisional figures for that year show an output for Great Britain and Ireland which again approached the 50 per cent mark. Moreover, in spite of vicissitudes, Great Britain and Ireland still retain their leadership in ship production, as is seen in Table LIII. Table LIV, taken from the *Preliminary Report of the Census of Production* (1924) *on the Shipbuilding Industry*, shows the number of persons employed in shipbuilding in Great Britain in 1924 (other than those in Government employment). The numbers similarly employed at the time of the First Census of Production (1907) are also given; but the two sets cannot be compared, the earlier being for the United Kingdom and the later for Great Britain only.

The shipbuilding of the United Kingdom is carried on wherever coal and iron deposits are situated near a suitable river. Before the war the Clyde produced about 35 per cent of the total output while the combined output of the Tyne, the Wear, and the Tees amounted to one-half of the total. The remainder was distributed among other places, such as Hull, Southampton, the Mersey, London, etc. For 1926 the distribution of output is shown in Table LV.

Table LVI shows the vessels of 100 gross tons and over, *owned* by the United Kingdom,

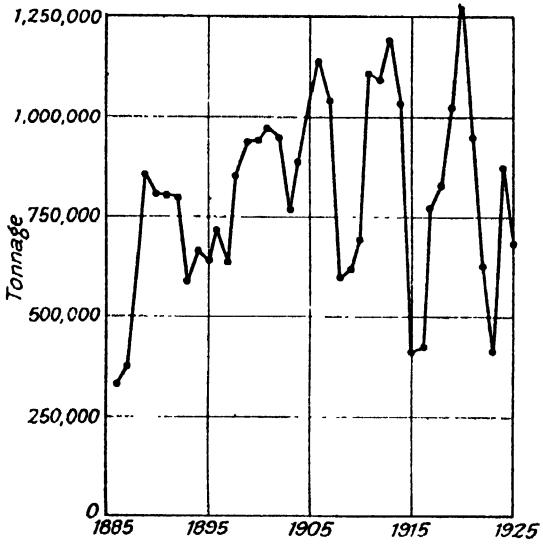

FIG. 13

the British Overseas Dominions, and other countries, in 1913-14 and in 1925-26.

MARINE ENGINEERING

Of the marine engines and machinery required for fitting into ships, part is made in marine engine works operated by shipbuilders, part in independent marine engineering establishments mainly engaged on such machinery, and part in general engineering establishments. Table LVII shows the total value of such machinery made in the different types of establishment, and distinguishes the several classes of product. These totals include only products made on a profits basis, and therefore do not include those made by Government Departments and Local Authorities. Table LVIII shows the exports from the United Kingdom of such machinery in 1924. Imports are negligible, amounting for the year to only £1,500 in respect of nine sets of internal combustion engines.

TABLE LI

NUMBER AND NET TONNAGE (ANNUAL AVERAGES IN FIVE-YEAR PERIODS) OF ALL SAILING AND STEEL VESSELS (OTHER THAN WAR VESSELS) BUILT IN THE UNITED KINGDOM IN THE PAST FORTY YEARS

(Based on figures in *Statistical Abstract of the United Kingdom*)

Period	Sailing Vessels		Steam vessels		Total		Period
	Number	Net tons	Number	Net tons	Number	Net tons	
1886-90	310	122,922	609	464,912	919	587,834	1886-90
1891-95	378	160,980	649	539,148	1,027	700,128	1891-95
1896-1900	593	59,664	792	757,091	1,385	816,755	1895-00
1901-06	518	57,791	802	862,359	1,320	920,150	1901-05
1906-10	443	37,686	883	781,875	1,326	819,561	1906-10
1911-15	308	32,658	818	937,450	1,126	970,108	1911-15
1916-20	128	21,051	482	842,827	610	863,878	1916-20
1921-25	242	25,725	462	684,301	704	710,026	1921-25

TABLE LII

GROSS TONNAGE OF MERCHANT VESSELS BUILT IN THE BRITISH EMPIRE AND FOREIGN COUNTRIES

(Annual average)

(Compiled from *Lloyd's Register of Shipping*)

Period	British Empire		Other countries	Total	British output as percentage of world total
	United Kingdom	Dominions overseas			
					per cent
1892-4	998,000	14,000	224,000	1,236,000	80·7
1895-9	1,170,000	11,000	146,000	1,627,000	71·9
1900-4	1,358,000	18,000	936,000	2,312,000	58·7
1905-9	1,396,000	16,000	918,000	2,330,000	59·9
1910-14	1,660,000	35,000	1,044,000	2,739,000	60·6
1915-19	1,078,000	126,000	2,480,000	3,684,000	29·2
1920-24	1,342,000	83,000	1,887,000	3,312,000	40·5
1925	1,085,000	32,000	1,076,000	2,193,000	49·4

TABLE LIII

VESSELS AND GROSS TONNAGE PRODUCED BY THE MAIN SHIPBUILDING NATIONS, 1926 AND 1927

(From the Engineering Supplement of the *Glasgow Herald*, 1927)

	1927		1926	
	Vessels	Tons	Vessels	Tons
Great Britain and Ireland	933	1,379,712	634	730,134
Germany	195	359,961	117	217,016
Holland	618	308,839	623	278,513
United States	236	221,967	244	188,407
Italy	45	137,525	33	259,032
France	142	94,288	153	162,250

TABLE LIV

NUMBER OF PERSONS EMPLOYED IN SHIPBUILDING YARDS AND IN MARINE ENGINE WORKS OPERATED BY SHIPBUILDERS, EXCLUSIVE OF THOSE IN GOVERNMENT EMPLOYMENT

(From *Preliminary Report on Shipbuilding and Marine Engineering, Census of Production*, 1924)

Ages	1924 Great Britain			1907 United Kingdom		
	Males	Females	Total	Males	Females	Total
Under 18	17,340	356	17,702	21,344	179	21,523
Over 18	155,546	3,277	158,823	165,751	1,038	166,789
Total	172,892	3,633	176,525	187,095	1,217	188,312

TABLE LV

BRITISH SHIPBUILDING CENTRES

River	Vessels	Tons	Percentage
The Clyde	173	287,244	39·3
Tyne	26	132,385	18·1
Lagan	10	92,525	12·7
Mersey	82	64,442	8.8
Tees	24	37,193	10·0
Wear	8	35,123	
Others	311	81,222	11·1
Total	634	730,134	100 0

TABLE LVI

NUMBER AND GROSS TONNAGE OF VESSELS OF 100 TONS AND OVER, BELONGING TO EACH OF THE IMPORTANT MARITIME COUNTRIES OF THE WORLD

(From *Lloyd's Register of Shipping*, Vol. II)

Country	1913-14		1925-26		Difference between 1913–14 and 1925-26 Gross tons
	Number	Tons Thousands	Number	Tons Thousands	
Great Britain and Ireland	8,514	18,274	8,559	19,441	+ 1,167
Dominions overseas	1,495	1,575	2,430	2,781	+ 1,206
British Empire	10,009	19,849	10,989	22,222	+ 2,373
U.S.A. (sea)	1,209	1,972	4,265	12,949	+ 10,977
U.S.A. (lakes)	593	2,280	525	2,365	+ 79
France	987	1,793	1,828	3,512	+ 1,719
Germany	2,019	4,743	2,028	3,074	1,669
Holland	662	1,287	1,099	2,601	+ 1,314
Italy	591	1,274	1,353	3,029	+ 1,755
Japan	1,037	1,500	2,087	3,920	+ 2,420
Norway	1,597	1,871	1,805	2,681	+ 810
Other countries	5,193	6,504	6,917	8,288	+ 1,784
World total	23,897	43,079	32,916	64,041	+ 21,562

TABLE LVII

CLASSES AND VALUE OF MARINE MACHINERY PRODUCED IN GREAT BRITAIN ON A PROFITS BASIS IN 1924

(From *Preliminary Report of Census of Production on Engineering Trades*)

Products of 1924	Returned by marine engineering firms		Returned by other engineering firms	Total
	Quantity	Value	Value	Value
		£ 000's	£ 000's	£ 000's
Marine engines				
Steam reciprocating				
Complete	145 sets	1,490	110	1,514
Parts	--	25		
Steam turbines				
Complete	25 ,,	1,553	49	1,634
Parts	--	32		
Internal combustion				
Complete	1,583 ,,	2,454	76	2,602
Parts	--	72		
Marine boilers				
Number stated				
Complete	664 boilers	1,421	94	1,592
Parts	--	49		
Number not stated				
Complete	--	21		
Parts		7		
Marine machinery not separately distinguished	-		494	494
Other marine machinery				
Complete	---	2,205	371	3,005
Parts		369		
Total	--	£12,677	£1,104	£13,781

Included in the above statement are the marine machinery products made in marine engineering works operated by shipbuilding firms and amounting in value to £7,004,000.

TABLE LVIII

EXPORTS OF MARINE MACHINERY, ETC., FROM UNITED KINGDOM IN 1924

(From *Preliminary Report, Census of Production, Engineering Trades*)

Machinery	Exports	
	Quantity	Value
		£
Marine engines—		
Steam reciprocating	65 sets	500,000
,, turbines	7 ,,	249,000
Internal combustion	95 ,,	334,000
Boilers	129 boilers	397,000
Other marine machinery	--	273,000
Total value	--	£1,753,000

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page* 338)

IX

THE MIDDLE AGES—MARKETS AND FAIRS

"All merchants shall have safe and secure exit from England, entry into England, and dwelling and movement within England, as well by sea as land, for buying and selling according to ancient and right custom. . . ."—*Magna Carta*, 1215.

WHATEVER may have been the origin of a town, it was soon recognized that it offered advantages as a centre of trade. There is a law of Athelstan in the early part of the tenth century which required all sales for more than a certain sum to be effected in a town where there should be witnesses. The intention seems to have been to prevent thieves from disposing of stolen goods. Honest dealers also found that it was useful to have evidence of their sales, for it gave them proof of debt if they had to proceed to the recovery of it. Legislation designed to facilitate lawful enterprise was greatly extended during the Middle Ages The towns profited from it. They were granted the right to hold markets. Under the terms of such a grant a town could set up stalls, booths, or halls, and let them for a rent on market days to inhabitants of the town or the neighbouring country. They could prescribe the hours and conditions of sale. A public scales could be provided, by reference to which disputes between parties were settled. Action could be taken against any who were suspected of engrossing, forestalling, or regrating, i.e. of attempting to drive up prices by control of supplies. In these and other ways the market was regulated so as to safeguard what the mediaevalist considered to be the principles of fair dealing. Markets were normally held once a week. The trade in them was virtually confined to local commodities, usually the ordinary necessaries of life, and the area from which buyers and sellers were drawn was not a wide one.

THE FUNCTION OF FAIRS

While the markets effected the economic integration of a restricted region of which the town was the centre, fairs were the means of fostering national and even international trade. They seem to have originated in religious festivals and many of them continued to be known by a saint's name and to fall on his day. Fairs were franchises and were made by royal grant in considerable numbers from the twelfth century onwards. The date on which they were to be proclaimed and the period of duration of the special privileges involved were definitely laid down. In the majority of cases they were annual and limited to one day. But the great fairs lasted for as long as a fortnight or even a month. Merchants could arrange their movements in accordance with the known facts about the fairs. They knew what special commodities would be offered for sale and what could be sold at each fair, e.g. they would buy wool, hides, or cloth at an English fair and sell wines, drugs, spices, and dyes there. So the fairs promoted trade over a wide area, each local fair providing buyers with an opportunity to purchase goods brought from great distances. In Western Europe generally steps were taken to ensure that merchants were encouraged to perform their special functions. When the fair was proclaimed local restrictions on trade were suspended, the powers of the local authorities being superseded in favour of those of the officials responsible for the conduct of the fair. A special peace was declared, and a court was set up where speedy justice was administered according to the general principles of the Law Merchant which were common to Western Europe. For the time the restrictions so characteristic of the Middle Ages were set aside. Trade was not free in the sense that imposts and tolls were not charged, but in the sense that local privileges were temporarily abrogated. This was, no doubt, to the advantage of local merchants as well as to that of large consumers such as monasteries and great lords, for the most valuable trade at the fairs was wholesale. Much of what was bought then would be retailed during the rest of the year.

THE DISTRIBUTION OF FAIRS

It might be supposed that since the right to hold a fair was a matter of royal grant it would be possible to discover some policy both with respect to the distribution of fairs geographically and throughout the year. But this cannot be demonstrated. Fairs were often granted without any definite reference to trade routes, but they would not flourish if they defied the facts of geography. In the course of time there would be a survival of the fittest and the emergence of a cycle; merchants would follow the best routes and would attend fairs in the order which best suited the exchange of goods. It is said that the great English fair of St. Ives was granted to the Abbey of Ramsey because the discovery of the saint's relics attracted great numbers of pilgrims there at the beginning of the twelfth century. The situation on the Ouse happened, however, to be a convenient one for the sale of hides and wool in exchange for foreign commodities. When a fair was well established it could resist the setting up of another within a certain radius and thereby safeguard its interests. For one reason and another, despite the great number of grants, the great fairs were comparatively few. The most famous in Western Europe were those of Champagne and Flanders, and these

owed their importance to geographical position. The trade routes from the Mediterranean and Central Europe to the North Sea converged at these points and great caravans of merchants, among whom Italians and Flemings predominated, carried their goods to the fairs. In England the chief fairs were St. Ives, already mentioned, St. Giles at Winchester, important for the French trade, Stourbridge, near Cambridge, and Bartholomew at Smithfield. The fame of the last two long survived the Middle Ages.

THE ORGANIZATION OF CREDIT

The distribution of commodities over a wide area presented new problems. The merchants who organized it had to have command of considerable capital resources. They had to make large purchases, bear the costs of conveyance of goods from one fair to another, and wait for payment. Whatever may have been the origin of their initial capital there is no doubt that the profits of trade enabled them greatly to augment it. The wealthy merchant performed many of the functions of a banker. He accepted "deposits" by admitting those who had money to invest into partnership or raising loans on bottomry, he made "advances" on bills of exchange or by allowing long credit. For these services he exacted payment in some form or other. It is true that the Church condemned usury. When outlets for investment became more abundant, however, ways and means were found to escape ecclesiastical censure. It was possible to contend that the lender had lost an opportunity of buying something he wanted while his money was in the hands of the borrower and to ask for compensation, or it could be represented that the borrower had broken his contract to repay the loan at a fixed date and, therefore, ought to pay damages. These were contingencies actually recognized by the Church and they opened the door for usury, for the lender's loss in one case or the damage he had suffered in the other might be altogether fictitious. There might, indeed, be a collusive understanding between the parties that some such allegation would be made and not contested, and, consequently, the lender would be fairly sure of his "interest." Money-lending soon passed out of the hands of the Jews—whose operations did not come under the review of the Church—into those of the Italians. By the end of the thirteenth century Italian financiers were making large advances to kings, nobles, and even abbots on security of their future income in the form of taxes or rents It is said that there were eighty banking houses in Florence at this time.

THE IMPORTANCE OF FAIRS

Fairs offered the financiers opportunities for all kinds of business. In Champagne, Flanders, and to a lesser degree in England, they dealt in such raw material as wool, and in luxuries which had to be conveyed for great distances. They undertook the lucrative work of exchange, which the great diversity of coins made necessary. They introduced "fair bills," which eliminated the payment of debts in coin, and arranged for their cancellation one against another by a system of clearance. In the fairs, it has been said, goods and money ceased to be objects of consumption and became capital. A complicated system of speculation was based on them, which made it possible for an increasing volume of trade to be carried on. The fairs enabled the merchants to perfect the methods which they afterwards applied in the general development of foreign trade. They broke down mediaeval local isolation and prepared the way for the international trade rivalries of the sixteenth century. At first the commodities which entered into distant trade were few—usually luxuries which could bear heavy costs and were not bulky—but step by step other commodities were conveyed considerable distances as the means of transport and of conducting such transactions improved.

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page* 340)

IX

GRASSLANDS—(*continued*)

As you move north or south from the Selvas region of South America, you pass through park-land on to grassy plains, llanos and pampas, and the latter pass into real steppe farther south.

But these plains are all of them much younger, in a geological sense, than the great plains of Asia, on which our chief domestic animals evolved; and the most useful native animals of South America, the llama and the alpaca, were evolved, like the potato and the maize plant, up in the Andean "basins," i.e. the high mountain-girt plateaux between the various ranges, where the climate was most favourable, and where they had few enemies. Horses, cattle, and sheep were introduced by the White man, i.e. more or less recently; and, though the conditions are in many ways very favourable, the animals are essentially "foreigners," and have not become properly acclimatized. This is an advantage to breeders of pedigree stock, especially in the British Isles, as it means a constant demand for new blood.

The chief stock are cattle, numbering more than sheep and horses put together; and these cattle are bound to be mainly on the (largely tropical) grasslands—the pampas (Argentine and Uruguay), the llanos (Colombia and Venezuela), and the campos (Brazil). Argentina practically controls the beef market of the world. "Temperate" grasslands are found only to the south of the continent, where, too, the great meat trade has sprung up; and Argentina (including Patagonia) and Uruguay have nearly 80 per cent of the sheep of the whole continent. The horses are naturally associated with the historic cattle areas, the Argentine having over 50 per cent and Brazil well over 30 per cent, i.e. over 80 per cent in two countries. As a large part of these plains is very suitable for agriculture, especially the growing of wheat and maize, pigs—though at present unimportant—are likely to increase rapidly in numbers; and probably, a little later, there will be a similar rapid development of a poultry industry. Success in every case depends on ease of transport: and in this connection it is worth noting that Uruguay, the nearest temperate country to Europe and possessing good river and sea communications, has far the largest number of animals per square mile (nearly 1,000), and the largest per capita (nearly 50). In both respects Argentina comes second, with over 300 to the square mile, and over 40 per capita; but Uruguay is *only* pastoral, while Argentina has an exceedingly important agricultural industry.

AFRICA

Africa is even more tropical than South America so far as latitude is concerned. It lies directly across the Equator, with the extreme north and the extreme south at about equal distances from the Equator; and it includes both Tropics, with their associated belts of high pressure. Its structure and relief combine also to intensify the tropical influence. For apart from the Atlas—there are no real mountains in the whole vast continent, which forms practically one enormous plateau. The south-eastern half is higher than the north-western, and the upturned edge of the plateau *from below* may look like a mountain range; but even in the Drakensberg "Mountains," neither structure nor influence is montane.

We might guess this from the great proportion of desert in the country, but the high-pressure belts play a large part in the distribution of this. It is the general character of the plateau that is so unfavourable. Almost everywhere it rises in terraces from the coast only to break off with a flat "table" top, and then sink gradually inland. This not only spoils the rivers for continuous navigation, and specially for access to the ocean, but it condemns nearly all parts to a shortage of rainfall, for inflowing winds tend to be drained of moisture before they reach the interior. Of course, there is a wedge of constant rain along the Equator, widening westward and including part of the Guinea coast; and the vast expanse of the Sahara, completely shut in by the land-mass of Eurasia, heats up so fiercely in the summer that a S.W. monsoon blows inwards across the Guinea coast. But the mass of the continent remains deficient in rainfall. It is true that most of the continent south of the Equator has at least 20 in. of rain in the six months from November to April, and some parts have over 40 in.; but what is the value of even 40 in. of rain if the average temperature is above 80° F., and if both evaporation and percolation are very rapid? The definite results are that as much of Africa is uninhabitable from lack of rain as in South America from excess of rain, and that the typical vegetation of the continent is grassland—tropical grassland.

What effect will this have on the distribution of animals? Much of the area would form admirable pasture for horses, but in this "Dark Continent"—the essential home of the slave trade—human labour was abundant and very cheap, and there has never been any real demand for horses or for mules and asses. The tropical latitudes are more favourable to cattle than to sheep and goats, but the latter are the more suited to the deficient rainfall. We may expect then that there will be a

considerable number of cattle on the best-watered parts of the tropical "savanna" and of sheep and goats on the temperate veldt, and the actual returns for the various areas confirm this. Nearly half the horses in the continent are associated with the European colonization of the Union of South Africa; more than half the cattle are found on the high eastern plateau, and are owned by natives; and more than half the sheep are in the Union of South Africa. Indeed, the Union contains about twice as many animals as British East Africa, and the latter has about twice as many as any other political unit, e.g. Algeria or Morocco.

NORTHERN CONTINENTS

Asia, though in many respects a "primitive" area, like Africa and South America, combines many of the physical characteristics of both—on an enormous scale. It is, of course, far the largest continent in the world, and in all its phenomena one must always be guarding against the "control" exercised by sheer size. It has also the greatest average height and the greatest extreme height; it has as much plateau as Africa and far vaster mountain systems than South America.

The chief characteristic of the continent is the extent and the height of plateau, and the shape and the position of this divide the whole into four vast areas—two of highland and two of lowland, with the Pamir (37° N., 73° E.) as the pivot. The edges of the highlands, especially to the south, are marked by the greatest mountains in the world, the Himalayas and their associated ranges in the Hindu Kush, Kun-lun, and Tian Shan. These buttressed plateaux fill up all the mass of the continent between the Aegean and Behring Strait, and the whole of the area north-west of this nucleus is a continuous vast plain, crossed by some of the greatest rivers in the world, e.g. the Ob and the Yenisei. Mere size prevents the core of the continent from getting much rain; the height of the mountains prevents much of it from getting any rain; and almost nowhere is there a sufficient and *well-distributed* rainfall. But the size and other physical characteristics lead to an immense area of very high pressure in winter, when winds blow outward in all directions, and one of very low pressure in summer, when winds blow inward from all directions. There are, then, immense areas with very dry climate and others with heavy monsoon rains in summer. The latter are naturally unfavourable to pastoral industries, while the former are fit for very little else. But the conditions are not quite normal For the mass of the population is concentrated in the monsoon areas, and the need for draft beasts, especially in India, is decisive; indeed, India alone has nearly 200,000,000 cattle, and even China has well over 20,000,000. The whole of Russian Asia, on the contrary, has not 10,000,000.

EUROPE

Europe and North America cannot be compared with the other three continents, for in them the artificial conditions—already noticed in India—have become the normal conditions. Both continents, of course, have temperate climates, and the structure and relief of both are favourable to other than pastoral developments. It may seem difficult, however, to believe that in the case of horses, cattle, sheep, and pigs alike, North America is behind—in some respects far behind—Europe. The latter has nearly four times as many sheep, half again as many horses, 17 or 18 per cent more cattle, and even 8 or 9 per cent more pigs. To some extent, too, the distributions show a geographical control; thus, 70 per cent of the horses are on the Great European Plain—in Russia, Poland, Germany, and France, and 50 per cent of the cattle are on the same area—in Russia, Germany, France, and Poland. Over 75 per cent of the pigs are associated with the grain-growing areas (especially barley and maize), e.g. in Germany and Czecho-Slovakia, a large proportion of the rest being associated with easy import of feeding stuffs, e.g. in Denmark. Sheep are still largely associated with poor, high land, and with backward areas, e.g. in Russia and Spain, Rumania and Italy; but other factors are also at work in Britain, far more important than any other country (though Russia has actually more sheep), and France, with nearly half as many as Britain. The Italian sheep are concentrated *not* on the Alps, but on the Apennines, for the real *alp* is too good pasture to be "wasted" on sheep.

NORTH AMERICA

The story of North America is rather different, but purely geographical factors are still obvious, even behind clearly economic ones. Horses are most numerous in the grain-growing areas, e.g. Saskatchewan and Iowa or Illinois, and relatively more important in Canada than in the U.S.A. Cattle, in any numbers, are confined to the same two countries, but the U.S.A. has some 60,000,000 more than Canada, and Canada has five times as many as Mexico. The same is true of pigs, though Canada has more than twice as many cattle as she has pigs, while in the U.S.A. the number of both is about the same, i.e. approaching 70,000,000. It is entirely a matter of fattening on maize, Iowa alone feeding about 9,000,000 pigs, while Illinois feeds over 4,000,000, and Missouri and Indiana over 3,000,000 apiece. Other grain states are also important, e.g. Nebraska (4,500,000) and Minnesota, South Dakota, and Ohio (2,500,000). Sheep are very closely associated with the Cordilleran States, Wyoming and Montana, New Mexico and Utah, though its size makes Texas seem important as having both the most sheep (3,200,000) and the most beef cattle (5,200,000).

PRODUCTION

(*Continued from page 342*)

IX

THE HUMAN ELEMENT IN PRODUCTION—(*continued*)

OCCUPATIONAL TRANSFERENCE. TABLES

THE significance of the tables reproduced below, and on the following page, was suggested in Part VIII of this section. Table I (overleaf) summarizes certain changes in the occupational distribution of insured workpeople. Table II (on this page) is based upon a "sample" inquiry, and indicates the kind of change which is continually taking place between industry and industry. Its special reference, however, is to the "abnormal" years 1920-25, and it does not present a fair picture of the tendencies which would be discernible over a longer period. These post-war years were years of crisis in our industrial history. It is during such crises that the capacity of the social structure to adjust itself to internal strains strains which result from the complexities of the division of labour– is most severely tested.

An examination of Table II suggests that, under present conditions, some industries are much harder to get into, and to get out of, than others. Of those represented in the table, the least "mobile" is coal-mining. Less than 10 per cent of the 6,000 odd workers whose circumstances were investigated came into coal mining from other industries. This discovery will cause no surprise to anyone who has followed the recent history of this unhappy industry. It is just because it is so difficult for miners to fit themselves into other occupations that the present problem of the industry, which is a problem of "surplus capacity," is socially so serious. Its gravity has already led to the enactment of legislation designed to limit recruitment to the industry, and to the setting-up of an *ad hoc* committee, the Industrial Transference Board, which is expected to devise means of "demobilizing" coal miners. In the end measures more comprehensive even than these are likely to be required.

It will be noticed that it has largely been from the *engineering* and *building* trades (according to Table II) that other industries have drawn recruits. This is partly to be explained by the existence, in these occupational groups, of a large unskilled element which readily drifts from industry to industry But it should be noted that the table is, statistically, biased. It does not give an altogether fair picture, for this reason: that the Unemployment Insurance Acts were applied, in the first instance, to a limited number of trades only, among which engineering and building were included. The proportion of insured workers who have had experience of these trades is, therefore, abnormally high.

Finally, it may be pointed out that the four occupational groups at the *bottom* of the table are —as might be expected—those in which unskilled labour predominates. General labourers, navvies, low-grade clerical workers, figure largely in these groups. It is only where capacity and specialized training are lacking that occupational mobility, which economic textbooks were once apt to assume, does in fact exist.

TABLE II

TABLE SHOWING, OF MALE WORKERS INSURED IN EACH INDUSTRY IN JULY, 1925, THE PERCENTAGE WHO WERE IN THE SAME INDUSTRY AT THE DATE OF ENTRY INTO INSURANCE; AND THE PRINCIPAL INDUSTRIES FROM WHICH, IN EACH CASE, TRANSFERENCE HAS TAKEN PLACE

Industry (1)	Number of Male workers included in the sample (2)	Percentage who were in the same industry at the date of entry into insurance (3)	Principal industries from which transference has taken place, and percentage of workers in the sample recruited from each (4)
1. Coal mining	6,115	90·1	Engineering (2·1). Building (1·4)
2. Boot and shoe trades	432	88·2	Engineering (2·5). Leather goods (1·0)
3. Cotton manufacture	957	85·2	Engineering (5·1)
4. Wool manufacture	488	79·0	Engineering (4·8) Cotton and other textiles (3·1) Building (2·9
5. Printing and paper trades	1,032	78·7	Engineering (1·0). Distributive trades (3·1)
6. Dress manufacture	611	78·6	Distributive trades (4·8) Engineering (3·0)
7. Engineering	3,441	75·2	Metal goods (3·3). Building (3·3) Vehicles (2·9) Shipbuilding (2·(
8. Shipbuilding and ship-repairing	1,100	73·8	Engineering (14·8) Building (3·1)
9. Building	3,866	73·4	Engineering (5·0) Public works contracting (3·3)
10. Commercial and clerical	476	70·8	Distributive trades (5·4). Building (4·0) Engineering (2·5)
11. Shipping service	689	68·8	Shipbuilding (6·4). Engineering (4·5) Commercial, etc. (4·1)
12. Distributive trades	4,544	67·9	Engineering (3·7). Food and drink trades (3·4) Building (2·7)
13. Woodworking trades	862	67·6	Building (8·0) Engineering (6·2). Shipbuilding (2·2)
14. Iron and steel	1,041	64·0	Engineering (16·6) Building (3·5) Metal goods (2·7)
15. Food and drink trades	1,294	62·5	Distributive trades (8·0) Engineering (5·8) Building (3·7)
16. Canals, docks, etc.	920	61·5	Shipbuilding (7·0). Engineering (5·8) Building (4·1)
17. Bricks, tiles, cement	438	57·3	Engineering (0·8). Coal mining (6·4) Building (5·9)
18. Chemical trades	776	57·2	Engineering (10·7). Building (6·3). Distributive trades (2·7)
19. Road transport	1,446	56·5	Engineering (7·1). Distributive trades (4·9) Vehicles (4·6)
20. Vehicles	1,247	56·1	Engineering (24·6). Building (2·9)
21. Metal goods	1,814	56·1	Engineering (20·8). Iron and steel (3·6). Vehicles (3·0)
22. Gas, water, and electricity supply	756	47·8	Engineering (11·9). Building (11·4). Road transport (2·8)
23. Railways[1]	812	47·1	Engineering (15·8). Building (6·7). Vehicles (5·4)
24. Public works contracting	784	42·9	Building (12·1). Engineering (7·7). Shipbuilding (3·8)
25. National and local government	1,653	42·0	Gas, water, etc. (9·3). Building (8·8). Engineering (8·2)

[1] Non-permanent workers. The "conciliation grades" on the railways are not insured under the Unemployment Insurance Acts.

TABLE I

Changes Between July, 1923, and July, 1927, in the Total Estimated Numbers of Insured Workpeople in Certain Industries in Great Britain and Northern Ireland

Numbers of workpeople in thousands (000's omitted)

(a) Industries in which increases have occurred

Industry	July, 1923		July, 1924		July, 1925		July, 1926		July, 1927		Percentage increase based on number insured July, 1923				Increase or decrease in numbers insured 1923-27	Numbers unemployed Oct., 1927
											July					
	No.	Percentage of total insured population	No.	Percentage of total insured population	No.	Percentage of total insured population	No.	Percentage of total insured population	No.	Percentage of total insured population	1924	1925	1926	1927		
Distributive trades	1,254	10·92	1,355	11·62	1,405	12·32	1,514	12·58	1,581	13·03	8·1	16·9	20·8	26·1	327	80
Building and public works contracting	844	7·35	860	7·37	909	7·64	971	8·06	1,017	8·39	1·9	7·7	15·0	20·5	173	125
Road transport	257	2·24	270	2·31	279	2·35	292	2·42	307	2·53	5·0	8·4	13·4	19·4	50	24
Construction and repair of motor Vehicles	192	1·67	204	1·74	214	1·80	224	1·86	233	1·92	6·1	11·7	16·6	21·4	41	19
Bricks, tiles, cement etc.	88	0·77	98	0·84	110	0·93	118	0·98	124	1·02	11·2	24·8	33·7	40·5	36	8
Printing, publishing, etc	228	1·98	241	2·06	244	2·05	251	2·08	257	2·12	5·5	7·0	10·0	12·6	29	11
Furniture trades	94	0·82	98	0·84	102	0·86	108	0·90	114	0·94	3·7	8·5	14·9	21·7	20	5
Laundries and dyeing	107	0·93	113	0·97	118	0·99	123	1·02	127	1·04	6·0	10·2	14·7	18·6	20	5
Fishing and shipping service	152	1·32	153	1·31	165	1·39	169	1·40	171	1·41	0·4	8·8	11·1	12·3	19	24
Electrical engineering	61	0·53	71	0·61	76	0·64	76	0·64	79	0·65	17·0	24·7	25·4	30·1	18	4
Silk and artificial silk	37	0·32	41	0·36	47	0·39	51	0·42	55	0·45	11·2	24·8	36·3	47·6	18	3

(b) Industries in which decreases have occurred

											Percentage decrease					
General engineering	667	5·81	628	5·39	623	5·24	612	5·09	600	4·95	5·8	6·5	8·2	10·0	−67	59
Shipbuilding and ship-repairing	270	2·35	254	2·18	240	2·02	223	1·85	216	1·78	5·8	11·0	17·3	20·0	−54	45
Coal-mining	1,244	10·83	1,259	10·80	1,233	10·37	1,226	10·18	1,190	9·86	1·3[1]	0·8	1·4	3·6	−45	224
Woollen and worsted	269	2·35	262	2·24	256	2·15	254	2·11	249	2·05	2·9	4·9	5·9	7·5	−20	18
Iron and steel trades	211	1·84	207	1·77	198	1·67	192	1·60	195	1·60	2·0	6·1	8·8	7·8	−16	39

[1] Increase, due to a temporary increase in the demand for British coal on account of the occupation of the Ruhr

BUSINESS MANAGEMENT

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IX

THE SCALE OF ENTERPRISE (4)

IN the eighth issue of the EDUCATOR the factors influencing the scale of enterprise were examined in relation to the iron and steel industry. With one exception, all the economies which were shown to be associated with large scale production were of a purely technical character. The business man must rely upon his technical adviser for the answer to the many questions which are raised by their consideration. The one exception may be regarded as an administrative economy. If a steel manufacturer accepts a great variety of orders for rolled products and passes them into the works, the frequent changing of rolls necessitated by their fulfilment adds considerably to the cost of manufacture. Provided, however, the market is sufficiently large, the manufacturer may concentrate upon one type of product. If such a procedure is impossible he may enter into an arrangement with other manufacturers for an interchange of orders, or for sub-contracting orders, or for otherwise securing that each reduces to a minimum the number of changes of rolls. A real economy is effected by such a policy. The possibilities of economies of this character and of others to be discussed in due course frequently lead to amalgamation and the consequent creation of a business unit which owns two or more industrial establishments, each of which may be of the most economical size.

ECONOMIES OF LARGE SCALE PRODUCTION

The example that we have considered shows that the factors determining the most efficient scale of operations vary between different industries. Each case must be taken on its merits, and it is impossible to consider the problem in general terms. " Business " is so full of pitfalls that what appears to the outsider to be desirable may be suicidal. One example will suffice to illustrate this fact. Biscuit manufacturers and jam manufacturers serve approximately the same market; their travellers visit all the grocers in the community. It would thus appear that a considerable economy might be effected if the traveller for one district were able to sell both biscuits and jam. But such a policy of combining the sales organization for the two products has been found entirely unsuitable under competitive conditions Experience shows that even a single firm supplying allied products to the same community of shops may find it more economical to place the selling of each product in the hands of a separate salesman.

Without attempting, however, to search for general statements applicable to all business conditions, it may be stated that the factors determining the most efficient scale of operations fall into a few general categories. The economies of large scale production are essentially the advantages of division of labour and the intrinsic superiority of a tool over the bare hand. The value of a tool is more easily illustrated than defined. With the aid of a compass a circle may be drawn far more quickly and accurately than in any other way. Provided we require to draw many circles it may, therefore, be economical to devote time to the construction of a compass. The time spent in making a compass will be saved over and over again when drawing the circles. Moreover, the circle will be more nearly perfect. What is true of a compass is true of all tools and all kinds of machinery. New results can be achieved, while in achieving results otherwise possible there is a real economy of human effort. Again, division of labour, in the ordinary sense of the words, results in economy. Practice makes perfect: it also reduces strain.

Large scale operation makes possible the employment of more powerful machinery, and for technical reasons more powerful machinery means less expenditure of human effort. Further, large scale operation increases the advantages of division of labour. By dividing the work among a greater number of people it is possible not only to reduce much of it to routine but also to allocate tasks according to the capacity of the workers, and to keep each employed on operations which are worthy of his skill. There is a sense in which it is true to say that every man who is good enough for his job is too good for it, a reserve of ability and energy is a sign of efficiency. But it is also true that the time spent in small establishments by people upon a variety of jobs of a lower standard than others which they perform either constitutes a very serious charge upon the business or necessitates an unduly low rate of remuneration for people whose skill is wasted. In an enterprise of the most efficient scale everybody is " on the stretch " without being stretched too much.

STANDARDIZATION

The scale of operation that is most economical is the one in which standardization has reached the maximum which is possible in the circumstances of the case. Standardization reduces the cost for patterns, economizes the use of machinery, simplifies the task of estimating and costing, and reduces the problems of operation to routine. Large scale operation does not necessarily mean standardization, nor does it follow that standardization

necessitates large scale operation. A large enterprise may be large because it supplies a great variety of products, none of which is produced in large quantities. Further, standardization is in some cases (as in the production of metals) inevitable ; in other cases (as in sheet metal work) it is a method which may be employed even in small establishments. All that can be said is that the most efficient scale is the one which permits that degree of standardization which is possible in the circumstances of the case.

There remain production economies which vary in importance from one industry to another and from one period to another. In some cases there are waste products which may be turned to account, and provided they are on a sufficiently large scale their utilization is a source of gain. It may be desirable in such circumstances to enlarge the enterprise even though the direct economics of production are not thereby increased ; the supply of waste products will be sufficiently important and continuous to justify their conversion into by-products of considerable value, and the real gain to the business man is to be sought in the profit made on the by-product plant. Again, one of the advantages of large scale manufacture in the nineteenth century, when coal was the only source of power, was to be found in the economy achieved in the supply of power. A large steam power plant is not twice as expensive to operate as a plant half its size. Since alternative sources of power (particularly electricity) have become available this factor has lost much of its importance, and along with the process of decentralization, to which reference was made in an earlier issue, we find also a reduction in the handicap suffered by the relatively small establishment.

ADMINISTRATION AND MARKETING

In many industries the tendency towards large scale operation is due less to purely technical economies of production than to economies in the sphere of administration and marketing. In the sphere of administration large scale enterprise increases the advantages of division of labour in the office. Moreover, it facilitates accurate costing and the control of technical processes, and these in turn make it easier to reduce, if not eliminate, waste in human energy and in material. It is well known that in small establishments great difficulty is experienced in keeping accurate costs and providing equipment for testing the efficiency of the methods employed. Again, in a large scale enterprise the firm is a stronger buyer and seller. Its custom is so valuable that it is not likely to be neglected ; if preferential terms are obtainable they are likely to be extended to such a firm. It is also able to purchase when the market is favourable and to hold stock until it is required. On the selling side, too, the large firm is in a stronger position than the small firm ; it can afford to work to stock in times of depression and to withhold its supplies until the market takes a favourable turn. In short, the large firm, with its greater capital resources, is more effective on the merchanting side than the small firm.

RESEARCH

These administrative and marketing considerations will call for closer study in due course. At this stage it is sufficient to draw attention to one further economy upon which considerable emphasis has been laid in recent years. A large firm is able to maintain a research organization of a type which is beyond the reach of the small firm. Research is not confined to laboratory investigations into physical, chemical or metallurgical problems, but extends throughout the establishment and covers all the production processes. In particular it includes a careful study of the best equipment for a particular job and the most effective method of attacking it. Research of this character is the basis of what is commonly known as scientific management and of all valuable methods of payment by results. It will, therefore, call for careful examination in due course.

The economies which have been specified account not only for the remarkable growth in the size of the typical industrial establishment in many industries, but also for the amalgamation of firms previously separate. It remains true, however, that in any industry the majority of the establishments and business units are considerably smaller than those which have been proved to be most economical. Moreover, there are many industries in which the most efficient unit of production is still quite small, and others in which units of different sizes appear to enjoy approximately the same degree of efficiency.

FINDING CAPITAL

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IX

FROM TRADE CONNECTIONS

In Chapter VII we suggested that the expanding business should, as a rule, refrain from seeking capital among trade connections because of the conditions and restrictions that accompany such help. There are many instances, however, where their financial aid may be profitably invoked, and the number of these instances is growing each year. In the chain between producer and consumer there is always a strongest link— grower, broker, manufacturer, dealer, retailer—and it is in the interest of the strongest link to strengthen and gain some sort of control over the others. This is done by giving assistance at a price, and the assistance often takes the form of the provision of capital.

SECURING RAW MATERIALS

When a link near to the consumer gives assistance to one farther away, the purpose is, as a rule, to secure the supply of raw or other materials. In the new beet sugar industry in this country, the local factory makes advances to the farmer to enable him to buy his seed and grow his crop. The producer of wheat in Canada and Russia, of cotton in the United States and Egypt, of wool in Australia, receives similar assistance from the powerful collecting and marketing bodies. In most organized markets, indeed, it is one of the functions of the middleman to provide credit for the producer as and when required. In some cases the process goes beyond mere financing, and the middleman furnishes the producer with permanent capital, but usually this is the first step towards complete control. Take one of the big grocery combines. It begins by acquiring an interest in ranches in Canada or tea plantations in Ceylon. It provides capital for development, but very soon the ranch or tea plantation loses its individuality and is merged in the combine. This process, which has been specially active since the war in almost all the great industrial and distributing combines, is worthy of special attention, but it is a little outside the scope of our present study.

ENSURING MARKETS

The reverse case, that is, where a link near the consumer receives help from one farther away, affects us more nearly. At the present time we are witnessing a struggle of ever growing intensity for fresh markets. If the organization of production was the typical problem of the nineteenth century, the organization of markets may be said to be the typical problem of the twentieth century. Manufacturers and wholesale dealers must find outlets for their products, and those who can furnish these outlets are often in a position to obtain financial assistance at a fair price from their suppliers, not only by way of temporary credits, but in the form of permanent capital. The extent to which such assistance is given has reached great proportions, but the facts are not proclaimed from the housetops, and, as a rule, only those in close touch with any particular industry are aware of the degree to which it has prevailed in that industry.

The Tied House. Let us consider the tied house in the beer and spirits trade. The licensee undertakes to sell, for example, the beer of a certain brewery, and in return he is financed by the brewery. The extent of the capital provided and the conditions attached vary with circumstances. Cases are not unknown where the licensee has been given the premises, stock, and adequate working capital against his simple undertaking to sell the spirits or beer of the distillery or brewery concerned. In other instances the brewery advances a substantial proportion of the cost of the business and undertakes to pay rates and repairs, but it secures itself by a mortgage on the premises.

Retail Clothiers. The same process is carried a step farther by clothiers. When a retail firm in this trade has made a success of one or two shops, and is in a position to produce balance sheets showing good results, the partners will approach one of the manufacturers from whom they buy, and undertake to sell only his products if he in turn will provide them with capital by way of extended credit. They say to him: "We have dealt with you for some years, we have paid promptly and our account is a growing one. You recognize us as good customers, and from our balance sheet you can see that we are doing well. We can do better if we open a new shop in such and such a district, but we can only open it if you will help us. This is our proposition. We owe you to-day £1,000. Let the £1,000 stand over, and supply us with more goods until our debt reaches £2,000. We shall open the new shop, contract with you to sell only your suits and overcoats, and three months after the debt reaches £2,000 we shall begin to make substantial payments on account." Let us suppose that the manufacturer agrees, that the new shop succeeds, and that the retailers pay on account, say, £400 per month, rising in time to £750. The more they pay the more they receive in goods to keep the debt at the £2,000 level. After a time they will come back to the manufacturer and suggest that, if the account be raised to £4,000 they will open another shop. And so it goes on. Some of the largest

multiple shop concerns in this trade have been built up along these or similar lines.

Drapery Companies. In the bad times of the past few years many retail and small manufacturing drapery companies have been severely hit and have been saved from extinction by the financial help given by the large wholesale houses. This help takes many forms. At one extreme it has resulted in the complete control of the retail business, with the former owner reduced to the position of manager on behalf of the wholesaler. At the other extreme, the wholesale house has agreed to accept a moderate composition for its debt, and used its influence in persuading the other creditors to do likewise. Not an uncommon method has been for the wholesale house to guarantee a loan to the retailer. This is usually done, not through a bank but through an insurance company. The proprietor of the small business takes out a short-term life insurance policy for something more than the amount of the loan and the insurance company makes him an advance which is guaranteed by the wholesale house, repayable by instalments and further secured by a debenture.

Other Examples. These are only a few instances selected at random, but the tendency is a general one. It may be seen in operation particularly in new and expanding trades such as the motor-car industry. In another sphere the manufacturer in the heavy engineering trades or the constructional engineer will give financial assistance to the general merchant in the colonies or abroad who through his agents may be able to influence orders. The firm of importers and exporters who can guarantee freight is assured of the ear of the great shipping companies when it approaches the latter for additional capital to cope with expanding business. The alert merchant, therefore, when considering methods of finding capital to develop his undertaking, should, if he can guarantee a market, bear in mind the possibility of obtaining part at any rate of the capital he requires from his trade suppliers.

TRADE CREDITS

The provision of permanent capital in this way is a special case, but in every business, no matter what its nature, the amount and length of credit given by trade suppliers in ordinary day-to-day transactions are among the most important factors that determine the amount, or rather the effectiveness, of its working capital. An improvement in credit facilities is equivalent to the introduction of fresh working capital. We are not going too far when we state that the surest way the established business has of increasing its capital resources is to build up a reputation for ability and honest dealing, and so to improve its credit relations. Let us consider first a retail business. In the early stages credit is not easily forthcoming. When the new customer approaches the wholesale house for the first time, he must give his references. If the references are not very strong ones, the wholesale house will probably require him to make a deposit of £10 or £20, and for the first month or two his purchases are really for cash. As confidence is established, he receives a certain amount of credit that increases with time. If, on the other hand, the references are good, and a trade inquiry put through the usual channels is satisfactory, a credit limit is fixed to begin with at, say, £50 or £100. Every wholesale house prefers a great number of small accounts of a hundred pounds or so to a few large ones. The distribution of risk is obviously desirable. If the retail business wishes to increase its credit standing, the proprietors should themselves visit the wholesale house from time to time, and make the fullest disclosure of their business results and progress to the credit manager. Nothing inspires confidence with that hard-headed and responsible official like a good balance sheet and profit and loss account showing as compared with the previous ones a steadily expanding business.

Care should be taken that accounts are paid promptly and regularly. In many trades settling day is the twentieth of the month following delivery of the goods ordered. It is infinitely better to settle on the twentieth or even on the thirtieth of each month than to pay on the fifteenth of one month and on the twenty-fifth of the next. Regularity is as important as promptness. If the retail house keeps this principle in mind, is prudently managed, and takes the wholesale house into its confidence, it soon finds that its credit marking goes up, better terms are arranged, the extent of the credit is increased and its length, perhaps, extended.

The credit problem of the wholesale house, the importer and exporter, and the manufacturer is in essentials similar, but it operates in a wider field. We get away from the monthly basis and meet with three to six months' credit, usually secured by bills of exchange. Credit standing may be judged by the extent to which the financial intermediary such as a bank is prepared to discount the bills accepted by the purchaser, and the rate of its charges for the service. These depend mainly on the financial resources of the purchaser and on the reputation he has built up. The most important factor again in increasing the amount of credit is a history of debts promptly and regularly met.

MARKETING

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IX

FUTURES—(*continued*)

THE work undertaken by the professional speculator is readily associated with the great changes which have characterized economic conditions during the past fifty or seventy years. Industry has passed from small scale production, very often on a family basis, to a factory system or a system of large scale production; there has been much concentration of the population, especially in the industrial areas, and the equitable distribution of the main elements of commerce has become more difficult. These changes have led to wide development in the exchange of commodities, which has become an important factor in economic progress. That development is closely associated with fluctuation or variation in price, which in turn involves considerable risk. The expert speculator may be described as that section of the business world which undertakes this risk; in other words, the service which is rendered is that of shouldering risks which arise through changes in value, generally known as trading risks. In early times, when agriculture was the predominating industry, men were always confronted with the danger of the failure of crops. But with merely enough for their own support the risk was simple. When produce increased, with the hope that the surplus would be profitably exchanged, risk assumed a different character. There might be abundance of crops but little gain to the community unless there was a market for the surplus; a new trade risk appeared; it marked a definite transition from a simple state of society in which producer and trader were identical, and the same person bore the double risk of production and trade.

TRADERS AND PRODUCERS

But the change did not proceed uniformly in the case of all commodities. In some classes of produce the primary or early condition lasted for a considerable period; in others a separate trading class is traced at a very early date; that is, the class which lived by buying for the purpose of selling again at a profit. Such a class might not be necessary for exchange, but plainly no large business was possible until traders were differentiated from producers. This new element in economic progress took over the trading risks and became the speculating class in the community. Further, when men abandoned the aim of producing merely for their own immediate consumption the market for the exchange of goods became steadier; the growth of intercourse among traders contributed to the reduction of risk, and in large and small centres there were constant meetings, an increasing knowledge of all market conditions, and definite progress in either the regulation or the reduction of risk due to fluctuations in value. Modern exchanges in their present form were, of course, quite unknown, but the special organizations which in many cases were formed by merchants were the forerunners of these exchanges. For they brought traders together, and information became available to much wider groups of men engaged in the commerce of the time. When markets were first beginning local influence was naturally important. As progress was made in larger scale distribution the purely local influences were reduced to proper proportions. In the case of agricultural products much depended on climatic and other conditions beyond human control. Risks for the average trader were therefore considerable, and almost inevitably middlemen came, divided into groups as distinction proceeded between wholesale and retail dealers. At this stage perhaps the greater part of the risk was borne by the wholesale merchants. The retailers dealt only in small quantities. In later development large markets still acted very much on their own account, although output at the source of supply ultimately affected value all over the world. The changing conditions were, however, more rapid than the carriage of news, so that in this way even the more important merchants tended to retain a local character.

SPECULATION AS SPECIAL BUSINESS GROUP

Fifty or seventy years ago great changes became more readily apparent. The supplies of wheat, for example, in any quarter of the world were known. They influenced prices in a market like Liverpool; a universal change in value became possible. In other words, these wheat markets were no longer local; something resembling a world market had been established. Investigation showed that this development tended to bring about a single price at any moment in all local markets which, when they were linked together in important commodities, as they are now, form in fact a single market world. This remarkable change means that fluctuations in price no longer depend upon local scarcity or abundance; to a far more important degree they are based on world conditions. Hence the importance of a separate service prepared, on terms, to relieve the merchant of speculative element, turning on the differentiation between the trading classes and those more interested in speculation than in the strict business itself. These speculators, in that they were

prepared to purchase or supply at an established price, were willing to take risks; speculation became the business of a special group. Broadly speaking, it seeks to forecast changes in value; it buys and sells; its profit is the difference between the two prices, and it is sometimes described as a kind of commercial scouting party sent ahead to discover and to report changes in value.

SPECULATION AND GAMBLING

This service, it will be readily observed, lends itself to confusion with mere gambling or speculation in a less reputable sense. Many of the critics would forbid dealing in futures altogether, and they have always been hostile to speculation as such. But the economists urge that a clear distinction must be drawn. That distinction can be simply stated. On paper it might seem that there is little or no difference between the contracts of speculators and those of merchants who contemplate actually to deliver or receive future produce. Both have the duties and rights of holders of property. Delivery in every case must be tendered or demanded, and all exchanges make rules covering cases of failure by either party to fulfil the terms of the contract. In gambling, on the other hand, there is no similar acquisition of legal rights or duties. One party must lose and the other win. Moreover, it is always urged that healthy speculation involves considerable technical and other knowledge and skill, a fact which removes it from the mere staking of money on the risk of some chance event. As we have already seen, the speculator must be capable of critical analysis of trade information, especially in crop reports; he must judge actual transactions; each speculation in fact contributes to the adjustment of the market to actual conditions.

BULLS AND BEARS

Expert speculators may either buy futures, hoping to make a profit by reselling them at higher prices, or they may sell futures with the hope of profit by buying at reduced prices. Those who trade for a rise are called bulls; those who trade for a fall are called bears. Every seller for future delivery must contemplate actual delivery in the period named in the contract. On the other hand, every buyer must contemplate actual receipt. It is sometimes stated that the annual American cotton crop is sold from one to two score times over on the cotton exchanges, and that probably the same is true of wheat. Reference has already been made to the manner in which futures cancel one another, especially through the clearing houses. By this means hundreds of contracts, involving large amounts of produce, disappear, leaving very few to be carried out by actual delivery of produce. For the purpose of reducing the gambling element on the exchanges it is sometimes urged that dealing in futures should be restricted to hedging transactions. The contention is that that step would prevent speculation unconnected with actual transactions and promoted only with the object of obtaining profits from price fluctuations. The idea is hardly practical politics. It would restrict and cripple the market for futures in such a way as to destroy its efficiency for hedging purposes. Cotton spinners and millers probably distribute their hedging purchases with some kind of uniformity all the year round, but they are only a portion of the whole market. The market for hedging purposes depends, therefore, on the existence of the expert speculator, and price movements are steadied appreciably by the operation of bear speculators, extreme fluctuation being thus avoided.

INTERESTS OF PRODUCERS AND CONSUMERS

Professor J. G. Smith recalls the popular statement that bulls take care of the interests of the farmer, who is always looking for an opportunity to send prices up, while the bears represent the consumer, always on the watch to buy at the lowest price possible. Since there are no adequate statistics regarding the sources from which the profits of successful speculators are derived, it is difficult to define their exact position. Their main contribution, however, will come probably not from producers, consumers, or genuine dealers, but rather from the many small speculators drawn from the outside public, and they also profit occasionally by the blunders of larger speculators. Some speculation by the outside public is known at Liverpool, but the main sources of remuneration for the members of the corn and cotton exchanges are the brokerage and profits derived from their fellow members. It is generally agreed that hedging is now practised in the English grain trade and that large operations are less risky; expert speculators tend to absorb their less successful rivals, and there is widespread criticism which suggests that this tendency is leading to the concentration of the trade in fewer hands. In other times the English people were strongly hostile to speculation and purchase for deferred delivery. Restrictive legislation was occasionally attempted. But for a long time, although the popular prejudice remains, and is frequently expressed in current political and public debate, neither legislation nor judicial decision has interfered, save to a very minor extent, with ordinary speculative transactions.

VALUE AND DISTRIBUTION

(*Continued from page* 350)

IX

THE INTERACTION OF SUPPLY AND DEMAND

64. We have explored in some detail—by way of introduction to the problem of Supply and Demand—the determination of value under conditions of constant supply, and constant demand, respectively. But such conditions, as our discussions will have made evident, are the exception, and not the rule. In the vast majority of cases, the value of a commodity, or of a service, is determined under conditions wherein supply reacts upon demand, and demand upon supply. In other words, value represents an equilibrium arrived at by the interplay of two sets of forces, neither of which is independent of the other. At any single moment, value does not depend solely upon the extent to which a commodity or service is available, nor yet upon the strength of the demand for it. It depends upon the *interaction* of the two. But value so determined will itself react upon the conditions of supply and demand respectively, and will thus tend to set up a new equilibrium. This will again alter the value of the commodity, or service, and the process of readjustment will be repeated. Such readjustments, in the case of most commodities and services, are continually taking place; their value must be regarded not only as a something which is determined by the operation of outside forces, but also as a continuously-operating factor in its own redetermination. The task then which we must next impose upon ourselves is to make this dark saying plain.

65. To this end, we must reconsider the problem of value, first from the standpoint of demand and then from that of supply. In effect, we shall follow the plan, already hinted at, of treating value as a function of two variables, each of which in turn—to simplify our analysis—will be regarded as constant. We shall begin by assuming that the conditions of supply are constant, and concentrating on the behaviour of demand.

WHAT IS MEANT BY DEMAND

66. What do we mean by demand? We mean the demand of the whole community, or of whatever class or section of it is the subject-matter of our generalizations, for specified goods and services. We mean, moreover, what is sometimes called *effective* demand, i.e. those wants which, because there is a reasonable possibility of their being satisfied, do in fact operate *effectively* to determine economic equilibria. My "demand" for a whisky and soda, for a new overcoat, for a stall at the theatre, is part of the *effective* demand for such things. Not only are there in existence *wants*, which are a part of the expression of my individual consciousness, but there is a reasonable possibility of those wants being satisfied. They are active wants, purposeful wants, wants which can be up and doing with a fair expectation of success. On the other hand, my "demands" for a trip round the world, for a box at the opera, for a Shakespeare first folio, are almost in the same category as my "demand" for a slice of the moon. Here are more wants, but they are not, so to speak, in the picture. They are dormant, sterile, ill-equipped for the battle of life. The price of a whisky and soda, as we shall see, is influenced (to however infinitesimal an extent) by the existence of my "demand" for it, but the price of a Shakespeare first folio is not so influenced at all.

67. We have said that demand, for goods or services, is the demand of the whole community, or of such classes or sections of it as these goods or services concern. But the demand of the community is made up of the demands of a host of individuals. The generalizations of economics are flesh and blood generalizations, and it is the behaviour of real men and women, of men and women like you and me, that we are seeking to explain. In the last analysis, then, we must study the demand of individuals. In the reactions of the economic unit—of Mrs. Brown at her washtub, of Smith at his office stool—we shall seek, and shall discover, the clue to our so-called economic laws.

MRS. BROWN GOES MARKETING

68. We will pass, then, from the wider problems of demand in general to an individual problem—one of an infinitude of such problems which it is possible to pose. This shall be the problem of Mrs. Brown's demand for eggs. Prima facie, it is not a difficult one; let us state its essentials. It is Mrs. Brown's marketing day; she is buying the necessaries of life for the week. She has, say, thirty shillings in all to dispose of. How much of this does she spend on eggs?

69. Suppose we put the question to Mrs. Brown. Her reply, stripped of whatever is extrancous, but elaborated by the making explicit of assumptions which are present in her mind, will be somewhat as follows: (It has, of course, been cast in an academic mould, of which Mrs. Brown would strongly, and very properly, disapprove.)

"The amount I shall spend on eggs will depend on five main considerations. These are (1) the total amount that I have to spend; (2) the range of commodities that I want to buy; (3) the prices of these various commodities; (4) the urgency of my demand for eggs, in relation to the urgency of

my demand for other things, and (5)—last, but by no means least - the price of eggs in the market."

70. A moment's reflection will show that each of these things must be taken into account. We will consider them a little more carefully. The secret of successful marketing is, obviously, so to lay out one's money as to afford oneself a maximum of satisfaction—there must be no regretting that one has not spent a shilling less on commodity A and a shilling more on commodity B Eggs, as the object of an economic want, are, therefore, in competition with any number of other things—with meat, fish, cheese, butter, and so forth. And, clearly, the character of this competition will alter with every alteration in the amount available for spending. Mrs. Brown will begin by buying what she wants most urgently. She will pass on from commodity to commodity in accordance with the intensity of her demand for each of them. How urgently she wants eggs, in relation to other things, she alone can say. At the back of her mind—though she may never have heard the term—is what the economist calls a *demand schedule*. She has formulated, with a degree of precision which varies with her capacity as a successful marketer, a statement of what things she wants, of how urgently she wants each of them, and of the amount she is prepared to spend upon each of them *under varying price conditions*. To set out such a demand schedule fully, in relation even to the simplest of market conditions, would be an impossible task. Mrs. Brown will no more have attempted to formulate all its details than a bridge player will attempt to set out and consider every possible distribution of the unknown cards before he begins to play a hand. He will have formulated, at the back of his mind, a number of general considerations which are relevant to his problem, but his method will resolve itself into a process of trial and error. Mrs. Brown is in somewhat the same position. Her general demand schedule is a complex of data which will never be consciously stated, since they have reference to an immense number of hypothetical situations of which only one will in fact present itself. Trial and error, therefore, is her method too. We shall, however, attempt, as the next stage in our argument, to present a *demand schedule* in a highly simplified form.

SIMPLIFYING THE PROBLEM

71. We are seeking to focus attention on eggs, which constitute one only among Mrs. Brown's multifarious wants. We must revert then to the plan we have already adopted of stripping our problem of non-essentials. To do this, we must, as before, make a number of arbitrary assumptions. We must assume (1) that the sum of money which Mrs. Brown is proposing to spend is definitely fixed; (2) that the amount of it which she spends upon eggs is not affected by the price of other commodities, nor by any of the other factors governing Mrs. Brown's demand for them; (3) that she may, therefore, within the limits of the total amount available, spend upon eggs as much or as little as she likes. To make these assumptions is to give to a problem, originally taken from life, a highly artificial character; but that, for reasons already elaborated, cannot be helped anyway.

72. To make these assumptions, moreover, is to eliminate from our calculations four of the five variables by which Mrs. Brown's demand for eggs is regulated. But the one which remains—the market price of eggs—is so important in relation to the rest that it should properly receive special consideration. What we are doing, in effect, is to make as our starting-point the assumption that, *other things being equal, Mrs. Brown's demand for eggs depends upon the price of them.*

Let us see how this works out in practice.

THE FRAMING OF A DEMAND SCHEDULE

73. It is just possible that, before setting out, Mrs. Brown will say to herself: "Whatever the price of eggs, I shall devote two shillings, and no more, to the purchase of them. If they are eight a shilling, I shall buy sixteen; if they are 10 a shilling, I shall buy 20, and so on." But it is extremely unlikely that she will say anything of the sort; to allocate one's money in this way, in a world in which wants, and the means to their satisfaction, so strenuously compete with one another, would be very stupid marketing indeed.

74. No. What will happen is that Mrs. Brown will make inquiries as to the price of eggs, and will then decide how many to buy. If they are very dear, she may make up her mind to dispense with them altogether—she will have in mind plenty of alternative uses for her money. If they are neither particularly dear nor particularly cheap, she will buy what she wants for current use, and will content herself with that. If, finally, they are unexpectedly cheap, she may not only buy what she wants to make use of at the moment, she may also consider her future, as well as her present, needs, and buy with a view to the satisfaction of those. An increase in the price of eggs may result, therefore, in her spending more upon them than would otherwise be the case, or it may result in her spending less. A fall in price, similarly, may have either of these results. We shall proceed next to the making of assumptions in regard to all these uncertainties, and shall thus make it possible to frame a demand schedule with precision.

CURRENCY AND BANKING

(*Continued from page 352*)

IX

THE REGULATION OF NOTE ISSUES

It was shown in the last chapter that a metallic cover to an inconvertible note issue fails to guarantee the value of that issue, which depends upon the extent to which it is made. What is important is the limitation to the supply of notes, and if the issue is subject to no checks its value cannot be maintained. A metallic reserve in the case of a convertible note issue, on the other hand, is active provided the coins which are obtainable are themselves convertible into bullion and exportable. And it has already been shown that under these conditions of convertibility, the value of the notes issued will not fall below the value of the coin which they represent. But precisely how much of a metallic reserve should be kept cannot easily be determined. If there was no legal regulation the issuing body would have to rely upon experience to suggest what amount would suffice to meet probable demands for the payment of notes in coin.

The general tendency, however, has been for definite regulations to be devised and embodied in Acts of Parliament for the purpose of prescribing what metallic cover shall be held against the issue of notes. This practice was adopted after there had been experience of " free " banking when small private banks of issue became numerous and ill-regulated, and when many of them collapsed and caused considerable hardship and distress. The right to issue notes was then restricted and the principles under which the issues were made were definitely prescribed. In this section certain of the chief forms of regulation in practice will be described.

At the outset there is a general consideration—that the amount of the cover which is held governs the amount of economy in the use of metal which the note issue secures. If a convertible note issue is fully covered by gold there is no economy except in so far as a gold circulation would be subject to wear and tear. The smaller the cover required, the greater the economy, but the net reduction in the world demand for gold resulting from a lowering of the amount of gold required would not be important unless the change was on a large scale and affected many countries.

ACT OF 1844

The note issue of the Bank of England remains regulated by the provision of the Bank Act of 1844, which is generally associated with the name of Sir Robert Peel.[1] The purpose of this Act was to give greater security to the issue of these notes and to limit note-issues by other banks in England and Wales. Its provisions may be summarized. A complete separation was to be made between the issue department of the Bank and the banking department which was concerned with ordinary banking business. The issue department was to be charged solely with the conduct of the note issue. Other provisions concerned the regulation of the note issue. Experience had suggested that under no circumstances was the existing circulation of Bank of England notes likely to fall below a total of £14,000,000. Such an amount under the Act might be covered by Government securities, and this became the basis for the fixed fiduciary issue. Notes issued in excess of this amount had to be fully covered by gold and silver in the form of coin or bullion, but not more than one-fifth of the metallic reserve to be held in silver, i.e. the silver holding was not to exceed one-quarter of the gold holding.[1] The fixed fiduciary issue might, however, be expanded under certain circumstances. The Act forbade any person who was not already legally issuing bank notes from doing so, but if any existing banker with the right of issue ceased to issue notes, the fiduciary issue of the Bank of England might be increased to the extent of two-thirds of the lapsed issue. Eleven Orders in Council have now brought the fiduciary issue under this provision to its present figure of £19,750,000. The last of these Orders in Council occurred in 1923, when the Bank absorbed its quota of the lapsed issue of Messrs. Fox, Fowler & Co.,[2] which amalgamated with Lloyds Bank in 1921.

A further provision made the Bank a channel through which the public might convert gold bullion into cash without going directly to the Mint. In the latter event, gold sovereigns would be received after a period at the rate of £3 17s. 10½d. per standard ounce. The Bank, however, was authorized to purchase all gold offered to it at the fixed price of £3 17s. 9d. per standard ounce, the difference of 1½d. per standard ounce corresponding to the loss of interest as a result of the delay before the actual minting process is completed.[3]

ISSUE DEPARTMENT

The following is an example of the weekly return of the Bank of England relating to the

[1] The real authorship, however, is claimed for Mr. Jones Loyd, afterwards Lord Overstone.

[1] No silver has been held in this form since 1853.

[2] This was the last of the private note-issuing banks in England. The fiduciary issue of the Bank of England under the Act of 1844 has therefore now reached its maximum. In 1844 there were some 280 private banks of issue with an authorized issue of £8,631,647.

[3] The Gold Standard Act of 1925 confined the right to take gold to the Mint for coinage to the Bank of England.

issue department, the return given being that for 28th December, 1927—

ISSUE DEPARTMENT

Notes issued	£171,218,435	Government Debt	£11,015,100
		Other Securities	8,734,900
		Gold Coin and Bullion	151,468,435
	£171 218,435		£171,218,435

The item of "Notes issued" requires no explanation. On the right-hand side of the return the first two items will be found to amount to £19,750,000, which was referred to earlier as the fiduciary part of the note issue. The first item of "Government Debt" represents the total of a series of loans made by the Bank to the Government from the formation of the former in 1694. There is no Government Stock corresponding to this item; the debt is simply a book-debt on which interest is paid at the rate of 2½ per cent per annum. But the State may be said to guarantee £11,015,000 of the Bank's note issue. The remainder of the fiduciary issue is covered by interest bearing securities for which the issue department is itself responsible. The third item on the assets side of the return represents the gold cover for every note issued in excess of the fiduciary maximum.

AUTOMATIC WORKING

It is to be noticed that the net profit to the Bank from its note issue is not represented by the interest received on the Government Debt and Other Securities. Against that income must be set a payment of £180,000 which the Bank must make annually to the Government for the privileges extended to it under the Act of 1844. A further allowance would then have to be made for the expenses incurred in connection with the printing of its notes and the management of the department. Notes issued against gold deposited with the Bank bring in no profit. In fact, so far as the issue department is concerned, its working is quite automatic. Anyone taking gold to the Bank must receive notes at the prescribed rate, and the Bank is obliged to purchase all gold offered to it at that rate. Similarly, so long as the Act of 1844 remains in operation, when notes are taken to the Bank and cashed for gold, the notes are cancelled and there is an equal reduction on both sides of the return. Under the Gold Standard Act of 1925 a certain modification of this regulation was introduced. Section 2 of that Act declared that the Bank would remain under the obligation to sell gold at the fixed purchase price in legal tender,[1] "but only in the form of bars containing approximately four hundred ounces troy of fine gold." The reason for this change, which will be discussed more fully in a subsequent section, was to discourage the immediate return to a gold circulation. In practice, therefore, gold is only obtainable from the Bank in minimum lots of £1,700.

The Bank of England, then, is not a free agent in the supply of notes. Its ability to issue more notes depends upon its power to attract more gold to serve as cover for these notes. The mechanism which enables the Bank to attract gold in this manner cannot be described until the other features of the banking system have first been analysed. Between 1844 and the outbreak of the late war, the Act of 1844 was suspended on three occasions—in 1847, 1856, and in 1866. These were years of crisis, and it was found that some temporary relaxation of the provisions of the Act was necessary to enable the crises to be handled. By so doing the Bank was enabled to issue notes in excess of its legal powers as ascertained by its fiduciary issue and its gold holding, but only in 1856 did the Bank actually make use of the privileges of the suspension of the Act.

SCOTTISH AND IRISH ISSUES

In Scotland the note issue was regulated by an Act of 1845, which gave to the existing banks of issue the right of continuing this function, but no subsequent banks were to enjoy that privilege. For each existing bank of issue an "authorized" circulation was determined, and notes issued in excess of this amount were to be covered by gold. For the eight banks of issue the aggregate "authorized" circulation amounted to £2,676,350, whereas the average circulation in 1845 was £3,020,000. At the end of 1926, the actual circulation amounted to fully £21,000,000. In comparison with the English banks, the Scotch banks enjoyed special favour. The note issuing functions of the latter were not affected by amalgamations, and, whereas the country banks of England had to surrender their issue rights if they opened offices in London, no such restriction obtained in the case of the Scotch banks.

In Ireland, "authorized" circulations were determined as in the case of Scotland for the existing banks of issue in 1845, the amount of that "authorized" circulation being calculated on the basis of the average actual circulation in the year ending 1st May, 1845. The "authorized" circulation of the six existing banks amounted to £6,354,494, or more than twice the corresponding total for Scotland. In 1922 these six banks had an actual circulation of over £17,000,000.[1]

[1] Bank of England notes have been legal tender since 1833

[1] Since that year the banks of Northern Ireland are returned separately.

INTERNATIONAL TRADE

(*Continued from page* 354)

IX
RETALIATION AND IMPERIAL PREFERENCE

THE preceding discussion has been concerned with the various arguments commonly associated with the demand for protection as a means of stimulating the industries of the country. In the present section it is proposed to supplement that discussion in two aspects. The argument already developed has been founded on the general principle that whatever serves to check imports reacts in a manner which also checks exports. It follows that though a country may not endeavour to check its own imports, these may be checked by other countries which adopt protective policies. Hence the argument has been developed that the first country by imitating the others in adopting a general tariff would be in a more favourable position to negotiate commercial agreements and tariff concessions with the protected countries with which it trades. It is to be observed that this particular argument for protection belongs to a different order from those already considered. In this case the tariff is merely a diplomatic instrument. It is a pistol which is not really to be fired. The tariff is to be imposed, not to be kept on for the benefit of the protected industries, but to be taken off or reduced when corresponding concessions from other countries have been secured.

A preliminary consideration is suggested by the last-mentioned point, viz., that the bargaining element in a retaliatory tariff makes for uncertainty and instability in commercial intercourse. Traders can have no assurance that the fiscal conditions under which they trade with foreign countries will not be subject to considerable change within comparatively short periods of time. In fact, if such changes do not occur the bargaining tariff will have failed in its purpose. Moreover, the imposition of the tariff will have brought about certain reactions within the country, and these, together with the effects of the uncertainty about future conditions, would have to be outbalanced by the subsequent gains before a retaliatory tariff could be said to be worth while. It would therefore be relevant to consider whether past experience indicates that retaliatory tariffs do succeed in their object of " increasing free trade."

TARIFF WARS

In that connection instances might be cited of cases where retaliatory tariffs in one country had been followed by further increases in the tariffs of other countries until a species of " tariff war " was opened. In the nineties of last century three famous tariff wars occurred, between Russia and Germany in 1893, between France and Switzerland from 1893 to 1895, and between France and Italy from 1889 to 1898. The duration of these conflicts varied. Their conduct caused dislocation to trade. They were all settled ultimately by concessions which effected reductions from the high levels of duties which were imposed during the struggle, but the ultimate duties were all higher than the duties in operation before the " wars " commenced.[1] More recent history points in the same direction. The imposition by the United Kingdom of an import duty on motor-cars of 33⅓ per cent was followed by a rise in the United States duty on British cars from 25 to 33⅓ per cent. In 1921 a new scale of tariffs was introduced in Spain, and France retaliated by imposing exorbitant duties on Spanish wines. Concessions were finally secured, but at rates above those prevailing in the first instance. Apart, therefore, from the dislocation caused by the introduction of new or higher duties, experience suggests that retaliatory tariffs, instead of securing real concessions and a closer approach to freedom of trade, lead to fiscal barriers at a still higher level.

We can pass now to the particular form of protection which is known as Imperial Preference, the object of which is to create a system of free trade within the Empire by means of preferential duties on imports from the dominions. It is frequently suggested that such a proposal does not involve protection, but the claim is unfounded since there can be no preference except in relation to some higher scale of tariffs applicable to other countries which do not enjoy this special favour. The proposal is not new. In Germany, the United States, and (before the war) the Austro-Hungarian Empire, there was freedom of trade within the imperial unit, although there were protective tariffs against other countries. In the case of the British Empire there was no such freedom of trade. Many of the dominions had definitely protective fiscal policies. A system of Imperial Preference involves, therefore, either the removal of tariff barriers on inter-imperial trade or the application of a lower scale of duties to such trade as compared with those enforced on trade with other countries.

" MOST FAVOURED NATION " TREATMENT

The problem as it has developed within the British Empire is worth noting. It had long been the practice for the United Kingdom to endeavour to secure " most favoured nation " treatment in

[1] *Tariff Wars Between Certain European States.* Cd. 1938, Commercial No. 1 (1904).

commercial treaties with other countries, i.e. a clause was inserted to give to each of the contracting parties the same fiscal treatment which might be accorded to the most favoured country with which each might deal. Moreover, when the United Kingdom negotiated an agreement on these terms the treaty was applicable to all the dominions and possessions. In the United States, however, the practice of interpreting this clause differed from the practice in the United Kingdom. In the latter, any reductions in tariff rates were applied uniformly to trade from all countries enjoying "most favoured nation" treatment; in the former, concessions were granted to States in return for concessions by them, and these were only to be applied to other "most favoured nation" States which granted similar concessions. Since the war, the dominions and colonies of the British Empire cannot be bound by treaties negotiated by the United Kingdom, unless a desire for such inclusion is definitely expressed and each dominion can negotiate its own agreements.

The first instance of preference in the case of Canada occurred in 1897, when a preference of 12½ per cent was given on British goods as compared with the standard for the highest duties at 35 per cent *ad valorem*, in the following year the preference was raised to 25 per cent, and in 1900 to 33⅓ per cent. This preference, however, under the operation of the "most favoured nation" clause was claimed by other States with which the United Kingdom had commercial agreements, and in 1898 the trade agreements with Belgium and Germany were denounced. By 1902, after five years of Canadian preference, it was found that Canadian imports of British "preferred" goods had increased by 55 per cent, but non-preferential imports from foreign countries increased by 62 per cent, and imports which were non-dutiable increased by 67 per cent. What has to be remembered is that imports are determined by the nature and intensity of the demand for foreign products as well as by the cheapness of foreign goods. Certain types of American products, such as farm implements, may be more suitable for Canadian purposes than British makes, despite the lower duties on the latter.

EMPIRE POLICY

A common argument in support of Imperial Preference as applied by the dominions is that the United Kingdom might be able to deflect a certain portion of the trade of these dominions which is presently enjoyed by other foreign countries. It has to be remembered, however, that there are many goods which our dominions import and which the United Kingdom could not supply, and many other goods which the United Kingdom could not supply in large quantities. Under the first head might be included such articles as raw cotton, tea, sugar, tobacco, and fruits, etc.; under the second might be included wheat, timber, meats, and dairy produce, etc. Allowance must, therefore, be made for such articles before it could reasonably be ascertained what amount of trade under the most favourable conditions could be deflected from foreign countries to the United Kingdom, and after such deductions the resulting balances will be relatively small.

The Canadian preferences above mentioned were not granted to ensure corresponding concessions from the United Kingdom, but comprehensive schemes of Imperial Preference have been put forward for the purpose of consolidating the trade of the Empire. There is the contention, for example, that if the United Kingdom granted considerable preferences to imports of foreign produce, the market for such produce in the United Kingdom would be developed and similar treatment by the colonies would develop the colonial market for the products of the United Kingdom. The table given below summarizes the course of the trade with the United Kingdom and the rest of the Empire, and for purposes of comparison the Irish Free State has been included as

(*Continued on page 410.*)

	Total Imports	From Dominions	Per cent	Total Exports	To Dominions	Per cent
1910	£678·3m.	£170·5m	25·1	£430·4m	£147·3m	34·2
1911	680·2m	171·3m.	25·2	454·1m	158·8m	35·0
1912	744·6m.	186·0m	25·1	487·2m	177·1m	36·4
1913	768·7m	191·5m.	24·9	525·3m	195·3m	37·1½
1914	696·6m	187·8m	27·1	430·7m	171·6m	39·3
1920	1932·6m.	490·6m	25·4	1334·5m	457·9m	34·2
1921	1085·5m.	303·9m	28·0	703·4m	279·7m	39·8
1922	1003·1m.	286·7m	28·6	719·5m.	270·2m.	37·6
1923	1063·5m	293·2m	27·5	732·7m.	276·0m	37·7
1924	1226·3m.	336·7m	27·4	753·7m.	290·3m	38·5
1925	1277·3m.	386·3m	30·3	732·2m.	297·4m	40·6
1926	1202·0m.	335·7m.	27·9	617·1m	282·2m.	45·7
1927	1176·1m.	323·8m.	27·6	673·0m.	290·5m.	43·2

THE TRADE CYCLE

(*Continued from page* 356)

IX

THE "SHORT-CIRCUITING" THEORY OF THE TRADE CYCLE

DURING the last three or four years a theory of the causation of the trade cycle has been put forward which might be called the "short-circuiting theory." The gist of this theory is that the recurrent depression of trade is precisely what it appears to be—all-round over-production or under-consumption, and that this over-production or under-consumption is caused by a demonstrable flaw in the mechanism of our industrial and commercial system.

The nature of this alleged flaw can best be seen by taking an example which, although fictitious and, in some respects, unreal so far as its actual details are concerned, is otherwise typical and in accordance with fact.

AN ILLUSTRATION

A, we will suppose, has earned £300 by working for a motor-car company, and, as a result of his labours, a motor-car is upon the market for sale Clearly, the company in order to recover bare expenses must get at least £300 for this car. For the sake of simplicity we will suppose that they put it upon the market at this "rock-bottom" price.

A with his £300 proposes in fact to buy a motor-car. If he does so it is evident that there will be no congestion of the market. He has made a motor-car, has received £300 for doing so, and now uses this £300 to buy the motor-car.

At the last moment, however, he changes his mind and instead of buying the motor-car invests his £300 in a company making wireless apparatus. For the moment, in any case, the motor-car is left on the market without a buyer.

The company producing the wireless apparatus uses A's £300 to take on men (at present unemployed) to make wireless sets. These wireless sets are put up for sale. Here again it is evident that the rock-bottom price is £300.

We have, therefore, a £300 motor-car and £300 worth of wireless sets both up for sale. Against this, in the way of purchasing power, there is the £300 paid to the men who made the wireless sets. This £300 can be considered as providing a market for the £300 motor-car or it can be considered as providing a market for the £300 worth of wireless sets, but, clearly, it cannot be considered as providing a market for both. This means to say that as a result of A's action in using his £300 not to buy a motor-car but instead to enable a company to take on more men to make more goods for sale, there is £300 worth of goods upon the market for which purchasing power does not exist. In other words, there has been all-round over-production to the extent of £300.

THE SHORT-CIRCUITING OF PURCHASING POWER

The evident reason for this is that in using his £300 not to buy goods but in effect to induce the making of more goods for sale, A really "short-circuited" this purchasing power. Had he used his £300 as he at first intended, it would have taken £300 worth of goods (the motor-car) off the market, and would then have been paid away as wages in the making of more goods for sale. In that case all would have been well and there would have been no congestion of unsold goods upon the market. As it was, however, when he invested it in the way he did, this £300 passed directly to industry and was paid away in the making of more goods for sale *without taking goods off the market en route*. In other words, it short-circuited.

It is possible to show that, when companies use part of their profits, not to pay dividends, but instead to take on more workers for the purpose of making goods for sale, the consequence is a similar short-circuiting of purchasing power, likewise resulting in all-round over-production. Considerations of space prevent this second type of short-circuiting from being illustrated in detail, but since the principle in both cases is the same, this does not matter greatly.

Again, when industry borrows from the community (or uses undistributed profits) for such purposes as paying overtime, raising wages, etc., the result is the same as when it borrows for the purpose of taking on more men. For here also purchasing power is passing to industry, to be used in the production of goods for sale, *without taking goods off the market en route*. The result of such short-circuiting in each case is all-round over-production—more goods for sale than there is purchasing power available to buy them.

THE THEORY IN GENERAL TERMS

The foregoing statement of the short-circuiting theory of trade depression can be expressed in a slightly different way and in more general terms.

So long as the purchasing power circulating between industry and the community is used (*a*) to induce the production of finished goods for sale, and (*b*) to buy these finished goods *alternately*, all-round over-production is impossible. But if this alternation is not strictly observed, if purchasing power is used *twice in succession* to induce the production of finished goods for sale, more goods

will be produced and offered for sale than there is purchasing power available to buy these goods.

Whenever members of the community, instead of using their purchasing power to buy finished goods, lend part of this purchasing power to industry to increase industry's working or circulating capital, this necessary alternation is not observed. For purchasing power thus employed is not used to buy finished goods, but is used by industry a second time in succession in the production of goods for sale. Purchasing power is likewise used twice in succession to induce the production of goods for sale whenever industry, instead of distributing all of its profits in dividends (or using these profits to buy finished goods, e.g. tools, machines, etc.), uses them to increase its working capital, i.e. in the production of goods for sale. In both of these cases purchasing power, instead of being used to put goods on to the market and to take goods off the market alternately, is being used *twice running* to put goods on to the market. The result is all-round over-production—industry as a whole is offering finished goods for sale, but the purchasing power available to buy these finished goods is not sufficient to take them off the market (at remunerative prices) as fast as they come on.

OVER-PRODUCTION AND THE TRADE CYCLE

The alleged effect of such all-round over-production on the trade cycle is this. During the revival and prosperity phases of the trade cycle, additional men are taken on, overtime is worked, and higher wage rates are paid. To do these things industry requires additional working capital. Much of this additional working capital is either borrowed from the public or is taken out of undistributed profits. In other words, purchasing power is short-circuited. The resultant all-round over-production, it is suggested, is the dominant cause—although of course not the only cause—of the cyclical depression in trade.

During the recession and depression phases of the trade cycle this process is reversed. Men are discharged, overtime is replaced by short time and wage rates are reduced. Industry no longer requires so much working capital and in one way or another much of the money so used becomes available for buying goods.[1] As a consequence, the flow of purchasing power used to buy goods once more becomes sufficient to provide a market for the whole of the goods being offered for sale, whereupon trade revives.

In short, the automatic consequences of an increase in trade activity is an increase in working capital which, to such extent as the increased working capital is obtained from the community or from undistributed profits, results in all-round over-production. The resultant trade depression automatically brings about a reversal of the whole process, working capital is reduced and becomes available to buy goods, eventually bringing about a revival of trade. Whereupon the whole cycle begins over again.

This, of course, is a highly simplified account of a somewhat complex theory. Its main feature is the insistence on the difference between purchasing power used to buy goods, i.e. to take goods *off* the market, and purchasing power used not to take goods off the market, but for such purposes as employing more men, i.e. to put more goods *on* to the market.

THE TESTS APPLIED

The rough tests we have so far applied to the theories of trade cycle would in this case appear to be met. The strong cumulative forces making for prosperity are checked because so much purchasing power is short-circuited for the purpose of increasing working capital, i.e. putting more goods upon the market, that there is not enough left to buy all the goods being offered for sale. On the other hand, the still stronger cumulative forces set up during the resultant depression, making for deeper depression, are checked because with every increase in the number of unemployed, etc., the less the working capital required and the greater the amount of purchasing power thereby released to perform its normal service of buying goods, i.e. taking goods *off* the market, and so making for trade revival.

On the other hand, there is so far no statistical evidence showing to what extent purchasing power is actually used to increase industry's working capital, nor have statistical measures yet been devised for gauging the strength of certain factors tending to offset the over-production so brought about. Until these are available it is not possible to estimate with any precision how strong the influence of the short-circuiting of purchasing power really is.

NOTE. The chief books on this theory are *Costs and Profits* (1923), by H. B. Hastings; *The Flaw in the Price System* (1924); *The Limited Market* (1926) and *Over-production and Purchasing Power* (in preparation), by the present writer; and *Profits* (1925), *Business Without a Buyer* (1927), and *The Road to Plenty* (1928), by W. T. Foster and W. Catchings, of the Pollock Foundation for Economic Research.

[1] For instance, numbers of people whose incomes have been reduced owing to the depression will have to draw upon their savings, which means that they will be selling the securities they hold. These securities will be bought to some extent by business firms looking for some way in which to dispose of their redundant working capital. In this way working capital short-circuits as it were back again to the public to be used as purchasing power.

SURVEY OF INDUSTRIES

(*Continued from page 362*)

IX
SHIPBUILDING

By THE GENERAL EDITOR

I

BOATBUILDING is one of the oldest industries in existence. Noah's ark will be remembered when the super-liners of to-day are forgotten. It housed an elephant and a kangaroo and innumerable other animals. The fame of Noah, the greatest boat-builder of antiquity, will never die. River craft is employed by primitive tribes which have never heard of roads. The shipbuilding industry, in its broadest sense, like the weaving industry, is spread over the ancient and modern world.

But the construction of steamers, particularly of ocean-going steamers, is a highly specialized industry largely concentrated in Great Britain and Northern Ireland. Less than forty years ago the United Kingdom constructed over eighty per cent of the gross tonnage launched from the shipyards of the world; at the time when the world war broke out its share of the total was approximately 60 per cent. Of the total British output about 35 per cent was constructed on the Clyde, while the combined output of the Tyne, the Wear and the Tees and Hartlepool amounted to approximately one-half of the total. The remainder was divided between such places as Hull, Southampton, London, and Merseyside. Tonnage is not a safe guide to the employment value of a ship. Partly on account of the proportion of warships and liners built on the Clyde, the employment value of the tonnage produced in that district was said to be approximately one-half the total employment value of the tonnage launched in the country as a whole. Before the war about 20 per cent of the output (including war vessels) of British firms was said to be made on foreign account. Further, British shipowners naturally sold a large number of the older vessels in their service to smaller firms abroad, and the sale of such vessels, which were replaced by new ones, should be taken into account in estimating the importance of the export trade in ships.

THE BUSINESS UNIT

It will immediately be evident that the shipbuilding industry is highly complex and should be regarded as a group of industries, each section of which is faced with problems peculiar to itself. A firm making river craft differs from a firm which builds battleships or liners as much as the cotton manufacturer differs from a manufacturer of artificial silk. The industry as a whole is strongly competitive. Including marine engineers and about thirty-five repairing firms there are over 150 establishments in this country. Before the war some made marine engines only, others merely constructed the ship and purchased the machinery; the remainder were both marine engineers and shipbuilders. The larger firms, including the armament firms, either owned steel plant in which they made castings, forgings, and plates, or were closely associated with steel manufacturing firms. Again, some firms merely repaired ships, while others were both builders and repairers. Some of the latter specialized on particular types of vessels, such as standard cargo boats, oil tankers, refrigerating vessels, etc.; others accepted contracts for different types.

Most of the pre-war firms were private partnerships, but the number of public companies, though still relatively small, was steadily increasing. The character and size of a shipyard depends largely upon the work upon which it is engaged. It is impossible to compare the size and organization of a shipyard designed to construct battleships or liners with that of a yard designed to construct coasting steamers. At the same time the economies of large scale enterprise are so important that there has always been a tendency for the number of slips controlled by the typical firm to increase.

THE DEMANDS OF SHIPBUILDING

Shipbuilding is essentially a constructional industry. It provides employment for a greater variety of skilled crafts than any other industry in the country. There are, indeed, very few skilled crafts which cannot be utilized there. For this reason its social value cannot be wholly determined by the financial measure of its activities. A ship which satisfies all the tests of efficiency is never ugly. A liner like the *Mauretania* and a battle cruiser like the *Repulse* are possibly the most artistic products of modern industry. Shipbuilding is an industry which still makes a strong direct appeal to the artistic sense of all types of workers, while the responsibility which a ship has to carry makes an even greater appeal for good workmanship. The problems relating to design, stability, and propulsion call for a degree of skill and care on the part of the higher command which is not surpassed in any other industry. Moreover, a ship is an extremely expensive product, and the mere preparation of an estimate by a competitor for a contract may necessitate an expenditure of several thousands of pounds. The financing of a ship during the process of construction also presents a serious problem which, in many cases, is solved by payment in instalments by the shipowner.

The shipbuilding industry not only makes heavy

demands upon skill and care on the part of all employed in it, but also provides a market for the products of a great variety of manufacturing industries. In this respect it is perhaps unique. It is said that there is hardly a manufactured product which is not utilized in either the building or the running of ships. Chain making, iron, steel, and copper manufacture, coal mining, and the furnishing trades depend to a greater extent than is frequently supposed upon the shipbuilding industry.

It is for these two reasons, namely, the degree of skill required in construction and the variety of products used as materials, that the shipbuilding industry in its modern sense is so largely concentrated in those countries which are already highly developed in the industrial sense. It is significant that Great Britain stands first and Germany second among the shipbuilding countries of the world.

CLASSIFICATION OF SHIPS

Discussions of shipbuilding problems necessitate some form of classification suitable to the nature of the discussion. The statistical study of shipbuilding problems is extremely difficult on account of the difficulties of classification. Ships may be classified in several ways—according to purpose, method of propulsion, gross tonnage (or size), or age. The statistics relating to the method of propulsion show the rapidity with which the sailing ship gave way to the steamship during the nineteenth century and the rapidity with which, in some classes of trade, the steamship is now giving way to the oil-driven ship. Other statistics show the growing importance in ocean transport of highly-specialized vessels

Some ships are used for the conveyance of general cargo to different parts of the world, others are designed for special work in tropical climates and offer appropriate accommodation for cargoes and passengers. Cable layers, whalers, oil tankers, refrigerating vessels and lifeboats are instances of types of specialized vessels. Then there are warships of different kinds, fast passenger liners and intermediate liners. The tramp steamer is known as the "backbone of British shipping." Before the war it accounted for about 60 per cent of the total tonnage of ocean shipping owned by this country, and it carried over one-half of the world's tonnage of cargo. The tramp differs from the liner in that it travels wherever there is cargo to be obtained and without any previously published schedule of sailings. It travels at a speed of about eight or nine knots and carries crude materials and other cargoes which cannot bear a heavy freight rate. The more valuable cargoes, such as tea, spices, etc., are usually carried by liners which travel according to a published time-table, and, unlike the tramp, are bound to call at the scheduled ports even though there may not be sufficient cargo to make the voyage remunerative. Liner rates are, therefore, normally higher than tramp rates and can only be paid on more valuable cargoes.

SPEED AND EFFICIENCY

Again, statistics of a somewhat less satisfactory character show that the average size and speed of ships steadily increased down to the outbreak of war and have materially increased since the war. The increase in size and in speed has been accompanied by a steady improvement in dock facilities for loading and unloading and warehousing. It will immediately be evident that greater size and speed, accompanied by more rapid clearing in the harbour, means not only an increase in efficiency per vessel but also an increase in efficiency per ton. A corresponding increase in efficiency has been shown in the shipyard itself. Before the war a cargo boat of 7,500 gross tons was usually accepted for purposes of comparison. The hull of such a boat could be constructed in a period of seven or eight months, but the average for all ships over 100 tons gross appears to have been nearly twelve months. Since the war the general average is said to have been reduced by about two months. The reduction may be due partly to the small number of very large ships constructed in recent years, but, in view of the increase in the size of the average vessel used for a particular purpose, it is obviously mainly due to an increase in efficiency.

Ships vary widely in age. While the average life of a ship is said to be about twenty years, there are many vessels, constructed forty or fifty years ago, which are still doing valuable work, though not in all cases the work for which they were originally designed.

II

INDUSTRIAL FLUCTUATIONS

The shipbuilding industry is probably subject to more violent fluctuations in trade than any other industry in the country. A ship is a durable commodity, and in that respect differs fundamentally from such commodities as bread and chocolates, which can only be used once. The total demand for chocolates in any given year is measured by the total consumption of the community in that year; that is, the total supply disappears quickly and is replaced again and again. But the total demand for shipping in any given year is not the measure of the demand for ships.

In order to make the situation clear it may be desirable to consider a purely hypothetical case. If we suppose the average life of a ship to be twenty years and the amount of shipping or ocean commerce to be constant over a period of years, it follows that the demand for new ships in any year will be equal to one-twentieth of the supply in existence. If the amount of shipping required is then increased by 5 per cent, the demand for new

ships is doubled. If the amount of shipping afterwards required remains constant at the higher level the demand for new ships will fall once more to the old level.

In practice the fluctuations are not so violent as is suggested by this illustration. During a shipping boom ships are retained in service longer than they would otherwise have been, and the shipbreaking industry is apt to be fairly quiet. Again, companies owning liners generally plan their operations over a long period and are not unduly influenced by short period fluctuations in trade. Further, shipbuilders, when considering whether they should extend their yards or build new yards, are influenced far less by the immediate fluctuations in trade than by the probable trend. Moreover, there are a few shipbuilders who resemble those wise farmers who pursue a policy which is the direct opposite of that pursued by the majority. When a plentiful potato harvest forces prices so low as to bring loss to the farmers the majority of the latter reduce the acreage under cultivation. But a minority, realizing what the majority are doing and anticipating a shortage the following year, increase the acreage under cultivation and thereby, under favourable weather conditions, reap a high reward. In shipbuilding, too, a few firms take advantage of a depression and the low prices of materials and low wages which accompany the depression, and construct ships of a type likely to be in demand during the following boom. Speculation of this kind is usually successful.

CYCLICAL FLUCTUATIONS VIOLENT

In spite of these mitigating influences, fluctuations in trade are extremely violent. Owners of cargo steamships are usually influenced by a sharp rise in freight rates and the prospect of a further rise due to insufficient cargo space. They place orders for new ships and thus produce a boom in the industry. Frequently the boom is accentuated by the offer of a premium for early delivery, which will enable the owners to take advantage of the high freight rates. When the probable increase in shipping has been supplied the rush of orders disappears (although traffic may remain at the higher level) and when the ships on the stocks have been completed depression sets in and continues until the older ships have been either sent to the shipbreakers or sold to foreign owners or (in suitable cases) to British owners who need them for some special purpose, such as a whaling expedition.

In some industries a depression in trade may be mitigated by a successful search for alternative contracts. All constructional trades are subject to marked cyclical fluctuations, but most of them possess an adaptability which tends to reduce the amplitude of such fluctuations. During a depression they are able, as already stated, to go beyond the boundaries of their ordinary work. During a boom they are able to draw upon the resources of allied industries. But shipbuilding is highly specialized. During a period of extreme depression a builder of warships and liners, through lack of something better, may build a tug or even a river barge, but if he does so he merely changes the incidence of the depression. A shipyard can only build or repair a ship or a similar product, such as a floating dock. Unlike a steel or engineering factory, it depends upon a single market.

DISCONTINUITY OF EMPLOYMENT

Employment is also apt to be discontinuous in another sense. In steel or cotton manufacture there is a continuity of supply which does not exist in shipbuilding. A steel manufacturer, even if he has no orders to execute, may produce for stock and thereby obviate the necessity for maintaining idle plant and dismissing his employees. In shipbuilding the unit product is a ship, which is large and expensive. When it has been completed there may be a delay in placing a new ship on the stocks, and such a delay creates a considerable amount of unemployment and involves the maintenance of expensive plant in a state of idleness. Hence it may be stated, not only that unemployment shows greater cyclical variation in shipbuilding than in any other trade, but also that the unemployment figures on any given day are not necessarily a true criterion of the state of trade.

The following figures give the approximate gross merchant tonnage, in millions of tons, launched in great Britain and Ireland in years of boom and slump, and show the amplitude of cyclical fluctuations—

1901	1903	1906	1908	1913
1·52	1·19	1·83	0·93	1·93

The above figures, while showing the cyclical fluctuations, do not reveal the degree of discontinuity of employment. Thus, for example, at the end of the third quarter of 1908 there were less than 750,000 tons under construction; at the end of the first quarter of 1909 approximately 900,000 tons; at the end of the second quarter approximately 750,000 tons. Thereafter, a marked improvement set in, and at the end of the first quarter of 1913 there were over 2,000,000 tons under construction as compared with 1,700,000 tons at the corresponding date of the previous year. A chart showing tonnage under construction at quarterly intervals over a long period shows that marked fluctuations occurred within short periods, thus revealing the element of discontinuity in shipbuilding employment.

THE TREND OF TRADE

Behind the fluctuations of trade there was a marked upward trend of production, not only in

this country but also in other parts of the world. This trend is shown in a rough manner by the following statistics of output in years of boom and slump respectively. The figures are given to the nearest hundred thousand tons.

Boom Years			
1896	1901	1906	1913
1·6	2·6	2·9	3·3
(million tons)			
Years of Slump			
1895	1904	1909	1910
1·2	2·0	1·6	2·0
(million tons)			

Reference has already been made to the change in the types of ships under construction. In the first place, there was a steady increase during the nineteenth century in the proportion of steamships to sailing vessels. In 1890 there were 32,171 vessels in existence with a gross tonnage (to the nearest hundred thousand tons) of 21,100,000 tons. Of this number 21,066 were sailing vessels with a total tonnage of 9,100,000 tons. By 1913 the total number of vessels had fallen to 30,591 with a (higher) gross tonnage of 47,000,000 tons. The number of sailing ships had fallen to 6,694, with a gross tonnage of only 3,900,000 tons. At the present time the tonnage of sailing vessels is probably less than 5 per cent of the total tonnage in existence.

In the second place, the tonnage of warships launched has varied considerably from year to year In 1909 it amounted to 404,909 tons displacement, and in 1913 to 676,909 tons displacement. Displacement tonnage differs materially from gross tonnage and it has been estimated that a warship displacement ton represents twice as much employment as a merchant ship gross ton. It has also been estimated that in 1913 the warship tonnage launched represented at least one-fifth of the total employment on new construction in the world.[1]

In the third place, there has been a considerable increase in recent years in the proportion of tonnage in the form of ships of a special character, such as refrigerating vessels and tankers for carrying oil in bulk. Thus, for example, the gross tonnage of oil tankers increased between 1914 and 1926 from 1,479,000 to 5,665,000 tons. In the fourth place, there has been a steady increase in the size of the vessel used for any single purpose, and along with that a change in motive power. There are three types of engines now competing for supremacy - the steam reciprocating engine, the low gear turbine, and the internal combustion engine. Between the periods 1918-19 and 1925-26. the total steam and motor tonnage built to Lloyd's classification fell from 3,761,000 gross tons to 1,325,000 gross tons. The tonnage of vessels using the steam reciprocating engine fell from 2,634,000 to 576,000 tons; the tonnage of vessels using steam turbines fell from 1,051,000 to 146,000 tons, while the tonnage of vessels using the internal combustion engine increased from 76,000 to 602,000 tons. During the same period the tonnage of vessels driven by coal fell from 66·2 to 31·6 of the total, while the tonnage of vessels the boilers of which were fired by oil or alternatively used the internal combustion engine increased from 33·8 to 68·4 per cent.

In 1927 the total tonnage launched (of merchant ships above 100 gross tons) amounted to 2,285,679 gross tons. The following paragraph, taken from the annual summary issued by *Lloyd's Register of Shipping* of the mercantile shipbuilding of the world for the year 1927, analyses this figure and shows the nature and extent of the change which has taken place in recent years.

The total launches comprise 38 vessels of over 336,000 tons to be fitted with steam turbines, including some vessels having a combination of steam turbines and reciprocating engines.

During 1927, 864,694 tons have been launched in which internal combustion engines are being fitted. This tonnage compares with 704,006 tons launched in 1926. The present total is equal to about 62·8 per cent of the world's output of *steam tonnage*, as compared with about 76 per cent in 1926. It should be stated, however, that the tonnage of motor ships building in the world at the beginning of 1928 is actually 115,000 tons larger than the *steam tonnage* under construction, thus showing the sustained progress which is being made by this system of propulsion.

Of the total steam tonnage 1,375,828 tons launched in the world, some 470,000 tons refer to steamers fitted for burning oil fuel under the boilers, so that the tonnage depending exclusively upon coal for propulsion only amounts to 39·6 per cent of the world total for 1927.

The tankers launched during 1927 amount to 99 vessels of 542,437 tons, as compared with 246,000 tons in 1926.

It will be of interest to compare the total of the world merchant fleets in 1914 with the latest available figures. Disregarding sailing vessels and wood steamers, in view of their comparatively small importance in international trade, the gross tonnage of *seagoing* steel and iron steamers and motor ships amounted in June, 1914, to 42,514,000 tons, while at June, 1927, the figures reached 59,688,000 tons—an increase of over 17,000,000 tons.

A remarkable change has taken place in the total tonnage of some types of vessels included in the above figures. For instance, the tankers which in 1914 totalled 1,479,000 tons now amount to 5,916,000 tons, and motor ships which in 1914 only reached 234,000 tons now amount to 4,271,000 tons (including auxiliaries). A great change has also taken place in the relative use of coal and oil fuel for boilers. In 1914 the tonnage of the steamers fitted for oil fuel was 1,310,000 tons, while the 1927 figures show nearly 18,500,000 tons.

III

POST-WAR DEPRESSION

The shipbuilding industry has been suffering from a depression probably more prolonged and severe than that ever experienced by any other industry in this country. The causes of this depression are so well known that a very brief summary will be sufficient. The success of the submarine campaign

[1] *Vide* Memorandum on *Shipbuilding* issued by the League of Nations Preparatory Committee for the International Economic Conference, Geneva, May, 1927. At the present time the warship tonnage under construction is far less than in pre-war times.

during the World War necessitated extreme measures in order to maintain the supply of tonnage in the world. Shipping lost during the war exceeded 13,000,000 tons, so that a large gap had to be filled. For this reason there was a very pronounced boom immediately after the Armistice. The building capacity of the United States in particular was enormously (though but temporarily) increased. In spite of war losses the total tonnage of the world, which at the outbreak of war amounted to 49,000,000 tons, had been restored by 1919 to its normal dimensions, and in 1926 it amounted to approximately 65,000,000 tons. In the four years 1918-21 the total tonnage launched exceeded 22,000,000 tons, of which over 9,000,000 tons were supplied by the United States of America and about 6,500,000 tons by the United Kingdom.

BUILDING CAPACITY

Not only is the present supply of tonnage in excess of the actual demand, but the building capacity of the industry was substantially increased during the war. Before the war the world building capacity in respect of merchant ships was said to be equivalent to about 3,500,000 tons gross per annum. Moreover, the total capacity in respect of warship construction was said to be roughly 750,000 tons displacement—equivalent to 1,500,000 tons gross. If, therefore, a policy of complete disarmament had been agreed upon in 1913, the commercial shipbuilding capacity of the world would have been roughly equivalent to 5,000,000 tons per annum, one half of which existed in this country. It is extremely difficult to say to what extent the producing capacity has been increased. Most of the American yards pressed into service during the war have been abandoned and other additions have failed to survive the competitive struggle. Perhaps it is not wide of the truth to say that the shipbuilding capacity of to-day is 10 per cent in excess of the 1913 capacity, that is, on the assumption that all yards are used for commercial work, roughly equivalent to 5,500,000 tons per annum.

A third point affecting the supply calls for comment. The average size and speed of new ships is steadily increasing. Greater speed means that a ship can carry more cargo in a given period. Larger ships mean fewer ships, and if, as is probable, these are distinctly more economical, their employment means less demand for tonnage. Moreover, as already stated, ships are now loaded and cleared more rapidly than in the past, and this reduction of idle time increases efficiency and correspondingly reduces the demand for tonnage. Finally, the time spent in building ships has been considerably reduced since 1913 on account of improvements in technical equipment and in the organization of the shipyards. These factors show that the figures representing the present supply of tonnage do not fully reveal the extent to which the effective supply of shipping service has been increased.

DEMAND FOR SHIPS

The demand for ships, apart from warships, is determined by world trade, but crude statistics of exports and imports are not a safe criterion. Some domestic trade, particularly in Norway and Great Britain, is carried by coasting steamers, while a considerable part of the export trade of the countries of Europe, being overland trade, requires no ships. During the last few years there has been a considerable change in the direction of world trade; the overseas trade of Europe has diminished, while that of the rest of the world has increased. The total export trade of the world is greater now than in 1913, and it is not unlikely that the average distance which commodities are conveyed overseas has been increased. Sir Westcott Abell has estimated the present demand for tonnage at approximately 55,000,000 tons, whereas the total tonnage in existence in 1913 was 49,000,000 tons.

Nor is it wise to accept as a safe guide the statistics of clearings from the ports of the world. Apart from the greater efficiency of the larger and faster ships to which reference has already been made, it is well known that during recent years ships have left port in ballast or less heavily loaded with cargo than in pre-war days, so that an increased demand for tonnage might mean fuller utilization of that already in existence.

There are, however, compensating factors which tend to increase the demand for ships. First, the average age of ships already completed steadily increases, and it is probable that a considerable proportion of laid-up tonnage consists of old vessels which will never be re-fitted. Secondly, there is a distinct growth in the demand for special types of vessels for special trades, and, although this partly represents a change in the nature of the demand rather than a net increase, it undoubtedly represents something more than mere substitution. Thirdly, the steady advance of motor ships and ships using the low gear turbine will probably cause the rate of obsolescence to grow in the near future. The initial cost of motor ships and other modern vessels is higher than the cost of older vessels, but the running costs are considerably lower. Moreover, shippers will be prepared to pay higher rates for quicker delivery, particularly in cases where time is an important factor, and the older and slower vessels will be seriously handicapped in the competition for traffic. Already there is an improvement in shipbuilding demand which cannot be wholly explained by the coal stoppage of 1926, although it would be unwise to regard the improvement as marking the end of the depression. [1]

[1] The demand for new tonnage has fallen since the winter.

FOREIGN COMPETITION

Reference has already been made to the fact that, in spite of the rapid increase in the output of British yards during the generation before the war, the proportion of output to total world output steadily fell, and in 1913 amounted to about sixty per cent. The chief competitor was Germany, with an output of less than one-fourth of the British output, and the United States, France and Holland, with a joint output slightly exceeding one-fourth of the British output. In 1921-22 the German industry was extremely active (when all others were depressed) replacing the tonnage surrendered under the peace treaty. But neither Germany nor the other specified countries can be said to have become relatively more important in the shipbuilding world. In Japan the war resulted in vast extensions and a remarkable increase in tonnage construction, but since then the industry has suffered from extreme depression. The only country in which the shipbuilding industry can be said to have made rapid strides is Italy, whose output increased from about 50,000 tons in 1913 to 220,000 tons in 1926, and in 1927 to 101,076 tons.

Lloyd's Register of Shipping reports that last year the British yards supplied 53·6 per cent of the total tonnage launched. It may, therefore, be suggested in general terms that the depression in shipbuilding has been shared by all the countries of the world except Italy, and that the competitive strength of the British industry has not been seriously impaired. The three important factors tending to retard the recovery of trade are (1) disarmament, (2) the existence of a considerable supply of ships above normal requirements, a great part of which supply is obsolescent and almost ready for the shipbreakers, and (3) the slowness with which ocean commerce is being restored.

INDUSTRIAL RELATIONS

No reference has been made in this article to industrial relations and the conditions of employment. It has already been stated that the industry includes a large number of skilled crafts. The skilled workers belong to craft unions which have established elaborate regulations and customs which prove, in practice, to be highly restrictive in character. Again, the workers in the industry have been compelled to accept rates of wages which are extremely low relatively to those paid in other occupations more favourably situated Some time ago the organizations of employers and of most classes of workpeople formed a joint committee to inquire into these and various other problems affecting the relationship of the two sides. An elaborate machinery of conciliation has been established [1] and a joint report issued dealing with various factors influencing cost of production, including the chief demarcation and other trade practices. It has also been proposed by the employers that the joint committee should investigate the possibility of establishing some form of prosperity index which would automatically determine changes in wages. The problem of industrial relationship has been courageously faced and it is possible that in the near future a situation will be established for the industry which may serve as a model for other industries and profoundly influence the relations of employers and workpeople in the future. But these labour problems are the subject of articles in another series in the EDUCATOR and call for no further comment at this stage.

[1] Mr. H. P. Macmillan, K.C., has been appointed first independent chairman of the joint board

INTERNATIONAL TRADE

(*Continued from page 402*)

part of the United Kingdom, and Egypt is taken throughout as a foreign country.

These figures indicate that the trade between the United Kingdom and the dominions has tended to increase relatively to trade with other foreign countries. They also indicate that this development is not the result of special preferential treatment on the part of the United Kingdom, but that it reflects a movement of longer duration due to more permanent factors. The question which remains is whether some further development in this direction might not result from the adoption of a comprehensive preferential tariff.

Examination of the nature of the goods imported from the dominions shows that foodstuffs and raw materials are of chief importance. A comprehensive fiscal policy involving preferential treatment for the dominions would therefore require that protective duties be imposed on those articles imported from abroad. Duties on foodstuffs and raw materials, however, if they are to be effective, must tend to raise the prices of the articles subject to them. But the most recent proposals as put forward by the British Government in 1923 did not propose to tax foodstuffs, except those of a minor order, such as sugar and certain fruits. On the other hand, a real scheme of preference to be of value to the dominions must cover their most important articles of produce.

There is a final consideration which is relevant to the conception of an Imperial Zollverein, namely, that the fiscal policies of our leading dominions have been definitely protective in the interests of their own industries. An apparently large preference may not be of great service to the United Kingdom if the preference is given on standard duties which are at a high level.

LABOUR ORGANIZATION

(*Continued from page* 364)

IX

TRADE UNION FUNCTION

THE function of trade unionism is to protect and improve the workers' standard of life. If a trade union official were asked to define the standard of life enjoyed by members of his union he would probably have some difficulty in interpreting it except in terms of wage rates, hours, and workshop conditions. He would further point out that the standard is a relative one; that is to say, relative to standards enjoyed by members of other unions. If his members are skilled men, he will expect their standard to be higher by a certain ratio than that of members of a union of unskilled workers.

The history of trade unionism, as we have seen, has been marked by a series of disputes between employers and workers. This continual struggle has had the effect of implanting in the minds of many unionists the idea that the function of trade unionism is the overthrow of capitalism as it exists to-day. Hence some sections of the workers wish to see various schemes of nationalization put into practice. The most recent struggle on a large scale was the General Strike of 1926, undertaken in support of the miners' claim for an improved standard of life. The collapse of this strike seems to have indicated more clearly than anything else that militant methods will no longer avail much in industrial problems. Employers, too, are realizing that the workers intend to maintain pressure for a larger share of the wealth they help to produce, and that ill-considered opposition to the workers' claims is, to say the least, uneconomic in the long run.

This broader outlook on both sides has resulted in a conciliatory attitude, evidence of which is found in the present conference between capital and labour for the maintenance of industrial peace. The participating unions have made it clear, however, that they do not intend to reduce their standards of life nor to forego their usual methods of maintaining and improving such standards, unless, indeed, adequate safeguards are provided through this conference.

A consideration of trade union function would not be complete without the mention of one of their earliest functions, namely, the provision of sickness benefits to members. In more recent years provision for superannuation payments has also been made. This aspect of trade unionism is of considerable importance, although it is not so prominent as the purely industrial or political side. Mutual aid in sickness was practised by the mediaeval gilds, and present-day trade unions have continued and elaborated this practice. These benefits are greatly valued by the majority of trade unionists, since they often represent their chief support in sickness and old age. Under the National Insurance Act of 1911 trade unions are recognized as "Approved Societies" for the administration of State health insurance to their members. By means of his contributions both to his union and to the State the worker is thus entitled in bad times to an income, which, although far below his rate of wages, does enable him to keep the wolf from the door.

THE STANDARD RATE OF WAGES

Since trade unions were formed for the protection of the standard of life of their members, one of their first regulations was that members should not work for less than a certain rate of wages, known as the "standard rate." This rate, insisted upon by all unions, simply means that members are required not to accept employment at wages lower than those agreed upon by employers and union officials as the result of negotiations. The rate applies to what may be termed the "average" man, namely, one who is not handicapped by any physical or mental disability, so that the quantity or quality of his work thereby suffers. In cases where employment is given to such a man, arrangements are sometimes made between the union and employer that such a man may be paid a lower rate of wages. No objection is made to the payment to any man of a higher rate of wages than the standard rate. A few employers do this, but the supply of labour in most occupations is so great that, as a rule, employers can obtain immediately all the labour they require by offering only the recognized standard rate. Moreover, at the present time the large number of men unemployed gives any particular employer a considerable choice, so that an offer of work at the standard rate often brings as applicants men who are above the average in efficiency.

"TIME" AND "PIECE" RATES

The standard rate may be either a "time" or a "piece" rate, or, indeed, may be a combination of both. Time rates are admittedly easier to fix, and, once fixed, usually give little trouble in normal times. The determination of piece rates requires more careful and detailed consideration. They are more easily upset, and often cause a considerable amount of friction between employers and employed. The best example of standardized piece rates is to be found in the cotton industry.

Under a system of piece rates it obviously follows that workers in the same shop, performing identical operations, will earn various time rates. In other words, their weekly or daily earnings will

not be the same in the case of each individual. The quick worker will do better and the slow worker worse than the average man, who was in the minds of the employer and the union officials when the piece rate was fixed. The various methods of payment are dealt with elsewhere in the EDUCATOR, but it will be immediately appreciated that while in some occupations either system might be equally suitable, there are others where only the time rate is possible, for that, unlike the piece rate, is universally applicable.

Repetition jobs are eminently suitable for piece rates, for they enable a workman to please himself, within limits, as to how hard he will work. Trade unionists generally have no marked preference for either, so long as they earn during a week sufficient money to enable them to maintain their customary standard of life. Incidentally, it should be observed that a standard rate in many occupations to-day is a moving rate. The deflation of currency during the post-war years has steadily reduced the cost of living, so that the method of remuneration known as the sliding scale has been introduced. This attempts to compensate automatically for a rise or fall in the cost of living. Theoretically, additions to or deductions from the standard rate should exactly balance the rise or fall in the cost of living, thereby maintaining the same real wages or the same standard of life of the worker. Another type of sliding scale is that which, instead of being based on the cost of living, is based on the selling price of the product, as, for example, in the heavy iron and steel industry.

Generally speaking, sliding scales are not favourably regarded by trade unionists for the following reasons. If the wage fluctuates according to the cost of living the real wage remains the same, so that a worker under this scheme does not benefit from a fall in the general level of prices. If, on the other hand the price level rises, then, although he receives an increase in wages, there is always a lag between the two movements. Where wages are related to the selling price of the product, the workers are thereby required to share in marketing risks, without having any voice, either in the quantity of the article produced, or in the method of disposal. Moreover, under this scheme labour is regarded in the same way as any other component of cost, with the added advantage, from the employer's point of view, that the cost of this constituent can be reduced by a known amount in times of low selling prices without having to wait for the interaction of supply and demand. As is well known, the miners in particular rejected the sliding scale. Trade unionists do not like the fluctuations in their earnings due to price movements, for they mean a more or less continuous adjustment of the weekly budget. Housewives especially object to a fluctuating income. The general attitude of trade unionists is briefly that wages should be the first charge on industry, should be high enough to yield a reasonable standard of living and should be stable over fairly long periods in normal times.

THE NORMAL DAY

Although wage rates are the primary concern of trade unions, the length of the working day has always received a good deal of attention, for a standard rate of wages becomes meaningless if it is not correlated with a definite number of hours For this reason an increase in the length of the working day is regarded by trade unionists as a reduction in the standard of life, and is resisted just as strongly as a decrease in wages.

From the beginning of the nineteenth century until the present day, trade unions have constantly pressed for a reduction in the length of the working day, or week. Legislation in the shape of the Factory Acts has standardized working hours in many occupations, but at present there is no national standardization for all industries. Since the war there has been an insistent demand on the part of trade unionists that the length of the working week should not exceed 48 hours for any industry. Immediately before the war the normal week varied considerably according to industry, the range being between 50 and 60 hours, except where the week or day was specially regulated by Act of Parliament. The miners, for example, gained a legal eight hours' day in 1908. During recent years, especially in the boom period of 1919 and 1920, many trade unions were able to demand successfully a week of 48 hours. Since then, however, there has been a retrogressive tendency, the chief example being the increase in the miners' day from the seven hours gained just after the war to eight hours, as a result of the dispute of 1926.

METHODS OF REMUNERATION

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IX

"SCIENTIFIC MANAGEMENT"

THE most common method of payment by results is probably individual straight piece-work (with or without time guarantee and other conditions). To take the place of such piece-work, and the bonus methods described, various "scientific management" methods are sometimes advocated. The term—scientific management—is one applicable to a variety of schemes of industrial management whose origins are to be found in the U.S.A. in the end of last century. Certain particular methods of remuneration have formed part of the schemes of various scientific management experts, and these methods have often been advocated as based upon a scientific method of fixing prices. The more ordinary methods of payment were declared to be unscientific in their basis, this being said to be largely a matter of guesswork; the inevitable result was, the scientific managers declared, a see-saw of negotiations between workers endeavouring to raise prices and employers trying to reduce them, and consequently "rate cutting" met by "ca' canny," a contention which must clearly be less applicable to some trades than to others.

The method of fixing prices, however, is to be distinguished from the method of remuneration. The former—which might presumably be used with any one of many systems of payment—consists essentially of a detailed study of each job; in this the principal methods are what are called time study and motion study respectively.

The essence of time study consists of a noting, by an expert rate fixer, of the time required for each of the various connected operations into which a job may be broken up. Motion study is observation of the different movements employed by the worker in carrying out a job, with a view to the elimination of wasteful movements, the proper use of tools, etc. It is claimed that by the use of these methods—into the details of which it is not necessary to enter—prices and times can be so arranged that there is no need for the cutting of rates; or that, if there is cause for an alteration in rates, owing to a change in method of working, the change in rate can be made exactly proportional to the change in method.

The method of payment has often varied, particularly in America, with the individual scientific manager. The nature of two of the better known American methods is indicated.

The (Taylor) "differential piece-rate system" was so called by its initiator, Frederick W. Taylor, who is regarded as the founder of scientific management. For each job there are two distinct piece-rates, one considerably higher than the other; a standard rate of output is fixed, and the worker becomes entitled to the higher piece-rate when this standard output is reached or passed. There is no guarantee of a time rate. The sudden jump in the piece-rate—say from 10d. to 14d. per piece—when a certain output is reached, was designed to weed out the inefficient; the stimulus of much higher earnings (the rate itself increasing after a certain output) was calculated to bring out those really suited to the job.

Another American system—Gantt's task and bonus system—differs in principle from Taylor's differential piece-rate principally in this respect that, for workers who fail to reach a specified fraction of the standard output, say three-quarters, there is a guaranteed time rate. When the full standard output is reached there is a substantial jump in the piece-rate as in the Taylor system.

So far as industry in this country is concerned, the extent of the adoption of forms other than the standard forms previously described has been slight.

There has been, both in this country and in America, a considerable amount of controversy over the time study and motion study methods of fixing standards of output and prices, this turning to some extent upon the question of the degree of the applicability of such methods to different trades. It is clearly desirable that the scientific basis of knowledge should be as definite and accurate as possible. The scientific management of America has often been criticized on this ground—that the results were not necessarily attributable, as was claimed, to the particular methods of payment. A really scientific investigation of methods of payment may be said to have originated with the modern study of industrial psychology.

SCIENTIFIC INVESTIGATION

In order to determine the comparative output results of different systems of payment by means of experiment, it is necessary to have comparisons in which the other conditions—the groups of workers, the circumstances of work, etc.—are as similar as possible. Only when this is so can the results attributable to method of payment be isolated. Recent investigations into industrial psychology have brought into the light of scientific measurement some of the many influences in the worker's daily life (inside and outside the workshop) which, according to circumstances, may work with or against the influence of the method of payment. Dr. Sargant Florence has pointed out, in his *Economics of Fatigue and Unrest*, that the scientific investigations so far carried out have not contributed much of value regarding the

respective merits of the various forms of payment by results.

It has often been argued that the *just* piece-rate is an increasing or progressive piece-rate, the argument being based partly on the same kind of consideration as underlies the payment of a higher rate for overtime—the progressive fatigue and disutility to the worker accompanying increased output - and partly on the consideration of the increased saving on overhead costs to the employer. As has been shown, piece-rates may in practice be straight, decreasing (" degressive ") or increasing (" progressive "). It has been necessary to illustrate these various forms, but, so far as results based upon controlled experiments go, the relative merits, as measured in output, are almost unknown. Certain considerations to be borne in mind in testing the output results of a system of remuneration may be noted. If the differences among the outputs of the members of a fairly large group of workers are dependent upon individual variations in ability only, and each member of the group is working to the best of his ability, then the individual outputs, when represented on a graph, should fall approximately upon what is termed a curve of " normal error." (The nature of such a " cocked hat " curve may be realized from its use to indicate the distribution of other variations, e.g. that, in the matter of height, the numbers of men are distributed about a norm, the most usual height, the numbers at greater or smaller heights being ranged symmetrically about this norm. The figures from the 1906 Wage Census, relating to men spinners in the cotton trade and used by Professor Bowley (see below), may be employed to construct a graph approximating to a normal curve: the figures of full week's earnings and the corresponding numbers of workers are: under 25s., 67; 25s. to 30s., 185; 30s. to 35s., 357; 35s. to 40s., 871; 40s. to 45s., 1525; 45s. to 50s., 1,185; 50s. to 55s., 683; 55s. to 60s., 224; 60s. and over, 115.) The study of actual outputs of piece-workers shows such a curve of output in many instances. On the other hand, the fact that workers are paid by the piece (or by payment by results) does not justify an expectation that the outputs will take the form of a normal error curve. Piece-workers are employed in very varying circumstances, and the rate of output may depend to very different degrees upon the ability and energy of the worker. If there is but little room for the influence of differences in ability or energy—when, for example, the pace is set by the machine—then there cannot be the same wide distribution of outputs that is often obtained on handwork or with machines whose speed of working is largely dependent on the operator. It may be possible to vary the speed of working of a machine considerably up to a point, but the exertion necessary for still greater speed may be altogether disproportionate. Owing to the system of payment or for some other reason workers may be inclined to slack off when a certain output is reached. The curve of distribution of outputs should indicate the operation of such influences by the narrow range of distribution and the departure from a normal form.

For references to various distributions on payment by results the reader may consult Dr. Florence's *Economics of Fatigue and Unrest* (pages 253-59). Professor A. L. Bowley has drawn attention, in his *The Measurement of Social Phenomena*, to the closeness with which the distributions of the earnings of men spinners and of women weavers in the cotton trade approximate to normal error curves. The book, *The Premium Bonus System*, by W. Rowan Thomson, gives a certain number of figures of earnings on the Rowan premium bonus method at the works where the method was first introduced; these, so far as they go, suggest a distribution such as the method of payment (a *degressive* piece-rate with a time guarantee) might on a priori grounds be expected to produce, though there is no proof of this connection, or indication of the reasons for it if it exists.

With the extension of the study of industrial psychology valuable experimental results may be expected. This question, however, has been discussed in relation to a homogeneous group of piece-workers, and it will be realized that, in a complex organization, where the reactions among the different groups are of importance, the choice of the best methods of remuneration is a complicated problem to which probably there is no one simple solution. Further, the best results will probably be secured when a synthesis is built up from two forms of study—that of experimental industrial psychology and that of historical investigation; in this all the reasons, good and bad, for the use of various methods may become clear.

VARIOUS FEATURES OF PIECE-WORK OR PAYMENT BY RESULTS

The idea of a uniform rate of earnings will be found implicit in many detailed prices of a list. Thus it will often be found that the prices for an operation fall as the length of the operation increases—to take a simple example, " ½d. per inch for sewing with a minimum of 2d." The payment for less than 4 in. sewing is at an apparently higher piece-rate than for 4 in. or above; the job requires to be set about whether 2 or 10 in. have to be sewn, and this may be taken as accounting for the difference.

UNEMPLOYMENT

(*Continued from page* 368)

IX
TRADE DISPUTES AND UNEMPLOYMENT[1]

With a growing population full employment depends on steady and orderly industrial development. Increasing production, indeed, is no necessary guarantee against industrial fluctuations, but without it there cannot be full employment for all the workers. As recent history shows, causes which check its development seriously affect employment. Of these, some, like the after-effects of the Great War, are exceptional in character, whilst others are a normal feature of industry.

INDUSTRIAL DISLOCATIONS

These last may be termed industrial dislocations, which hinder the smooth working of production, and differ both from the causes of unemployment which spring from general industrial organization, and from those affecting the character of the personnel. They represent rather the grit thrown into the machinery, and the breakdowns which they cause add appreciably to the total unemployment. They cover influences like strikes and lock-outs, the subject of this section, which from time to time stop parts of the industrial machine, and matters like restriction of output, which retard it more continuously.

TIME LOST IN TRADE DISPUTES

The immediate and ultimate effects of trade disputes must be distinguished. The former may cause unemployment among other workers as well as the strikers, and this additional unemployment may be serious, particularly in key trades and industries. Thus, in 1920, a strike of 20,000 cotton spinners threw 20,000 cardroom operatives out of work, and about the same time one of 580 bricklayers and joiners in steelworks affected 12,000 steel workers. Strikes of under 100 colliery deputies have been known to stop thousands of miners. Similarly, stoppages in key industries cause unemployment to large numbers in other trades. At least 375,000 were unemployed, and many others put on short time, by the national railway strike of 1919. The coal strikes of 1921 and 1926 similarly increased unemployment by hundreds of thousands. In many disputes, however, little or no unemployment is caused apart from that of the strikers themselves.

The indirect losses outside the trades in which the disputes occur are difficult to estimate, but the Ministry of Labour distinguish the direct and indirect losses within these trades. The latter form a relatively small proportion. In the disputes of 1920-24, for instance, workpeople directly affected numbered 4,962,000 out of 5,303,000. Thus, these returns give a good idea of the employment lost by those involved in stoppages in the trades in which they occur. The following table shows for some recent years the numbers of workpeople affected and the total number of working days thus lost in trade disputes, with the corresponding numbers continuously unemployed, reckoning 300 working days to the year, which these losses represent.

Years	Numbers of work-people affected	Total working days lost	Equivalent numbers of work-people continuously unemployed
1900–4 (average)	166,000	2,919,000	10,000
1905–9 ,,	211,000	4,254,000	14,000
1909–14 ,,	815,000	16,574,000	55,000
1915–19 ,,	1,067,000	10,533,000	35,000
1920–4 ,,	1,061,000	30,276,000	101,000
1925	442,000	7,070,000	27,000
1926	2,730,000	162,230,000	541,000
1927	107,000	1,180,000	4,000

The outbreak of the war, and the industrial truce, reduced losses in the closing months of 1914. Those for 1915-19 are increased by including 1919, the first post-war year, which accounts for more than half the time lost in the five years. For the four war years the average yearly loss was 4,440,000 working days, and the numbers affected averaged 690,000.

INCREASE IN TRADE DISPUTES

There has been a general tendency, temporarily checked during the war, and very marked since the Armistice, for trade disputes to increase. Even relatively quiet years like 1924 and 1925 have shown what would prior to 1910 have been a high aggregate loss of time. The reasons are the general growth of trade unionism, producing a more active policy and widening the area of disputes, and in recent years special post-war conditions. In 1927, however, both the number of disputes and the aggregate of working days lost were the lowest ever recorded in all the forty years covered by the returns. The highest losses of working days have been 40,890,000 in 1912 (national coal strike), 34,970,000 in 1919, 85,870,000 in 1921 (national coal strike), and 162,230,000 in 1926. The equivalent total unemployment on the

[1] "Trade disputes" and "disputes" are used in the section to cover both strikes and lock-outs.

above basis would be 136,000, 117,000, 286,000, and 541,000 workpeople, corresponding to a percentage of from about 1 to 4½ of total unemployment in the insured trades.

DISPUTES AND UNEMPLOYMENT

Thus the direct and indirect loss of employment by trade disputes is very large. This does not, however, necessarily mean a direct connection between the ordinary unemployment figures and the disputes in a particular year. For 1912, 1913, 1919, and 1920 were years of great unrest, but had generally a low level of unemployment. Strikes were relatively few in 1925, a year of depressed trade. Unemployment was high in 1904, 1905, 1908, and 1909, but, except in 1908, strikes were not serious. Since the war, however, the general connection has been more direct, notably in 1921 and 1926.

These apparent inconsistencies suggest that the proper test is not individual years but periods of years, though, even so, the increasing unrest of 1910-14 was not accompanied by increasing unemployment. In fact, the influence of disputes cannot be entirely disentangled from the trade cycle. Secondly, general trade union policy, particularly before the war, tended to concentrate disputes in periods of rising trade to obtain a full share of their benefits, or in the earlier parts of depressions to resist reductions in wages. Since the war this policy has been largely continued by the more wisely conducted unions, but there has been a tendency in some quarters to a policy of continuous strikes, which has produced general unrest and uncertainty. This, even more than the actual disputes, causes unemployment, and has been a specially active influence since the war. At home it has led to insecurity and lack of enterprise, whilst foreign orders are lost from uncertainty of deliveries, and trade is taken elsewhere.

IMMEDIATE AND ULTIMATE EFFECTS

An estimate of the results of trade disputes must allow for their immediate and ultimate effects, for the general conditions of industry, and for their influence on home and foreign trade. Immediate effects include both direct and indirect loss of work. Much, and in some cases all, of this loss is permanent, especially in classes of work which must be done at once or not at all. Thus, in ship-repairing, work usually done in British ports has to be taken to the Continent. Similarly, essentials like coal may be imported, especially during a long strike. Much depends on the state of trade, for when it is brisk shortage of labour may prevent work being taken elsewhere. In the boom year of 1912 the national coal strike was followed by great activity and much overtime in the trades affected by it, strike losses being largely made good in subsequent months. Even in depressions similar things may happen. Depression means accumulation of stocks, and will continue till these are cleared. A general stoppage in a trade, by enabling this to be done more rapidly, may hasten resumption of full employment. Before the cotton strike of 1908 the over-production had been very serious, and the writer was told at the time that the strike prevented a serious collapse. Again, in essential sheltered trades like house-building, the bulk of the work must be done sooner or later, and, except where stoppages cause building to be abandoned, they may do little more than postpone employment.

The ultimate effects of trade disputes may be to check permanently development at home and abroad, though this again may be less serious in a trade boom than at other periods. Very important is the general spirit underlying the disputes. Individual disputes, however large, have often a limited effect. But a general spirit of chronic unrest and discontent has a continuous and enduring influence. Abroad it prevents opportunities of expansion from being taken and causes loss of existing markets, for foreign buyers, who suffer from delays, fear their repetition. At home the occurrence of strikes from time to time is a normal business risk, but continuous unrest and uncertainty definitely retard development and hinder production. From this in the long run not even the sheltered trades are free, and building suffers from any permanent check to industrial expansion.

POST-WAR UNREST

Since the war general unrest has been marked, even after the effects of war weariness had worn off. Britain suffered war losses in foreign trade and had also to meet increased competition in foreign markets, and in making up lost ground she started with many disadvantages. Thus the series of big strikes has prevented recovery and caused further and perhaps permanent losses, which are rendered worse by the tendency to widen the strike area. With local strikes orders can be placed elsewhere within the country. With national stoppages they must be taken abroad. At home, instead of the steady development needed, the continuous uncertainty has caused investments of capital to be withheld, perhaps in some cases unduly, and manufacturers have held back from necessary and desirable improvements.

Thus disputes and the accompanying unrest are an important influence on unemployment, especially when, as recently, they are abnormal in character and extent. Whether the strikes and unrest have been justified or not, hardly affects the result. Full production is essential to full employment, and disputes and unrest are always an important hindrance to its smooth working, and in recent years have been particularly serious. Moderate men of all types realize this, and can do great service by getting together to deal with it.

BOY LABOUR AND APPRENTICESHIP

(*Continued from page* 370)

IX

THE PROPORTION OF APPRENTICES TO JOURNEYMEN

THE NATURE OF THE PROBLEM

The general conditions of boys' employment render their proper distribution between different occupations essential, more particularly in those of the skilled grades. As already indicated, prevailing conditions usually draw sufficient, if not too many, boys into unskilled and blind alley jobs. Sometimes particular trades or districts, which require large numbers of young boys, may experience a shortage, but this seems less common than is often supposed. Usually the more attractive immediate prospects which they offer, and the difficulties of finding better openings, give the less promising jobs more than their fair share of the boys, both in quantity and quality, with bad ultimate results on industry.

First, therefore, the skilled trades as a whole must get and take an essential proportion of the boys, and the boys must be properly distributed between different trades and among the various firms within them. The former requirement necessitates adequate freedom of entry into trades, with sufficient boys admitted into them to meet their requirements and provide for the growing needs of industry. Secondly, definite organization and regulation are essential to ensure adequate development of all industries and guarantee suitable training for the boys themselves. It is an undoubted evil if too few boys enter skilled work, but great harm may be done if those who do are badly distributed, so that some trades get more than they can permanently absorb and others too few for their requirements. In short, undue restriction must be avoided, whilst proper regulation is exercised. This problem is almost as old as apprenticeship, and the question of the right proportion of apprentices remains with us to-day.

SKILLED TRADES AND THE RISING GENERATION

To secure sufficient boys for skilled work is urgent, because its development largely determines demand for other grades. Adequate provision for the skilled trades will do something to prevent the drift of boys into blind alleys, and in particular make it easier for the better boys to find the good openings. But undue restriction, by accentuating the difficulties of entering skilled work, increases the evils already described and swells the surplus of unskilled labour. Thus, if skilled trades take their fair proportion of the rising generation, they help to mitigate the problem of the unskilled. Moreover, adequate supplies of skilled labour are essential to industrial development, since nearly all industries are more or less dependent on their higher grade workers. Unless there are sufficient of them, the whole working population cannot be adequately provided for. Again, to take full advantage of opportunities of development requires an ample supply of skilled labour, and it is easier for apprentices, where too many are trained, to turn to unskilled work than to create additional skilled labour out of those brought up in the lower grades. Finally, a proper proportion of apprentices is important in the interests of training itself. Trades must get adequate skilled labour, and, if they do not in one way, will do so in another. Consequently, as Mr. and Mrs. Webb point out, undue restriction of those trained by regular methods simply increases the numbers who pick up their trades anyhow without proper control. The men are secured, but the general level of efficiency suffers, and trade union organization may thus be hindered by restrictions which are intended to help it.

WHY REGULATION IS NEEDED

On the other hand, proper regulation to adjust supply to demand is almost equally urgent. The trouble, in fact, rests not in regulation itself, but in wrong forms of it, which tend sometimes to excess and sometimes to inadequacy. Regulation is essential, first of all, to secure proper training of apprentices. This training is largely given by journeymen and the latter normally can only be responsible for smaller numbers of apprentices. Not all are competent to teach, their time is limited, and the value of training acquired unconsciously by working among skilled men makes it better that they shall outnumber the apprentices. Secondly, excessive numbers of apprentices can be used as cheap labour to displace skilled men and, when they grow up, create a surplus which is utilized for wage cutting.

From the national standpoint, again, wrong proportions of apprentices lead to their wasteful distribution, and eventually that of skilled labour. Within a single trade one firm may get more than its share and be unable to train them properly, whilst another obtains too few. Complaints are not uncommon that the firms best fitted to train sometimes take only a small number of apprentices. Similarly, between different trades, a popular trade, or one in which employers specially lay themselves out for apprentices, may secure so many that others, equally important and remunerative, have difficulty in getting enough. The former may also take too many of the abler boys and compel the latter to be content with a lower level of capacity.

PRACTICAL DIFFICULTIES

Whilst the needs both for adequate provision for skilled training and proper distribution and regulation of the boys are widely recognized, the right practical adjustment has proved extremely difficult, partly from differences in points of view. Employers, to ensure adequate skilled labour, prefer to fix the proportion high, and workpeople, from fear of unemployment and wage cutting, to put it low, and the rough and ready practical adjustments between them are by no means always satisfactory.

Moreover, the general conditions of apprenticeship vary widely and require different arrangements in different trades, and the right proportion of apprentices is not a fixed one, even in a single trade, but varies with industrial conditions. Thus elastic arrangements are required to adjust numbers according to the need. These complications greatly increase the difficulty and obscure the real identity of interest between employers and employed.

Much depends upon the length of apprenticeship. The shorter the apprenticeship, the quicker are new journeymen trained. A five-years' apprenticeship allows four relays in twenty years, a seven years' one barely three. The average length of working life also varies in different trades and the shorter it is the more apprentices are needed in a given time to maintain the supply. Larger numbers, therefore, are required in unhealthy than in healthy trades. Further, there is wastage among apprentices, all of whom do not become journeymen, and the proportions must be adjusted to allow for this. Moreover, the proportions are not an average, but a maximum which any firm may take, and some employers take few or no apprentices. All these considerations vary appreciably from trade to trade. Some trades, too, provide for more than their own workshops. Seagoing engineers serve their time on land, and the piano-tuners of big retail firms in the factories. Finally, other methods of entering a trade than by apprenticeship, as by semi-skilled assistants or youths moving from firm to firm, must be allowed for. In some industries, such as printing, they are not common, but in others, like furniture, are frequently found. Their influence and extent are specially difficult to estimate.

NEED OF VARYING PROPORTIONS

Thus, the proportion of apprentices must make due allowance for the different conditions of different trades or even different districts. But, except perhaps the last, these variations can to some extent be calculated. An apprenticeship of five years will require one apprentice to four journeymen, where one of seven years will need about one to three and one of four years one to five, and so with other conditions.

Variations in industrial development add greatly to the difficulties, owing to different rates of progress. Some industries develop rapidly, others slowly, and others not at all, whilst some may decline. Trades of the first class, therefore, require more than the normal proportion of apprentices, those of the last class very few, and the growing trades must take larger numbers if the rising generation is to be provided for. The progress of different trades also varies from time to time, and their training needs to be adjusted to this. Finally, particular conditions, like increased specialization, improvements, or mass production, may reduce the need for skilled labour, especially, but not solely, in expanding industries, and the latter, as in motor manufacture, are partly recruited by skilled journeymen from other trades. The proportion of apprentices to journeymen, therefore, must be adjusted from time to time according to circumstances.

THE SOLUTION OF THE PROBLEM

Thus, whilst existing conditions render adequate supply and proper regulation of apprentices urgent, they also make them very difficult, especially with the legacy of disagreement handed down by past controversies. Solution will not be easy. It seems most readily approached by development of existing methods. Just as fixed numbers of apprentices, common before the Industrial Revolution, gave way subsequently to a proportion to the number of journeymen, so the time has come for a further advance, by substituting elastic arrangements, adjusted to industrial variations, for the old fixed proportions. This will require the co-operation of employers and employed and will probably have to be preceded by careful investigation of actual conditions. Employers and workpeople in different industries must get together to solve the problem for their own trades, by adjusting the numbers of apprentices from time to time, whilst, with the growing interdependence of industries, some central co-ordinating body may eventually be needed. Only on such lines does it appear possible to get that practical and permanent solution which is essential to the proper expansion of manufacture and commerce and the full employment of future generations.

LEADERSHIP IN INDUSTRY

(*Continued from page 372*)

IX

INTEGRATIVE UNITY

THE whole problem of this life can be brought back to an attempt to harmonize in some way the great discordance of wills. We have pleaded for an expansion of the human unit, but it is clear that if every human unit expands just as it may desire to expand, and with no other consideration, there must be discord. Hence we look for what Miss Follett has described as "integration," and for what she pleads in industry as "integrative unity." I must let her speak in her own words, as, in my view, this contribution of Miss Follett's is of the utmost importance in the study of industrial leadership, but I take leave to make some preliminary observations. Integration is not compromise; it is the discovery of a *tertium quid*, a new fusion. It is not born of hostility. Rather it is born of two opposing sections attempting each to see a higher point of view, and the integration is the discovery of that higher fusion. It is clear that there ought to be some integration at each stage. It is not sufficient that there should be integration when we come to the last opposing forces, say the employers' federation and the trade union. The employers' federation must have reached its view by integration, if that view has been wisely reached by the process of fusing the opinions of sections not as to the rights of the sections but as to the rights of employers. Similarly the trade union, if the process also has been wise, has reached its conclusion by integration. Consequently, when there is a joint consideration, integration will come into play and the industrial leader will seek integration and not compromise and not dictatorship, because he will wish the view of the worker as to the conduct of the industry as a whole to play its proper part in the contribution. It is thus that it can be said that industrial leadership seeks integrative unity. It does not wish to force the unity. It wishes to direct the course of integration, fairly and honestly, to seek its own end of unity.

THE DEFINITION

Miss Follett's views are expounded at length in her own books, but I think that the chapters which she has contributed to *Scientific Foundations of Business Administration* (Baltimore: The Williams and Wilkins Company) are an admirably comprehensive statement of the contribution which she has made. "There are three main ways of dealing with conflict—domination, compromise, and integration. Domination, obviously, is a victory of one side over the other. This is the easiest way of dealing with conflict, the easiest for the moment, but not usually successful in the long run, as we see from what has happened in history. The second way of dealing with conflict, that of compromise, we understand well, for it is the way we settle most of our controversies. Each side gives up a little in order to have peace, or, to speak more accurately, in order that the activity which has been interrupted by the conflict may go on. Compromise is the basis of trade union tactics. In collective bargaining the trade unionist asks for more than he expects to get, allows for what is going to be lopped off in the conference. . . . Is there then any other method of ending conflict? There is a way beginning now to be recognized at least, and even occasionally followed. When two desires are *integrated*, that means that a solution has been found in which both desires have found a place, that neither side has had to sacrifice anything." This doctrine of integration has wide ramifications. It means integration of every kind to discover new light on the problems by blending the light which has been received on the problem as a whole from different angles. Thus consultation of workers is not a privilege which has been conferred. The full and complete light is not possible without that consultation in one form or another. On the other hand, true discipline is the contribution to integration to be made from the employing side. Nothing is to be gained by softening it or by shirking it. Everything is to be gained by enlightening it so that it may appear to be a discipleship which is fearless of anything because founded upon the bedrock of strict justice.

HISTORY AGAIN

Let us compare this conception of integration with the process in two periods of history. First, I quote Mr. H. W. C. Davis's little but admirable book on mediaeval Europe, showing the attitude of the common man to authority. "If a townsman, he was legally prohibited from changing his residence, and even from travelling about the Empire, for fear that he might evade the tax-collector. If a rural landowner, he lived in a community which was economically self-sufficient and consequently provincial to the last degree. The types of character which developed under such conditions were not wanting in amiable or admirable traits. The well-to-do provincial was often a scholar, a connoisseur in art or literature, a polished letter writer and conversationalist, a shrewd observer of his little world, an exemplary husband and father, courteous to inferiors, warm-hearted to his friends. Sometimes he found in religion or philosophy an antidote to the pettiness of daily life, and was roused into rebellion against the materialism of his equals, the greed and the injustice

of his rulers But he despaired of bridging the gulf between the empire, as he saw it, and the ideal commonwealth—City of God or Republic of the Universe—which his teachers held up to him as the goal of human aspirations. Rather he was inclined, like the just man of Plato, to seek the nearest shelter, to veil his head, and to wait patiently till the storm of violence and wrong should pass away." The second quotation is from the *Cambridge Modern History* on a more recent period, the period of Czar Nicholas I. "All freedom of thought was remorselessly suppressed. The secret police, solemnly abolished under Alexander . . . were re-established in 1823. . . . The head of this section, the chief of police, was by right a member of the committee of ministers, had constant access to the sovereign, and had the power of arresting, imprisoning, deporting, and making away with anyone whom he pleased, without any restriction whatever." Against these high lights we can realize what is meant by an attempt to integrate the wills of men, and to make of them a fused whole which would have within its compass the sense of some realization of their needs, or, at least, what they imagine to be their needs. It is a reasoning process. Its sense of discipline comes of the reasoning process. It is not the timid but fearful discipline of the despot.

THE ACHIEVEMENT

It may be that no one will achieve full administrative leadership in our time in the sense of being able to say that integrative unity has become realized. Indeed, it may be that it never will be realized. For myself I am content to think that it will always be a process, finding further scope for further integrations as it proceeds. But it is such an ideal as places industrial leadership in its place in the scheme of things. There is no such thing as an industry so small as to be negligible in the summation. Wherever something of the nature of integration has been achieved something has been done for human progress. In this sense leadership in industry is, as it were, a microcosmos of the grand whole. History leads to it and, it may be, history will start from it with a new vision of human relationship to authority.

THE PURPOSE

And this gives to us a new vision of industry itself. It will be not merely a method of producing things, not merely a machine. It will be a human relationship drawing the best out of humankind for behoof of the corporate body. It may be that in respect of the spiritual relationship thus involved we have much to learn. There is investigation yet to be done into its ethical content, for we can readily see that the older controversies as to hedonistic purpose or intuitional direction are insufficient, and that there may be a new sense in which industry is a process of the realization of human capacities and potentialities of which we have been only dimly aware. All the story of man's search for human purpose in life, from the time of the Greeks until to-day, seems to indicate that there is something in corporate association together which, as yet, we have not learned. It may be that what Miss Follett has called "integration" is the beginning of this greater realization.

PUBLIC FINANCE

(*Continued from page 374*)

IX

MUCH consideration has been devoted to the form and the classification of public revenues. In primitive society expenditure and revenue were combined; that is, when the community required services and commodities they were levied directly and applied to the particular purpose in view. As civilization made progress, however, a distinction was drawn between revenue and expenditure; the collection and administration of the revenue became from that time questions of substantial importance in the progress of social organization. Money or currency hastened the divorce between the revenue which was collected and the expenditure undertaken. In early society the forms of revenue or of the receipts of the State were innumerable. They included dues imposed on land, on goods of every description, on the performance of different acts, together with many types of individual revenue. This feature was conspicuous in the Roman system. It is found also in the financial arrangements of the mediaeval period. Such classification of the forms of revenue as was attempted pointed first of all to those which came from the domain of the sovereign; secondly, those which were included in the so-called regalia or prerogative rights; and, thirdly, the product of taxes.

DIVISIONS OF PUBLIC REVENUE

Very much later Adam Smith altered appreciably the general trend of discussion on this point. In substance he saw the State in two capacities, of which one was an artificial personality, or what is called juristic person, that might hold property and engage in trade; in the other capacity the State as supreme power was able to impose charges on the citizens; such charges or taxes became the second group of public income. That was a clear and simple classification. Other writers added to these groups a third, which consisted mainly of fees, so that classification on this basis tended to include the four heads of the private industry of the State, the prerogative rights, fees and taxes. Much of the controversy which has surrounded the classification of public revenues in the German financial system arises from this arrangement. Many writers place taxes and fees under one head; and usually there is a tendency to come back to the simple view of Adam Smith, in recognizing only two broad divisions of public revenue such as quasi-private and public, although some distinction is usually drawn in the various cases of extra payment for special services. In this part of the problem much depends upon the historical peculiarities of different countries. No general or final classification can be attempted, and certainly the innumerable forms of public revenue do not admit of clear-cut division. At the same time, a good natural grouping, which has regard to the characteristics of the objects which are under review, is of very great value both in the imposition of taxes and in the investigation of this subject.

THE CANONS OF TAXATION

Most of the authorities have followed Adam Smith in summarizing the characteristics of a sound system of public revenue or income. In his canons of taxation it was urged that such a system should have the merits of equality, certainty, convenience of payment, and economy in collection. Within recent years it has been urged with increasing force that systems of public revenue or income must rest on the basis of comprehensive statistics. They must also be elastic in character; Gladstone, for example, made frequent reference to the elastic quality of the income-tax as a remarkable power for great national purposes, as in the ready manner in which it responded to the call for additional revenue to meet exceptional expenditure. A sound system must also have the qualities of sufficiency and productivity; that is, the revenue should always be equal to the demands which are made upon it. In pre-war times Great Britain was occasionally criticized for a tendency to concentrate too largely on a comparatively small number of taxes. At the same time they were productive, they yielded the revenue required; and it is very often contended that productivity more than makes good a multitude of faults or weaknesses in any revenue system. And Adam Smith reminded us that all revenue systems must be comprehensive; they must meet not only the outlay for the necessary defence of the society, but all the other necessary expenditure of government. On this point attention was directed to the simple analysis which showed that all revenue might be drawn first of all from funds or resources which belong to the sovereign or commonwealth, and were independent of the revenue of the people, and, second, from the resources of the people themselves.

PUBLIC AND SPECIAL ASSESSMENTS

Plainly a simple classification of this kind is unsuitable under complex conditions of twentieth century finance. In the annual income of the State the revenue from property of the sovereign

or of the people is an insignificant item. Self-government has made remarkable progress, and the wealth which is owned by public authorities in various forms of social service is considerable. It is not, however, except to a limited extent, a source of revenue; the main source of income is now taxation. By some writers other sources have been grouped under the heading of public undertakings, public lands, special assessments, especially in the United States of America, and loans and miscellaneous sources such as gifts and fines. Taxes are usually defined as compulsory contributions to public authorities to meet the general expenses of government; these expenses have been incurred in the public interest, and without reference to special benefit. In the main they rest upon the duty of all government, whether national or local, to provide for the protection of the life and property of the citizens. That is general service. Fees, on the other hand, are defined as payments primarily in the public interest for services which confer a special advantage on the fee-payers; very often these fees are not voluntary but compulsory payments. Licence fees are generally described as taxes, since in normal circumstances they are more than the mere cost of the service and, as various writers have shown, the positive service which is rendered is very often absent.

Special assessments, unlike fees, are imposed by various authorities, but very often by municipalities for the purpose of meeting extraordinary expenditure, such as would be involved in a special improvement which was definitely in the public interest. Professor Seligman has observed these characteristics of special assessments: (1) the element of special purpose; (2) the fact that the special benefit is measurable; (3) these assessments are not progressive but rather proportional to the benefit received; (4) they relate to specific local improvements; and (5) they also refer to capital improvements, as, for example, in permanent plant or other property belonging to the community.

IS MERE ARRANGEMENT OVER-RATED?

In further analysis of classification various writers have urged that it is easy to over-rate the value of a precise and correct arrangement; probably for that reason most of them have fallen back upon the wide definition which points to the State in its various functions as a great corporation and to what is taken from the revenue of the society by the powers of the sovereign. Professor Bastable considered that this course was best calculated to satisfy the conditions of scientific accuracy and practical convenience. It had the advantage of placing together distinct and well-defined parts of the public revenue, and it also established some separation between the economic or industrial and the compulsory receipts of the State. Here again, however, demarcation is very difficult. In early times the postal service was very largely a public function involving expenditure. At a later date, or in other countries, it would probably just cover its expenses. Or, as in Great Britain at the present time, it might yield a substantial surplus to the general revenue of the State, after all charges falling to it had been amply covered. In existing conditions most States proceed upon the principle that such services, whether national or local, should not be regarded as revenue-producing undertakings. That is, their annual surplus is expected to cover the standing charges which apply in each case; after these have been satisfied, steps should be taken to improve the service or to offer it on such better terms to the public as will reduce or eliminate the surplus in succeeding years. In other words, the aim is maximum service, in the sense of the appeal to the largest possible number of people; profit-making in the ordinary commercial sense is a secondary consideration. If surpluses are habitually earned they will tend to form a charge or tax for all posts or communications or transport, or in whatever service they may arise. At various times there may be justification for such a course; but, generally speaking, the principle of cheapest and most efficient service is regarded as preferable.

THE ECONOMIC FUNCTIONS OF THE STATE

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IX

LIMITS OF STATE ACTION

THE END OF THE STATE MUST BE MORAL

OUR main study being the implications in the economic order of this principle that the ultimate purpose of the universe is moral, we shall only remark here that any community which makes wealth or material power its aim stands self-condemned. By "self-condemned" we mean two things: first, that in a universe resting on a moral order the pursuit by individual or society of anything lower than moral development is unreal and ultimately bound to end in disorder, and, further, that the State which refuses to take moral values as its standard has no right to the allegiance of a moral personality. There can be no true basis of political obligation in a non-moral State, and the only form that citizenship or patriotism can there take is the perpetual urging of new standards, together with a steadfast resistance to the lower standards the State would seek to enforce. However serious the apparent emergency, no State can demand of its members that they should be untrue to their highest moral selves.

No State is, therefore, true to its function and purpose if its policy be one of wealth as an end in itself, or of expansion at the expense of its weaker neighbours. It cannot be, because it would demand from its members, through whom alone can such a policy be realized, the adoption of aims and standards lower than the highest, lower in particular than those which should dominate their individual lives. The State can only claim from other States what it needs for its essential function, and, that function being moral, those needs cannot enter into competition with those of other States any more than individual needs can be satisfied at the expense of the needs of others. We shall see at a later stage the profound significance of this principle in the sphere of international economic relations.

If the search for material wealth be contrary to the true end of society, so is it contrary to the true end of the individual. No one can demand as a necessary right the unconditional power either of amassing or of controlling unlimited wealth. All has to be related to the ultimate pursuit of moral development, individual and collective. Again, under no circumstances, we said, can man use man for the purpose of his development. This is only another way of stating that this development can really only manifest itself in service to a common moral welfare. Every moral person has a part to play in this search, a function to fulfil, and his "rights" are those he needs to fulfil that function to the fullest extent of his abilities.

MORAL ACTION AS THE BASIS OF INDIVIDUAL RIGHTS

We have thus arrived at a clear conception of the basis of State and individual rights. Starting from the assumption that all ultimate values are moral, and that a fully developed moral personality is the ultimate reality and, therefore, the true aim of social life and the only true end of social good, we have come to the conclusion that the rights of the individual are bound up with his existence as a moral personality, and must, therefore, be recognized by the State if the State is to command his allegiance. He must be free to express himself as he chooses, provided always that this expression is not obtained at the expense of his fellow men, and that the rights he claims as essential to his expression have their use justified. In other words, rights are not "granted" by the State, but exist in themselves, whether they be legally recognized or not. They are, however, conditional as being necessary to the proper fulfilment of an individual's function in society. Of the nature of that function again he is the best judge, provided always that exercise lies within the limits of that moral order without which society has no meaning.

It will not be out of place to state what conceptions of the State are excluded by this point of view. At first sight it might seem that we have gone back to the old individualism of Bentham or Mill, but a closer examination will show that this is not so. The old individualism rested on the assumption that individual happiness was something that could be separated from social good or moral development, that there were departments of human life which were the individual's sole concern. We reject this view. At no point can individual action be said to have no social significance. What we say is that the social moral good will best be obtained by the fullest development of the individual's moral personality on its own lines, provided he respects in this the similar efforts of his fellow men. Our quarrel with the individualist philosophy is that in its reluctance to interfere with the freedom of individual action it left unchecked all those forces of individual self-seeking which enabled the naturally strong and self-assertive to cripple the efforts of the rest, ultimately destroying the freedom of the many in its fear of restricting the freedom of the few.

THE STATE CANNOT BE AN END IN ITSELF

Our chief criticisms, however, will be directed towards the various systems built on the assumption

of a common will or purpose that would either ignore or override the moral personality of the individual citizen, thus challenging Rousseau, Hegel, and a great deal of current political thought, which calls upon the individual to sacrifice himself for a collective interest which is strictly non-moral in nature and has to be advanced by any methods, moral or not. It is one thing to call upon citizens to sacrifice themselves for the honour of their country if that honour be truly involved, i.e. in fulfilment of some unmistakable moral obligation; it is quite another to sacrifice the citizens of to-day for the sake of a problematical material advantage. We do not deny that there be a common welfare which individuals cannot override, but that common welfare cannot be different from the welfare of the individual citizens. There can be no corporate happiness based on individual misery, no social gain obtained by individual loss, and individual happiness involves freedom to pursue it within the limits already defined.

This standpoint involves a refusal to identify power with greatness. We maintain that the citizens of any country can be happy and prosperous in the fullest right sense of that term without their country being "powerful," i.e. controlling large resources outside its own borders and being able to make its policy prevail all the world over. Further, we challenge the view that the State be an end in itself and can command obedience to any of its dictates just because it has spoken. This extolling of the State, which is common in most countries to-day, is, we believe, morally wrong and politically disastrous. The voice of the State, expressed by the decision of the government of the day, is merely the opinion of that number of citizens who control the government. It may be the majority, it often is not, but in neither case is it sacred. It is right in so far as it conforms to the moral end that is the only true end of the State. In minor matters, if I obey, it is not because I am forced to do so, but because where no moral issue is involved, it is better to fall in with that decision rather than resist. Perpetual objection, which is not really conscientious, makes common life impossible. In a crisis, I obey if the State's orders command my moral allegiance. If they do not, obedience is treason to the highest law, which governs State as well as individual action, and in that case I am bound to disobey. In a word we would say, with T. H. Green, that disobedience is never a right; it is either a crime or a duty.

MORAL LIMITS TO ALL POLITICAL ACTION

Later pages will show that this standpoint need in no wise involve such a limitation of State action in the economic sphere as would leave society helpless before the forces of greed and exploitation. We are concerned only with two things. The first, to get a clear and coherent set of principles by which to direct State action into its proper channels and to give it its true motives; the other to put readers on their guard against views of the State that must lead to moral anarchy. Few, if any, would deliberately separate ethics from politics, but there is a great deal of unconscious Machiavellism in the political practice of to-day, and it is essential that we should not allow it to dominate our thoughts. No national crisis can warrant a "moral moratorium," and truth is not relative to political and economic necessity. We all, as a matter of fact, "draw the line somewhere." Few, if any, of us would really endorse the dictum of a popular paper that "the war must be won at all costs." We all feel that there are certain things that should not—and would not—be done, not even for the sake of victory. This deep moral instinct has its roots in the ultimate reality of things; it has far-reaching implications in the sphere of economics and politics.

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

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IX
ORGANIZATIONS IN THE FIELD
(*e*) INTERNATIONAL CARTELS AND TRUSTS

By J. H. RICHARDSON, M.A., Ph.D.

INTERNATIONAL cartels and trusts are expressions of the world's economic unity and represent an important attempt to co-ordinate its production and commerce. As regards objects and types of organization they are similar to national cartels and trusts.[1] Their main purpose is to limit competition by adjusting total output to estimated market needs. Some groups also attempt to rationalize production by improved technique, exchange of information, standardization of products and specialization of establishments. The attainment of these objects is evidently desirable in the general interest. On the other hand, their monopolistic power may be exercised in a manner detrimental to the community. In type these organizations range from informal understandings for allocation of markets or limitation of output to giant businesses dominating the world's trade in the commodity covered

DEVELOPMENT

The formation of international cartels and trusts is a comparatively recent development, dating mainly from the last decade of the nineteenth century.[2] By 1914 more than a hundred had been established. Most of them collapsed during the war, but subsequently many have been re-formed and new organizations constituted. The tendencies seem to be toward an increase in the number and importance of these bodies.

The great majority of existing organizations are of the cartel type, being loose associations in which autonomy of the different undertakings is maintained. Frequently the number of national groups associated is small; several international cartels are merely agreements between producers in neighbouring States. Thus certain cartels regulate a localized industry divided by a political frontier. Also in Europe, since 1919, cartels have been formed between producers formerly belonging to one State but now members of different political communities as a result of territorial changes made by the Peace Treaty. Many cartels cover raw materials or semi-manufactured products and are concerned more with regulating output and marketing than with "rationalizing" methods of production.

[1] The general characteristics of cartels and trusts are described in another course.

[2] Some of the earliest were agreements between regular shipping lines for fixing uniform freight rates and for fighting "tramps" by the method of fidelity premiums or deferred rebates.

Typical examples may be given. The *International Steel Agreement*, September, 1926, is an important example of a cartel formed to regulate output. Its original members were the steel manufacturers of France, Belgium, Germany, and Luxemburg. But the agreement, which remains in force until 1st April, 1931, unless rescinded earlier, provides that steel manufacturers in other European countries may join, and Austria, Czecho-Slovakia and Hungary have availed themselves of this provision. Each country pays into a common fund one dollar for each ton of crude steel produced. This fund is administered by a committee, who fix the output quota of each country for each quarter in relation to the total tonnage representing probable market demand. A country exceeding its quota pays into the fund a fine of four dollars for each ton in excess. A country producing less than its quota receives from the fund two dollars per ton in deficiency. Each half year the balance remaining in the fund is distributed mainly in proportion to production.

The *Franco-German Potash Agreement* is mainly between producers whom the Peace Treaty had divided by transferring to France certain potash mines in Alsace which had previously belonged to Germany. An important object of the agreement is the education of potential purchasers in the use of potash fertilizers. A cartel can undertake propaganda of this kind only if it controls a very large part of total production; actually nineteen-twentieths of the world's potash requirements are satisfied by Germany and France. The agreement also reserves the German market for German producers and the French market for French producers.

Agreements between manufacturers of electric lamps in certain countries provide for allocation of markets and exchange of patents and information on manufacturing methods. Gas-mantle manufacturers in Great Britain, Germany, and several other countries reached an agreement in 1926 regarding allocation of markets. Among other commodities covered by international cartels are rails, wire, tubes, copper, enamel goods, and chemicals.

Of different type are international trusts, i.e. giant businesses which have acquired a dominant position in world trade. They are permanent fusions in which the component undertakings cease to have a separate existence or retain only a limited degree of autonomy. The best known international trusts are in petroleum, tobacco, matches, and meat. World trade in petroleum is largely controlled by the *Standard Oil* and the *Royal Dutch Shell* groups. These together cover about 40 per cent of world production and a much

greater share of international trade. In the world's tobacco trade the *British-American Tobacco Company* has acquired a commanding position. The *Swedish Match Company* dominates the match industry, controls factories in many parts of the world, and has monopoly rights in certain countries. The so-called Beef Trust, which is predominant in the United States and has important interests in Canada, South America, Great Britain, and France, controls more than half the meat exports of the world.

SOCIAL AND POLITICAL EFFECTS

The chief social and political consequences are those affecting workers, consumers, national policies and international relations. In the case of workers and consumers the consequences are similar to those of national cartels and trusts. A certain amount of temporary unemployment may result from the closing down of plant or general application of the best methods of production. But the systematic regulation of production would ultimately have a stabilizing effect on employment. It would also lead to an increase in the *per capita* output of the workers, a share of which they would no doubt secure in the form of higher wages. Protection of the workers against attacks which powerful international cartels or trusts might be tempted to make would be undertaken by the already highly organized international trade union movement.

Consumers are in a weaker position and run the risk of a restriction of supply and a raising of prices. In the case of raw materials or partly manufactured goods the consumers are themselves manufacturers and can often form buying syndicates or purchasers' monopolies to protect themselves against the sellers' monopolies. Consumers of finished goods may secure protection either by forming consumers' co-operative societies or by the establishment of State machinery to prevent abuse of monopolistic power.

Turning now to effects on national policies, there has so far been little divergence of interests between national governments and international cartels and trusts. Most cartels are based on a nationalist view of industry and adopt a policy which safeguards national production, for example by reserving home markets for home producers. Here it may be noted that where agreements thus protect home markets, manufacturers will have little interest in pressing for protective tariffs. The tariff policies of governments may therefore be affected by this alternative method of protection.

International trusts generally differ from cartels in their cosmopolitan rather than nationalist outlook. This raises grave political questions. International trusts might decide on economic grounds to curtail production in some countries and expand it in others, thus bringing them into conflict with the States adversely affected. On the other hand, world economy would be advantaged by the adoption of a more scientific localization of production than that which results from the application of nationalist policy. It would be premature now to examine the ramifications of this struggle between political nationalism and economic cosmopolitanism.

The effects on international relations depend on the policy of the cartel or trust. They would clearly be harmful if producers in certain countries were to monopolize the production of some important raw material or food commodity and then raise the price to consuming States. They would equally lead to international difficulties if, on the lines indicated above, action were taken to expand production in some countries at the expense of others. Their effects will be favourable in so far as they succeed, by regularizing production, in diminishing the bitterness of international competition. Exchange of information and experience would also make for good relations.

Proposals have been made for the establishment of international machinery to supervise the activities of international cartels and trusts. The question of supervision and regulation was examined by the League of Nations International Economic Conference, Geneva, May, 1927. The Conference was of opinion that no international supervisory body should be set up, but that any regulation, whether of national or international cartels and trusts, should be effected by national legislation and tribunals.[1] It also considered that publicity regarding the nature and operation of agreements constitutes one of the most effective means of preventing the growth of abuses and of securing development in the general interest; the League of Nations should collaborate with the various governments in this work of publicity.

International cartels and trusts are likely to have an important development and influence in the future. Wisely directed, these bodies constitute a form of international co-operation which may make a notable contribution to the establishment and maintenance of world peace.

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[1] A number of countries have set up supervisory bodies. The measures adopted differ considerably from one country to another. One of the most highly developed systems is that in the United States where a special body, the Federal Trade Commission, consisting of five persons with a permanent staff, has powers of investigation and authority to prevent unfair methods of competition in commerce.

STATISTICS

(*Continued from page* 380)

IX
THE MEAN OR AVERAGE
(*continued*)

SOME USES OF THE WEIGHTED AVERAGE

THE weighted average described in the last section is a useful statistical instrument, and has a great variety of applications. One of the most important—its application to the formation of price index numbers—will be dealt with at a later stage. At this point it may be useful to refer to its application in the calculation of birth, marriage, and death rates, and their comparison in different places or at different times. The principle may be illustrated by a consideration of the case of death rates.

The death rate of a particular group of people (city, parish, nation, etc.) is calculated per thousand of the population. Thus if the deaths in a certain year are 1,800 and the population 100,000, the death rate is—

$$\frac{1800}{100{,}000} \times 1000 = 18$$

But of the total number of deaths, so many, say 300, may have occurred in the case of children under 5; other 40 in the group of people aged 5 and under 15, and so on. Similarly, of the total population, 10,000 may be between 0 and 5 years, 20,000 between 5 and 15 years, and so on. We should then find the death rate for each group to be

$$0 \text{ to } 5 \text{ years } \frac{300}{10{,}000} \times 1000 = 30$$

$$5 \text{ to } 15 \text{ years } \frac{40}{20{,}000} \times 1000 = 2$$

If we now make comparisons between these death rates and those in corresponding age-groups in another city, we may conceivably find that the death rates in the various age-groups correspond closely in the two cities, while the general death rate of one of the cities is higher than that of the other; or, conversely, that while the general death rates coincide, the rates in different groups differ materially. These seemingly paradoxical results may occur because in one city there is a smaller (or a larger) proportion of the total population in the group of very young or very old people than in the other; and therefore the general death rate is one which is swollen because the highest age-group death rates (those of infants or old people) have to be multiplied by heavier weights in the one case than in the other.

For this reason the Registrar-General in his reports introduces calculations by which he "corrects" the "crude" death rates discussed above. The "corrected" death rates are got by using as weights in the case of each age-group, a number which represents, not the number of people in that age-group in the city under consideration (which might for various reasons be a different proportion of the population than in other cities), but the number of people in that age-group in the country taken as a whole. By the use of such corrected death rates two cities with similar death rates in the several age-groups will also show similar general death rates; and justifiable comparisons can then be drawn between one city and another.

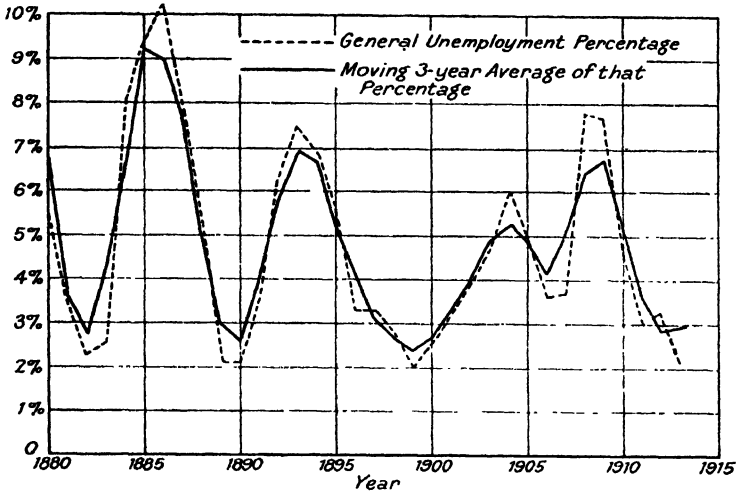

FIG. 13

TIME SERIES

Averages are useful in the statistical elucidation of time series, or series showing the changes that take place in some variable over a shorter or longer period. The price of commodities, the amount of unemployment, the sales of a particular product, may show seemingly erratic movements from day to day. With regard to such a series, we may desire to show either these day-to-day movements, or the way in which the variable moves in the course of a longer period of, say, a year; or, thirdly, the general trend over a much longer

period of a number of years. In either of the two latter cases, averages must be made use of. Monthly averages of the prices of a commodity may reveal a tendency in such prices to rise at certain times of the year and to fall at others; monthly averages of unemployment in a particular occupation may reveal the seasonal nature of that occupation. The price of British oats, for instance, tends to be higher at some parts of the year than at others; and average monthly prices bring out this tendency. But the tendency can be emphasized by taking the mean of the average prices for each month over a series of years. To take a random example, the *Statistical Abstract for the United Kingdom*, 1909, gives, on page 287, the average prices of British oats per imperial quarter in England and Wales in each month for the years 1901 to 1908. These are shown in the table below.

It is apparent from this table that fluctuations take place in the price of oats from month to month, but from the detailed figures it is not easy to make out the general nature and time of the fluctuations. But if we take the mean of the average price for each month over the whole series of years, the nature of the upward or downward movements from month to month is revealed. If we do so for the figures given above we get the following results—

TABLE IV

PRICE OF BRITISH OATS, PER IMPERIAL QUARTER, IN EACH MONTH FOR THE YEARS 1901 TO 1908

Months	1901	1902	1903	1904	1905	1906	1907	1908
January	17–3	20-0	16–11	15-8	16-4	18-4	17–4	18–4
February	17–7	20-3	17–0	15–11	16 8	18-11	17–7	18–0
March	17–8	20–5	16-11	16–6	16-10	18-9	17–11	17 9
April	18 4	21–0	17-3	16-4	17–3	19-2	18 6	17 8
May	19 3	22–5	18–3	16 6	18 4	20–0	19–10	18–5
June	19-11	22-10	18–5	16 9	18-11	20–1	20–8	18-5
July	19–8	22-8	18–5	17–4	19-4	20–3	20–10	18–5
August	18–9	22-2	18–7	17–1	16 10	17 9	20–3	18–0
September	17–4	18–10	16-11	16–0	15–11	16 2	17–6	18–5
October	17 6	17–1	15-7	15-9	16–6	16-7	18 0	17 0
November	18 2	17–2	15–9	16-0	17–5	17–1	18 8	17-2
December	19 5	16–10	15 7	16–1	17–11	17 3	18 3	17 3

SEASONAL FLUCTUATIONS IN AVERAGE PRICE OF OATS IN EACH MONTH (MEAN OF 1901–1908)

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
17/0¼	17/8¾	17/10	18/0¾	18/7½	19/6	19/7¼	18/8	16/11¾	16/9	17/2	17/3¾

THE MOVING AVERAGE

If, lastly, our object is to emphasize the general trend of unemployment, prices, etc., over a long period, the useful method of the "moving average" may be resorted to. For instance, let us take the figures representing the general percentage of unemployment in Great Britain from 1880 to 1914. If we plot these on a graph the result is as shown by the dotted line in Fig. 13. This curve shows considerable irregularities from year to year which to some extent conceal the cyclical movement. To bring out the latter, we examine the series and decide in what period of years a movement completes itself. Suppose we decide that the period is three years. We then take the percentages of unemployment for the three years 1880, 1881, 1882, let us say, and work out the average of these and place that figure against the middle year, 1881. We then move on to the years 1881, 1882, 1883, and do the same for them, placing the result against the middle year 1882, and so on. If we now draw a graph of the resulting averages, we find that many of the irregularities disappear from the curve, which becomes smoother and shows more clearly the general trend of unemployment. This is shown by the continuous line in Fig. 13.

STATISTICAL APPENDIX

(*Continued from page* 384)

TRADE AND COMMERCE

A GENERAL view of British foreign trade is shown in the analysis in Table LIX.

The figure of imports of merchandise is the figure generally quoted for imports, and the figure of total exports of merchandise (home and foreign) is usually quoted for exports. The table gives the figures for the average of 1909-13, for 1925 and for 1926.

Total imports, it will be seen, are greater than total exports. This is so because the figures given are the values of goods entering into the country or going out of the country through the ports. Services performed by British people for foreign people escape valuation. The goods entering the country in payment for these services are valued, and therefore included among the imports. These items, known as invisible exports, amount to large sums annually. Corresponding to them there are invisible imports, which, in the case of this country, are less in amount; hence, the balance of visible imports over visible exports. In Table LX the amounts of the invisible items are estimated for the three years, 1923, 1925, and 1926.

The course of British foreign trade over the last fifty years is shown in annual averages, of five-year periods, in Table LXI, and, for the purpose of comparison, the value of each year's exports and imports has been roughly translated into terms of 1913 prices by the use of the *Statist* index number. These translated values are shown in the second and fourth columns. It should be noted that there is a break of continuity in the figures for exports. Before 1899 the value of ships built at home and sold to foreigners was not included, as it has been since that date, in the value of exports. The figures for 1899 onwards, therefore, are not comparable in the case of exports with those before that date. Fig. 14 shows the value of exports and of imports in terms of 1913 prices.

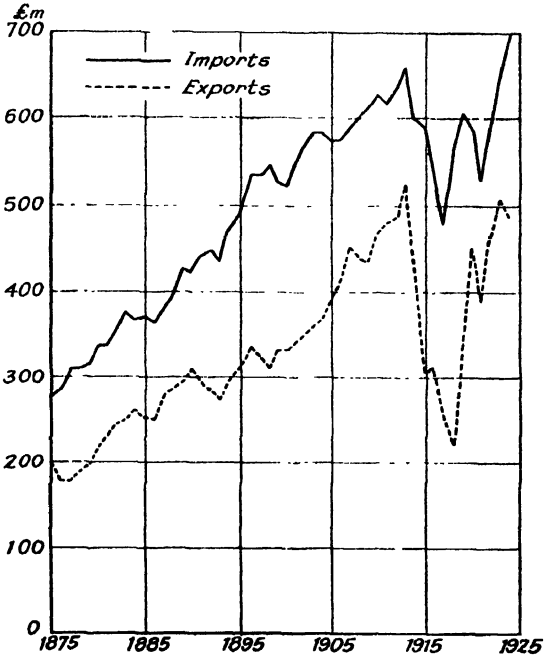

FIG 14 GRAPH SHOWING THE COURSE OF FOREIGN TRADE, 1875–1924, IN TERMS OF 1913 PRICES

TABLE LIX

AGGREGATE TRADE OF THE UNITED KINGDOM

(Based on *Statistical Abstract of United Kingdom* and *Annual Statements of Trade*)

	1910–1913 Average £ millions	1925 £ millions	1926 £ millions		1910–1913 Average £ millions	1925 £ millions	1926 £ millions
Total imports of merchandise	718	1321	1241	Exports of United Kingdom produce	474	773	653
Imports of bullion	69	52	50	Exports of foreign produce	107	154	125
				Exports of bullion	62	62	38
				Total adverse trade balance	144	384	475
Total imports	787	1373	1291		787	1373	1291

Table LXII gives the value at different dates of the main groups of exports and imports; and Table LXIII shows for 1913, 1920 and 1925 the quantity and the value of the principal exports and imports of the United Kingdom. Fig. 15 shows graphically the value of the exports of British produce and manufactures to foreign countries and to British countries separately, from 1911 to 1925, the values being expressed in terms of the prices of 1913.

From 1923 onwards, particulars relating to imports shown in the official returns of the United Kingdom include the trade of Great Britain and Northern Ireland with the Irish Free State; and from the same date the direct foreign trade of the Irish Free State is excluded.

TABLE LX

IMPORTS AND EXPORTS OF THE UNITED KINGDOM, VISIBLE AND INVISIBLE, FOR 1923, 1925, AND 1926

(Based on *Board of Trade Journal* and *Midland Bank Review*)

Debit items (imports)	1923 £ millions	1925 £ millions	1926 £ millions	Credit items (exports)	1923 £ millions	1925 £ millions	1926 £ millions
Visible items				*Visible items*			
Merchandise	1096	1321	1241	Merchandise	886	927	778
Bullion	54	52	50	Bullion	69	62	38
	1150	1373	1291		955	989	816
Invisible items				*Invisible items*			
Government payments abroad	25	11	—	Net shipping earnings	133	124	120
				Income from overseas investments	200	250	270
				Commissions, etc.	50	60	60
	1175	1384	1291	Other services	15	15	15
Available for overseas investment	178	54	10		398	449	465
Total	1353	1438	1281	Total	1353	1438	1281

TABLE LXIII

EXTERNAL TRADE OF THE UNITED KINGDOM

(Based on *Statistical Abstract of United Kingdom* and *Annual Statements of Trade*)

Annual averages	Imports, less re-exports		Exports of home produce	
	Declared value in £ millions	Value in terms of 1913 prices £ millions	Declared value in £ millions	Value in terms of 1913 prices £ millions
1875–1879	320	299	201	188
1880–1884	344	352	234	241
1885–1889	337	386	226	271
1890–1894	357	443	234	290
1895–1899	392	526	239	321
1900–1904	466	562	289	348
1905–1909	522	590	377	426
1910–1914	609	626	465	478
1915–1919	1069	474	544	284
1920–1924	1141	608	865	459
1925	1167	729	773	483

TABLE LXII

IMPORTS AND EXPORTS CLASSIFIED

VALUE OF MERCHANDISE CONSIGNED TO AND FROM THE UNITED KINGDOM BY PRINCIPAL CLASSES

(Exclusive of gold and silver bullion and coin—From the *Statistical Abstract of the United Kingdom*, 1927)

Year	Food, drink, and tobacco	Raw materials and articles mainly unmanufactured	Articles wholly or mainly manufactured	Unclassified	Total
	IMPORTS				
	£ millions	£ millions	£ millions	£ millions	£ millions
1913	*290*	*282*	*193*	*4*	*769*
1919	*707*	*646*	*267*	*6*	*1626*
1919[1]	719	607	296	4	1626
1920	766	710	453	4	1933
1921	567	271	244	4	1086
1922	472	298	230	3	1003
1923	509	325	257	5	1096
1924	571	400	300	6	1277
1925	570	425	320	6	1321
	EXPORTS (United Kingdom produce)				
1913	*33*	*70*	*111*	*9*	*525*
1919	*33*	*121*	*632*	*12*	*798*
1919[1]	34	111	641	12	798
1920	51	146	1120	17	1334
1921	37	63	589	14	703
1922	36	102	568	14	720
1923	44	131	580	12	767
1924	57	106	619	19	801
1925	55	84	617	17	773

1 In the Annual Statement of Trade of the United Kingdom a reclassification was adopted in 1920, making a comparison of the figures in roman type for 1920 with those in italics for former years invalid For purpose of comparison, two sets of figures are shown for 1919, those in roman type being in accordance with the new classification.

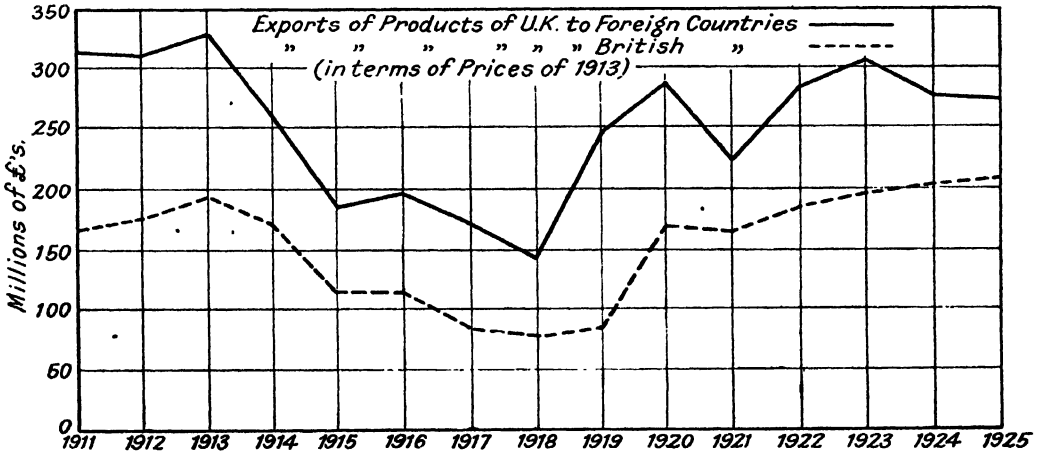

FIG. 15

TABLE LXIII

Principal Imports into the United Kingdom

(Compiled from figures in the *Statistical Abstract of the United Kingdom*, 1927 (000,000 omitted))

Year	Grain and flour		Meat (except poultry)		Fruit		Raw cotton		Raw Wool		Iron and steel manufactures		Silk and silk manufactures	
	cwt.	£	cwt.	£	cwt.	£	Centals (100 lb.)	£	Centals (100 lb.)	£	Tons	£	Yd.	£
1913	211	80	20	54	17	3	22	71	8	36	2	16	109	11
1920	177	221	22	140	17	24	19	254	9	90	1	30	108	27
1925	161	105	20	130	26	22	19	124	7	73	3	25	104	18

Principal Exports of British Products and Manufactures

(000,000 omitted)

Year	Coal, coke, etc.		Iron and steel manufactures		Cotton				Woollen				Machinery
					Yarn		Piece goods		Yarn		Manufactures		
	Tons	£	Tons	£	lb.	£	Sq yd.	£	lb.	£	yd	£	£
1913	77	54	5	56	210	15	7172[1]	111	80	8	177[1]	24	34
1920	29	120	3	128	147	48	4491	342	38	18	271	112	63
1925	54	53	4	64	135	31	4482	169	57	12	186	41	49

[1] Lineal yards in 1913, square yards in 1920 and after.

TABLE LXIV

How the World's Export Trade is Shared among Various Countries

(From the League of Nations *Memorandum on Balance of Payments, etc.*)

Countries	1913 Per cent	1924 Per cent	1925 Per cent
United Kingdom[1]	13·93	13·01	12·43
United States	13·34	16·54	16·04
Germany[1]	13·09	5·73	6·97
France[1]	7·23	7·98	7·21
India	4·21	4·34	4·79
Canada	2·35	3·94	4·43
Japan	1·72	2·68	3·03
Italy[1]	2·64	2·30	2·42
Argentine	2·73	2·92	2·65
Belgium[1]	3·82	2·37	2·29
Australia	2·04	2·31	2·48
China	1·60	2·30	2·17
Brazil	1·73	1·54	1·65
Switzerland	1·44	1·34	1·31
Sweden	1·19	1·23	1·22
South Africa	1·73	1·37	1·40
Russia[1]	4·22	0·99	0·97

[1] In these cases the 1913 figures refer to the pre war customs area and the figures for 1924 and 1925 to the post-war customs area ; in the other cases the areas have not changed

ECONOMIC HISTORY AND DEVELOPMENT

(*Continued from page* 386)

X

THE MIDDLE AGES

THE ORGANIZATION OF COMMERCE

Once did she hold the gorgeous east in fee;
And was the safeguard of the west. . . .
—WILLIAM WORDSWORTH
On the Extinction of the Venetian Republic.

CONFINED at first to the town and its region, commerce was gradually extended by growing markets and periodical fairs until it had found its appropriate trade routes. At conveniently situated points on these routes centres developed which were able to undertake the organization of commerce on a large scale. The history of Venice is particularly significant. At first a place of refuge in the lagoons, she step by step secured control of the Adriatic until she was strong enough in the crusading era to challenge the pre-eminence of Constantinople and gain for herself privileges there and concessions in the new Latin principalities; for the crusaders had to pay for the maritime assistance of Venice by granting her merchants quarters in such ports as Tyre and Acre. Throughout the Levant, indeed, emporia were established at the points to which the caravans from the east directed their courses, and thus the Venetians obtained supplies of spices, drugs, dyes, carpets, tapestries, etc., which they shipped home to distribute in the west. Thus Venice became the greatest entrepôt of the Middle Ages. Along land routes she had easy access to the valley of the Po on one side and to the basin of the Danube on the other; over the St. Gotthard Pass she reached the cities of the Rhine Valley and the great commercial city of Bruges. The population of Venice was probably about 200,000 at the end of the Middle Ages. At her zenith the city was extremely wealthy. She built her own ships, and either traded on her own account or hired them out to her merchants. The State exercised complete control over trade policy. From the fourteenth century, for instance, the Senate began to send cargoes by sea to Flanders, and, incidentally, some of the ships called at English ports, such as Southampton, Sandwich, and London. By this means, until the decline of Venice in the sixteenth century, eastern products found their way to English fairs and markets.

THE HANSEATIC LEAGUE

No single town outside the Mediterranean occupied such a commanding position as Venice. There was a tendency, therefore, for commercial towns, as far as political allegiances would allow, to enter into a confederation to promote their interests. The most notable example is that of the union of German and Baltic towns, of which the chief were Hamburg and Lübeck, known as the Hanseatic League. Apparently their first motive was to protect themselves from piracy, but they soon found that by acting together they could more easily negotiate for privileges with different States. In the course of the Middle Ages they established centres so far apart as Bergen in Norway, Novgorod in Russia, Bruges in the Low Countries, and London. They thus controlled important trade routes and had groups of merchants settled at points of vantage for the carrying on of trade. They dealt in the products of Northern Europe, such as furs, tar, and salt fish, as well as flax, linen, iron ore, and other metals. From England they exported wool, cloth, and leather. Their method of organization was that each merchant traded separately within the rules of the League on much the same basis as the members of a local merchant gild did. The privileges were a corporate possession gained by treaty with the municipality or government concerned. So were the "factories," or settlements, where the League had warehouses, residences for the members, and other buildings. They won from the Crown in England concessions with respect to the payment of customs duties, of which the native merchants constantly complained. In London they had a factory called the Steelyard, which was governed by their own officials, the head, or alderman, being the chief representative of the members resident in England. Unlike other aliens, they were free to stay in the country as long as they wished, and they could sell retail as well as wholesale. The attitude of the English merchants towards them proves that the Easterlings—as they were generally called in this country—effectively invaded the markets which local trading interests would have monopolized if possible. But the League was so powerful that the Crown did not wish to break with it.

THE ORGANIZATION OF ENGLISH MERCHANTS

The beginnings of organization among English merchants are obscure. As far as long distance trade was concerned, they appear to have played a slight part until towards the end of the Middle Ages. The export of the chief native products, wool, wool-fells, and leather, involved relations with the Crown with regard to the duties charged on these commodities. To facilitate the collection of the taxes staple ports were fixed through which the goods had to pass. These were sometimes a number of ports at home and sometimes a single port abroad—policy was frequently

changing on this question—and there grew up a more or less definite body of merchants engaged in this staple trade. In the fourteenth century they were granted a charter, and henceforth they were a definite company whose officials supervised the privilege conferred upon it as the exporter of wool. The members traded on their own account but were required to observe the regulations of the company. As long as the trade in the export of wool retained its importance, the Merchants of the Staple—as this first English trading company was called—constituted a great national company which included some of the wealthiest native merchants. Gradually, however, as the woollen industry developed in England, English merchants became interested in finding markets for it abroad. As early as the thirteenth century they won some concessions in the Low Countries, but these were not confined to any particular body of English merchants. In the fourteenth century the wealthy mercers of York had factors in Bruges, Middleburg, and other places abroad, and the London mercers secured a grant of privileges from the Count of Flanders. From some such beginning sprang the famous Fellowship of the Merchant Adventurers of England.

THE MERCHANT ADVENTURERS

At first the English merchants trading abroad seem to have been the recipients of privileges without their being in any sense a company. But in the course of the fifteenth century the position became more definite. Henry IV gave a charter in 1407 to the English merchants dwelling in Holland, Zeeland, Brabant, and Flanders, but they were not specifically called Merchant Adventurers nor were they organized as a company. Still, they had a "governor beyond the sea" to safeguard their interests, an office which was filled in the latter part of the century by William Caxton, who had been apprenticed to a mercer in London. It is clear, therefore, that the English merchants who were exporting cloth—among whom the mercers were most prominent—were gaining recognition at home and abroad. In the reign of Henry VII their position became quite definite. He granted them a charter in 1505 under the terms of which they could elect a governor and twenty-four assistants and draw up regulations to control the trade. Writing a hundred years after this, John Wheeler, the secretary and historian of the Company, says that it "consisteth of a great number of wealthy and well experimented merchants dwelling in diverse great cities, maritime towns, and other parts of the realm, to wit, in London, York, Norwich, Exeter, Ipswich, Newcastle, Hull, etc. These men of old time linked and bound themselves together in company for the exercise of merchandise and sea-fare, trading in cloth, kersey, etc. . . . by the which they brought unto the places where they traded much wealth, benefit, and commodity, and for that cause have obtained many very excellent and singular privileges, rights, jurisdictions, exemptions, and immunities . . ." It is true that the merchants outside London were apt to claim an independent origin, e.g. those of Newcastle, when they found that London interests were threatening to be dominant in the Company. This was perhaps the inevitable result of more definite organization in the early sixteenth century. At the outset these rivalries did not exist. Wheeler states very well the grounds on which concessions were given and thereby illustrates how merchants entered markets which, apart from such grants, would have been closed to them.

RIVALRY OF MERCHANTS

Although the activities of merchants had opened up trade routes, it must not be supposed that they were in favour of breaking down all restrictions. They wished to enjoy a monopoly wherever they could secure one. There were two stages. Native merchants resented the appearance of alien merchants in their country and wished to restrict them in every possible way. In England there were outbreaks against Italian merchants, and riots in London in 1456 and 1457 led the Venetian Senate to cut off relations with the citizens, ordering their merchants to withdraw to Winchester as a protest. The Merchant Adventurers had their difficulties in Bruges, and settled in Antwerp, a city which they helped to develop as a rival to the older centre of trade. In the second stage rival bodies of merchants, endeavouring to secure advantages in another country, came into conflict. The export of cloth by English merchants was strongly resented by the Hanseatic League. It was alleged that English merchants were badly treated on the Continent, and matters reached such a point in 1468 that commercial relations were broken off. But a truce was arranged in 1473, by which Edward IV confirmed the privileges of the League in England, provided that the English merchants were allowed to trade freely in its territories. The Crown was fairly consistent in the policy of protecting alien merchants against the hostility of native merchants in the Middle Ages. Later national considerations became stronger, and foreign trade was fostered and protected in the supposed interests of the country.

THE GEOGRAPHICAL BASIS OF INDUSTRY

(*Continued from page* 388)

X

GRASSLANDS—(*continued*)

THESE grasslands are of immense importance, for they are the basis of agricultural as well as pastoral activities, and are to-day the great scene of both. Though the relation is not always obvious, and though it has not matured historically in some regions and among some types of man, e.g. amongst the Red Men on the North American prairies, it is really very close; for our great bread-plants are merely cultivated grasses, needing as grasses exactly the same conditions as other typical grasses, while needing as grains conditions that are somewhat unfavourable to typical grasses.

It is possible that agriculture proper began, not as a transition or evolution from pastoral conditions, but as a new and intensive occupation dependent—in Egypt—on irrigation. For Upper Egypt is a land of perennial drought, in which no plants can grow naturally; and so it could never have had any herbivorous animals except such as made seasonal visits, and these visits must have been dependent on the régime of the Nile. This has always given a flood-soaked land at the beginning of the cool season, when there is little evaporation, but there is sufficient warmth for hardy grains. Barley grew wild on this flood-plain long before Man was there—trodden in by pigs that fled northward from the forests during the times of heavy rain. In the drought there was, naturally, neither weevil nor mildew, neither beast nor bird; and so the ripe grains survived where they dropped until the flood water made them germinate. When Man appeared on the scene, he soon learnt not only to use it (which accounts for the dreadful mortality among children from gastro-enteritis, proved by their mummified remains) but also to grow it, "dibbling" in the seed in imitation of the holes left by the pigs.

Certainly barley and wheat do not show the protective features which we expect to be present in plants evolved in a normal struggle for existence; e.g. when grown in summer-rain areas, they are very sensitive to frost and to rust. Certainly, too, there was extraordinary progress in Egypt between 4000 and 3000 B.C., when nearly all the arts and crafts came into use, and there was a great increase in population, which had previously been stationary for some 30,000 years. There are some reasons, therefore, for believing that Man began agriculture as an intensive irrigator in an area of drought; and he knew of barley early enough for it to have *the same name* in all Aryan languages. Then, much later, in Delos, with its summer drought, where there were no herbivorous fauna, only fish-eating gulls and flesh-eating owls (who would discourage mice and small birds), barley-eating man found wild wheat, and cultivated it as he cultivated his barley—first in Egypt and then in Babylonia.

Obviously, this is a possible, and even a plausible, explanation of the rise of a real science of agriculture in Egypt. It does not necessarily imply that elsewhere a habit of what may be called agriculture did not evolve in a different way, e.g. on the margin of tropical jungle from women planting slips of banana, etc. But if the growing of wheat and barley had evolved in this casual and naturalistic way, these grains should have had more protective qualities than they have; and the lack of these qualities is very significant. In any case, there is a geographical control behind the process.

If we turn to the problems of agriculture to-day, even in the most advanced communities, we can still trace such a control, but it is masked by its economic accompaniments, as it has always been in periods of transition, i.e. of progress towards more industrialized methods of farming. For instance, open-field practice was quite a satisfactory method of satisfying one's own needs; but, as soon as one wanted to produce a surplus for exchange, it became unsatisfactory. Enclosure, therefore, became both normal and right. Thus, in Tudor times, we wanted to export wool; but we could not keep sheep on a large scale under the open-field system, and so holdings were consolidated and enclosed. Of course, if the enclosed land had been arable, it had to be laid down under grass, which—incidentally—meant the need for less labour; and so the practice, though in itself right, led to much unemployment and to great scarcity of bread. Much of the Tudor social legislation aimed at checking what was in its relationships a retrograde step.

The same conditions arose—from quite different causes—in Hanoverian times. For farmers had to try to meet overwhelming demands for food from a rapidly increasing industrial population, who knew nothing, and cared nothing, about farming. There happened to be some important new crops, e.g. turnips, and new methods of farming, e.g. different rotations, but neither the one nor the other could be applied on open fields. Enclosure, therefore, became an urgent need; and what had been opposed as retrograde under the Tudors, was encouraged as progressive under the Hanoverians.

In our own time the significant changes have been brought about, not by the deliberate policy of progressive farmers, but by the compulsion of bad times—due mainly to the development of the New World under all kinds of labour-saving

devices for farming and for transport. Lands ploughed up in the Napoleonic days had reverted to grass, but progress directed development towards the dairy farm. The Great War sent much of this pasture back again into ploughland, even when such conversion was really an act of blank stupidity. The sequel is now before us. Good profits were often made during the war, but since then fully 25 per cent of the arable lands have changed owners, and are now being worked at a dead loss.

As a matter of fact, agricultural work is very interesting, and needs really skilled labour; but the economic status of the labourer is practically ignored in a country in which the great mass of our voters are *urban*. Under such circumstances labour is being lured away from agriculture—not so much to town-life as to a better economic status. This has, no doubt, raised the quality of the work done on allotments and small holdings generally; but it can only have the same influence on the large-scale farming as comparable crises have had in previous ages. But, behind the necessary changes, we shall again find the geographical control.

If labour is scanty owing to the low economic status given to it, then it must be supplemented by machinery and used to the greatest advantage. This really means that we must develop large-scale production on light land, which can be economically worked with machinery, and devote heavy land to stock. The agricultural mechanic, like the real herdsman, must be rated as skilled labour, with a correspondingly high economic status; and for both there must be a large unit, large enough to give full-time employment to the definite unit of machinery and a "skilled" wage to the fully employed herdsman.

Even so, the problem must include climatic considerations. It is useless to grow wheat simply where there is light land easily worked by machinery, if seasonal rainfall and temperature are quite unsuited to that crop; it is almost equally useless to keep dairy cattle in a sheep country, or sheep—for mutton—in a cattle country. In other words, we need a re-classification of our farm lands, associated with a climatic survey, and probably involving a new system of rotation of crops or an entire absence of such rotation. The regions of most suitable soil and relief for wheat-growing that have also the most suitable climate will have to grow wheat always, with proper precautions against the exhaustion of the plant-food. In other words, we need a thorough application of economic geography to our agricultural problems. It is just one more case of the importance which ought to be attached to scientific geography, and it justifies our paying special attention to a geographical classification of agricultural regions.

Two things remain to be done before attempting such a classification for the two most important continents. One is to make it quite clear that our own British farmer is head and shoulders above the rest of the world simply as a farmer. The gibes hurled at him from time to time by politicians and publicists are merely "the empty laugh that marks the vacant brain." The British farmer contributes relatively far more than his share of the world output, even of wheat, though our total area of normal wheatland is very small; but he farms by the acre, not by the square mile. It is irrelevant to blame him because the Belgian or Danish farmer raises more wheat to the square yard. Indeed, it is as unreasonable to make a comparison about yield between the British farmer working to the acre with a plough over a total area of nearly 2,000,000 acres and the Danish farmer working to the square chain with a spade over a total area of not much above 130,000 acres, as it is to make one between the total yield obtained by the British farmer on his acre and by the Canadian on his square mile. And, as a matter of fact, there are *more* acres in England actually yielding from 40 to 50 bushels than there are in Denmark ar Belgium! In knowledge and skill the British farmer is grossly underrated.

Then what is amiss? Organization! Acre for acre, he is the best farmer in the world, but he is a poor marketer; and, even so, he tries to do two things at a time—to farm and to market. What the Danish farmer is really praised for is doing one thing, farming, and leaving the other thing, marketing, to be done by an expert business agent. No farmer can do both in these days, not even if he does not attend more than one market a week; and some farmers have to attend three markets a week. Even without any of the strong financial backing enjoyed by his rivals elsewhere, the British farmer could stand in a secure position if only he were relieved of the business side of his work and able to concentrate on his real work. What a farmer ought to be doing is farming, not finding markets.

The other necessary preliminary is to refer to what was said above as to light and heavy land, so as to make clear exactly what are the factors that are most important geographically. As a matter of fact, in most agricultural products not 1 per cent of the total dry weight is derived from the soil on which they were grown. All the carbon, nitrogen, etc., are derived from air or water, i.e. from factors very closely concerned with the climate rather than the soil. But the latter contains an immense variety of elements which—often in tiny proportions—plants need, and the water and nearly all the food come to the plants through the soil.

PRODUCTION

(*Continued from page* 390)

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THE HUMAN ELEMENT IN PRODUCTION—(*continued*)

CHOICE OF OCCUPATION

We have been considering, in Parts VII-IX of this section, occupational distribution and occupational mobility. The facts which have come to light are suggestive. They make it clear enough that that "driving force of competition," which we have come to look upon as the mainspring of our economic order, does not produce ideal results. Society is, of course, conscious enough of that. The problem of unemployment, the problem of the industrial "misfit," the unhappiness of stunted and wasted lives—these things are to-day discussed *ad nauseam*. How can the world, as we know it, be made into a different one—into a world in which the lives that men and women lead are the best of which their capacities render them capable? This and cognate questions are continually being canvassed—in Parliament, on public platforms, in pamphlets, novels, and plays. Has the economist an answer to them?

The economist, *qua* economist, has, of course, no answer. He does not deal in a special brand of human nature, free from blundering and passion; he has long been impatient of the tractable puppets of a Campanella or a Saint Simon. Nor does he lay claim to any special quality of idealism or ideals. Nevertheless, the problem is one which intimately concerns him. He has not only to explain why the social mechanism produces the results it does produce, but why it does not produce better ones. In so far, therefore, as his explanation fails to disclose what is wrong, it fails to be intelligible. A necessary function of economic analysis is to facilitate the consideration of social ideals in the light of what is known to be practicable, or—as it might well be put—to make the world safe for Utopias.

Let us, to begin with, regard our problem from this standpoint.

IN AN IDEAL SOCIETY

No one who has attempted to plan an ideal society (and which of us, at some time or other, has not?) will have failed to address himself, with particular care, to the problem now under discussion. *To ensure that the life each citizen leads is the life for which his capacities best fit him*—we shall have made that our objective, and we shall somehow have attained it. Plato got there, Thomas More got there, William Morris got there; Mr. H. G. Wells, most prolific of Utopia-mongers, has holed out repeatedly in one. But have these philosophers played fair? Or have they removed the bunkers from the course before they began to go round? Have they remembered—to drop the metaphor—how ignorant, wilful, and shortsighted men are; how they fail, so often, to see where their opportunities lie, and, still more often, to make use of such opportunities as they do see; how babies get born to the wrong people, and often at the wrong time, and how that subordination of *work* to *life*, so easily proclaimed from a pulpit, fails to materialize in practice? They have not, of course, forgotten any of these things, but their solution, as a rule, simply assumes that the world, in a happy dream, has contrived to forget them all. Such dreams have obviously their uses, but we cannot do much with them here. We shall have to descend again from the clouds to the market place.

VOCATIONAL FACTORS

We have had before us, in various forms, the facts of occupational distribution. We want an explanation of them. What are the factors which determine *vocation*—the choice, by a boy or girl, of the part which he or she will play in the industrial economy? There seem at the outset to be five main groups of such factors to be taken into account. These are—

1. The range of opportunities available.
2. Individual inclination.
3. Skill and capacity.
4. External stimuli.
5. Accidental circumstances (included in which is the factor of pure chance).

We will consider these in turn.

1. **The Range of Opportunities Available.** The notion of equality of opportunity is one with which the advance of democracy has familiarized us. There are few of us to-day who do not, in theory, at least, pay lip service to it. But how far is it a guiding principle in practice? Only to a very limited extent. The part which a man or a woman may play in the social economy, as his or her contribution to the production of wealth (and as constituting, incidentally, his or her claim upon a share of the wealth produced), will probably be one of the following—

(*a*) A direct share in the business of *governing*. (This we put first, since without government there cannot be *order*, and without order, upon which depends the fragile structure of *credit*, the production of wealth must be severely circumscribed.)

Those among whom responsibility for this business of governing is distributed are—

(i) Members of the *legislature*. In theory legislating is still the business of amateurs, and those who are responsible for it may "do" all

sorts of other things; but it tends, in fact, to become more and more of a profession.

(ii) The national *executive* i.e. a government responsible to the legislature. Here, again, there is a sort of quasi-profession in process of development.

(iii) Administrative officials, i.e. members of the civil and municipal services.

(iv) A paid and an unpaid judiciary, the former recruited wholly from the legal profession.

(v) Members of the diplomatic and consular services and officials holding responsible posts in connection with our possessions overseas.

(vi) Officers of the fighting services, and

(vii) The police.

(*b*) Participation in those professional activities which specialization of function necessitates in the complex thing that is the modern community. Robinson Crusoe, on his island, was not only lawmaker, executive and judge, he was also clergyman, doctor, architect, and schoolmaster. It "pays" an industrial society to devote to its requirements, in each of these fields, the services of whole-time specialists. Indeed, as the structure of society becomes more complex, specialization, even within each profession, is carried farther and farther. Thus, we have to-day doctors who are only interested in one's ears, lawyers who confine their activities to the divorce courts, engineers who understand nothing but road-making, and so on.

It is a little difficult to say what is a profession and what is not. We might, roughly, define it as an aggregation of specialists, performing similar functions, and having a corporate consciousness, defined standards, and the machinery necessary for their enforcement. We should also recognize that, in addition to professions which conform strictly to this definition, there are also quasi-professions, which are continually tending towards the erection, around the enclaves they control, of barriers as rigid as those already set up by such professions as are well established.

1. Strictly-defined Professions

Those which are obviously in this category are—

(i) *Established churches*,

(ii) *The law*, with (in England and Wales) its two subdivisions,

(iii) *Medicine*,

(iv) *Dentistry*,

and some others of less importance.

Teaching, perhaps the most important of all professions from the standpoint of civic welfare, is in a peculiar position. It is not, like the law and medicine, completely self-conscious and self-regulating. University teaching has standards which are fairly clearly defined, but, as regards their enforcement, each University is autonomous. Teaching in state-aided schools is subject to regulation by an outside authority, viz., the State. In privately-conducted schools recognized standards may or may not obtain. In some of them there is the fullest professional self-consciousness; in others education has the status of a competitive trade. It is impossible to generalize.

2. Quasi-professions

Among these are (*a*) engineering (in its various branches), (*b*) architecture and surveying, (*c*) accountancy. In all of these there are bodies which *aim* at the imposition of high professional standards, but which have not complete authority. Hence our use of the term "quasi-profession." One can design and erect a house, or audit the books of a concern, without having been admitted to membership of a privileged corporation. The time, however, will come when neither of these things will be possible.

(*c*) Participation in the *direction* and *management* of industrial and commercial enterprise.

This most important field is one which impinges at several points upon those we have already discussed. The *entrepreneur* ("enterpriser" or "undertaker") may still be looked upon as the typical "business man." He is literally a host in himself, since he discharges the functions of capitalist, manager, and risk-taker. The proprietor of a "one-man" business is an *entrepreneur* in this sense, and from such one-man businesses many of the greatest of modern undertakings have grown. But with the development of joint-stock ownership, the functions of the *entrepreneur* have become distributed. It is a far cry from the "one man" business to the London and North Eastern Railway, the Midland Bank, or a concern like Imperial Chemicals. In these, as in the majority of large-scale businesses, we see direction divorced from ownership, management from direction. Management, at the same time, is tending to become a profession. Finally, the operation of a big business calls for the discharge of administrative functions by what, in effect, is in each case an *ad hoc* bureaucracy.

The effect of these tendencies is somewhat to blur the clear-cut distinctions which it was once possible to draw between bureaucracy, business, and the professions. Business will in time largely become professionalized—even such activities as salesmanship and advertising are tending to develop in the direction of recognized standards—while there is little distinction between the work of the civil servant and that of the railway or electrical administrator. It remains, however, true that the aspirant to business carries a larger assortment of batons in his knapsack than is usual in other walks of life.

BUSINESS MANAGEMENT

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FURTHER PRELIMINARY CONSIDERATIONS

In the ninth issue of the EDUCATOR the factors determining the most economical scale of enterprise were considered in general terms. The scale which is productive of greatest economy of human effort in any industry is determined by the precise characteristics of that industry. In some cases, such as steel manufacture, large scale production is a condition of success. In others, such as engineering, there is no one scale which is clearly superior to all other scales. For this reason several firms of different sizes may be found competing against each other on fairly even terms, and the quality of the personnel of the enterprise may be the determining factor in the success or failure of any competitor.

WHY SMALL FIRMS EXIST

Even in those industries in which the operative factors favour a particular scale of enterprise—usually a large scale enterprise—firms and establishments differing widely in size, scope, and technique may be found. These differences are usually due to one or more of three causes. In the first place, the small firms may be of a special character, supplying special qualities or sizes which are ignored by the larger and standardized firms and establishments. They pick their market and may be regarded as the complement rather than the rivals of the larger firms. In the second place, some of the smaller firms may be young and progressive. The creative faculties of the leaders enable them to overcome technical difficulties. Other firms which, in their day, were relatively large and efficient, are now old, inefficient, and decaying. Soon they will cease to exist; in the meantime they are hanging on because they lose less than by closing down. They have written off their capital and are content with any margin they can secure above operating costs. The competitive theory is based upon a principle which may be crudely expressed "get on or get out." But getting out is a long drawn out process, and while it continues the firms which are doing so are a nuisance to those who are getting on. Included among the small firms are also those numerous venturers who lack the essentials of success and after a short period of experiment disappear from the industry. Business is of the nature of an experiment, and those who are fit or fortunate ultimately reach a stage at which they are able to avail themselves of all the advantages of the most efficient scale of production. Those who are unfit or unfortunate fade away.

PROGRESS AND STABILITY

In the third place, when a firm has provided its equipment it cannot immediately scrap it in favour of something better. Although tramways may now be inferior to alternative methods of local transport it is obvious that the former cannot be immediately scrapped for that reason. The same statement applies to ordinary business concerns. If they were constantly scrapping their equipment in favour of something better there would be a great deal of time lost which might otherwise be devoted to actual production. Every type of equipment or process must be allowed to continue unchanged for a period, once it has been introduced. No establishment is quite up to date; the "last word" in organization and equipment is the next to be written.

The first and third of these considerations should always be emphasized by a business man about to start a new enterprise. He should not be content merely to study the "fashionable" scale of enterprise in the industry which he is about to enter, but should also consider in detail the precise market which he proposes to supply. Moreover, he should bear in mind that having once decided upon his equipment it will not be economical to change it immediately. One of the most difficult problems of business management is to decide when a given equipment or method of organization, obviously not the best in the abstract, ceases to be the best in all the circumstances of the case. The establishment cannot always be in the hands of constructional engineers or the organization be continually subjected to fundamental changes.

CONTROL AND CAPITAL

We have now considered three preliminary questions by which everyone who is about to start upon a business career is faced. The first was concerned with the nature and precise scope of the business, the second with its location, and the third with its scale. The next two questions are so closely related that they may be regarded as one. The business man will have to decide whether he will accept full responsibility for his venture and retain the control entirely in his own hands. If it is on too large a scale to justify such a course, or if for any other reason such a course is undesirable, he will have to decide whether to enter into partnership with another or with a small group of people or, alternatively, form a company. The second question is concerned with the provision of capital. It is clear that these two questions are intimately related, and as they form the subject of a separate series of articles by Mr. David Finnie they need not be considered in this series.

Nevertheless it is desirable to draw a distinction between investment and credit. The bulk of the capital in a manufacturing enterprise is spent in the purchase of plant and equipment, that is, it is converted into what is known as fixed capital. A relatively small proportion is retained as floating or circulating capital, that is, in the form of money to be used in payment of materials and wages. This fund is constantly replenished by the sale of the products made in the establishment, so that it constantly moves in and out of the treasury of the business.

BANK CREDIT

Payments will be made largely by means of cheques, and the business man will obviously need to open a banking account. As time goes on he may find that the sum which has been retained in the form of money is not sufficient for the purpose of the business and he will, therefore, need to make an arrangement with his banker by virtue of which his account may be periodically overdrawn. Even if the capital retained in money form is sufficient for the purpose it may be found unprofitable to keep such a large sum in that form. An account which swings about zero point may be found to be more advantageous than one which always shows a certain amount, and frequently a large amount, standing to the business man's credit. The utilization of credit facilities provided by the bank may enable the business man to pursue a more effective investment policy with his own capital. At the same time he will need to be careful lest what was intended to be short credit should become frozen in the form of an investment which cannot easily and quickly be realized. He will find the advice (and, on occasion, pressure) of his banker useful in this connection

THE CONSULTING ENGINEER

Having decided upon the form of the business and made provision for the necessary capital, the business man is ready to start upon his new undertaking. At this stage it is desirable to say a few words of a general character upon the nature of business control. Managing a business means making decisions. But the first decision that a wise venturer will make is to avail himself of the best advice that is obtainable. His special line is "enterprise," and he is not necessarily well informed upon the technical foundation on which his business is based. A going concern is a many-sided affair and the owner does not necessarily possess expert knowledge of every side. Least of all is he likely to be the best designer of his own establishment.

For this reason the new business man, particularly in mining and manufacturing industry, will call in a consulting engineer or some other expert on the technical problem with which the business will be concerned. The whole problem of design and lay-out will require to be considered, together with the appropriate technique to be employed in the process of production. The consultant will tender advice based upon the closest examination of technical needs and possibilities, but if he is an engineer he is likely to regard everything from the purely engineering point of view. There is more in organization and running an establishment than merely designing what is, in the abstract, the most perfect type of establishment.

DESIGN AND THE HUMAN FACTOR

The establishment will be run by people, and, as it should be so organized as to make the personnel as effective as possible, it may be desirable to take a more generous outlook than was regarded as necessary by consulting engineers of the past. For that reason the business man, who must accept responsibility for the organization of the establishment on the human side, should be careful in drawing up the terms of reference for the consulting engineer and cautious in his estimate of the value of the latter's ideas. This may seem a trivial point, but it is not trivial in practice. In factories where management is organized upon a functional basis it is well known that serious differences of opinion are apt to arise between the technical supervisors, who are apt to think in terms of immediate mechanical efficiency, and the labour manager, who usually interprets the word efficiency far more broadly. The enlightened business man now realizes that efficiency is not wholly a matter of machinery, and that the best design and lay-out is one which takes into the fullest consideration the personal requirements of all the people employed in the establishment.

FINDING CAPITAL

(*Continued from page* 394)

X
FROM BANKS

We have emphasized in previous chapters that in this country the banker does not conceive it as his function to furnish the permanent capital of a business, but that he is prepared to augment its working capital. In other words, he supplements the capital of a borrower, he does not provide it.

In Chapter II we indicated how the capital required by a new business is determined. It is divided into fixed capital and working capital. The former is the amount of money necessary to equip the business with plant, machinery, buildings and other permanent assets; the latter is the outlay that must be incurred to maintain the business in running order. The estimate of the working capital required is always a difficult one to make. Are we to budget for periods of maximum activity or for periods of minimum activity? What are we to allow for the lag of receipts after payments? The business may start with £40,000 worth of plant, and apply £15,000 to the purchase of materials, payment of wages and other running expenses before anything is ready for sale. We say that the fixed capital is £40,000, but is it accurate to state that the working capital required is £15,000 only? Receipts in a normal year may be £200,000 and payments £190,000, leaving a profit of £10,000. If receipts and payments accrued regularly from week to week and month to month, if the volume of production remained constant throughout the year, if unforeseen contingencies never arose, we should be justified in taking the working capital at £15,000. But we live in an imperfect world. Of the goods sold for £200,000, £150,000 worth may be produced in the winter season and only £50,000 worth in the summer season. At the time of peak activity an amount of capital far in excess of £15,000 will be required to finance the purchase of raw materials and the payment of wages. Again, it is only in rare instances that from week to week throughout the year current expenditure can be met from current revenue. What is much more likely to happen is that three months' credit must be given on sales, while only one month's credit is received on purchases. Unforeseen contingencies, even in the best regulated businesses, are apt to happen. There may be a strike, or a loss not covered by insurance, or a host of other things. What is the business man to do, then, in estimating the working capital he has to raise? It would obviously be injudicious if he were to find by way of shares or debentures a sum sufficient to meet the maximum demands that the business might make for cash at its busiest times. In the quiet seasons there would be funds lying idle or at the best earning a low rate of interest on deposit receipt at a bank. It would also be a serious matter if he were to include in his capital estimates a sum sufficient to provide for all contingencies as his only alternative to a forced realization of stock if the contingencies arose. He solves the problem simply, by estimating as the working capital that the business should provide the outlay that must be incurred between the commencement of production and the sale of the product in accordance with the plan on which operations are to be carried out in the first year; he allows a little bit over, and relies on his bank for the rest. In the case we have considered he therefore would be justified if he raised by way of shares a little over £55,000, of which £40,000 would be fixed capital, and the balance he would call his working capital. The function of the bank is to augment this working capital by bridging the gap between receipts and payments, and by temporary lending in cases of seasonal activity or to meet contingencies. Broadly speaking, those two services find expression in the two methods in which a bank lends money, namely, by discounting bills of exchange, and by making advances in the form of loan or overdraft.

BY DISCOUNTING BILLS OF EXCHANGE

The discounting of bills of exchange is one of the best ways in which a banker can employ his funds. His assets must be liquid. They may not be tied up in long term obligations, for his liabilities consist mainly of demand obligations which he may be called on to meet at any time in cash. A bill of exchange is really an anticipated receipt for goods sold, endowed by law with certain properties that make it capable of forming an ideal security. Our trader requires cash for his productive or trading operations, but he has to sell his goods on long credit terms. He draws a bill of exchange on the buyer of the goods, the latter writes across the bill that he accepts it, and he then returns it to the seller. The seller takes the accepted bill to his bank, and the bank discounts it, that is, it provides the trader at once with funds which he can employ in his business, and when the bill falls due, the banker collects the debt and repays himself the amount he has advanced.

How does the banker determine whether or not to discount a bill? He does so by estimating the value of the names appearing on the bill. Of first consideration, of course, is the standing of the acceptor, for he it is who will meet the bill on maturity; but the drawer and endorsers, if any,

are hardly less important, for the banker has an equal right of recourse against them in case of default by the acceptor. Let us suppose that the trader has an order for £100,000 worth of agricultural machinery from a firm in the Argentine, delivery to be spread over six months, and payment to be made by bills accepted payable three months after sight. The trader at once goes to his banker, and inquires, firstly, if he will discount the bills, and, secondly, at what rate he will discount them. The banker will take up the bank references, in this country if possible, of the Argentine firm, and after considering its standing as well as the standing of his customer, will give his decision. The banks have a remarkable intelligence system, and they give each other in confidence particulars of the credit standing of their customers. There are also organizations, such as Seyd & Co., in close touch with the banks that make a speciality of assessing credit standing. Since the war, too, there has grown up a form of insurance known as credit insurance, which is specially valuable in this connection. If a trader is dealing with a new customer whose credit standing is not well established, and whose bills the bank is reluctant to discount, he is able to insure the credit either in whole or in part. With the risk thus covered by a respectable insurance company, the bank hesitates no longer in discounting the bill.

Banks rarely discount a bill of more than six months. The favourite bill is the three months' bill.

Instead of lending money by way of discounting a bill, a bank sometimes lends its name. A large proportion of the export trade of this country is financed by means of bills accepted by the London merchant bankers and acceptance houses. The banker consents up to an agreed limit to accept bills drawn on him by the exporter. When the goods are ready for shipment, the bills of lading and other documents relating to the goods, together with the bills of exchange, are handed to the banker. He accepts the bills of exchange, returns them to the exporter—who of course has no difficulty in discounting them at once—and sends the shipping documents to his correspondent in the country to which the goods are consigned. The correspondent collects the sale price from the foreign buyer and remits it to the banker, who is thereby placed in funds to meet the bills he has accepted when they fall due.

ADVANCES BY WAY OF LOAN OR OVERDRAFT

The bulk of the money that a bank lends is advanced in the form of loans or overdraft. We have already (Chapter IV) discussed the difference between these two methods of accommodation. When business is exceptionally brisk, at a time of seasonal activity for instance, the trader or manufacturer finds that his working capital is fully occupied. His bank balance dwindles to zero, and still he must find means of buying more and more goods. In his need he turns to his banker for an advance.

Advances may be secured or unsecured. In either case the banker, before granting the accommodation, is influenced by the following considerations—

1. *The Reputation of the Borrower, and his Record as a Customer of the Bank.*
2. *The Amount of Capital Employed in the Business.*
3. *The Purpose of the Advance.*
4. *The Means of Repayment.*
5. *The State of Trade.*

It might be thought that where ample security is offered to the banker, there should be no necessity for him to make some of those inquiries, but it should be borne in mind that a banker seldom makes an advance, even on the strongest security, if at the time of making the advance he has any reason to believe that he will require to realize the security in order to repay the loan.

Nevertheless, when application is made for a loan, the banker's first inquiry is: "What security have you to offer?" The security may be the guarantee of a third party, the deposit of stocks and shares, of life insurance policies, debentures, or goods. The last-named is very usual, for instance, in the case of raw materials, colonial produce, and the like handled by brokers, traders, and manufacturers. The trader holds stocks that are not immediately saleable. He puts them under the control of his banker, and obtains an advance of 60 per cent to 90 per cent of their value. As he requires any part of the goods pledged in this way, he repays the proportionate amount of the advance in respect of the quantity released.

When no security is offered, the five considerations we have mentioned are examined very carefully in the light of the borrower's balance sheet. The weight given to the various items in the balance sheet and their relative importance from the banker's point of view form a subject of the greatest interest, but its consideration would require many chapters. Suffice it to say that, if the business is judged to be a sound one, if it has been a good customer of the bank in the past, and if the demand for an advance is to cope with a seasonal fluctuation in trade or to meet some contingency, an unsecured advance may quite probably be obtained.

MARKETING

(*Continued from page 396*)

X

FUTURES --(*continued*)

INDIRECT reference to the possible evils and abuses of speculation has been made in the analysis of the part played by the expert speculator in lessening market fluctuations, and in establishing prices which are substantially in keeping with actual conditions of supply and demand all over the world. In that way fluctuations are, so to speak, reduced or modified, but each speculator still depends for his work and profit upon price movements in one direction or the other. His success depends on the price movement rather than on the final value of the produce or security. His two methods of influencing prices in produce markets consist of buying and selling the commodity himself and in persuading others to buy or sell. The outside public may be tempted to follow the efforts of speculators on the exchanges; this participation may even provoke excited selling by those who have observed heavy sales, but in the process the careful purchases of the speculator may give him ample cover at a good profit. Such cover at a profit, however, is by no means easy after a fall in price which has been artificially created, nor is it simple to liquidate after a rise in price on a similar basis. The importance of adequate information regarding crop conditions is well emphasized in this connection; it is a great safeguard against the beginning of irregular exchange movements.

MANIPULATION

Ultimately, all are aware that prices will be determined by actual conditions. This fact ensures a certain sobriety of judgment, and, as a rule, a steady refusal to be stampeded by the less reputable forms of speculation. Of these forms manipulation occupies a leading place in popular debate. The word is vague, with all kinds of meanings, but it generally suggests blameworthy conduct, or the artificial management of a market for special or personal interests. The term is often applied to speculators buying and selling produce in such a way as to convey the impression that that purchase and sale is the result of natural forces. The term, therefore, includes excessive speculation. Other vices are the spreading of false rumours, the efforts of syndicates to increase or depress prices, and what are called wash sales, matched orders, and corners. Excessive speculation on produce exchanges is often difficult to trace. It may be merely a *bona fide* exceptional activity in general trade. Where, however, dealings are manifestly in excess of the average, manipulation is more easily observed. One of its leading devices is the creation of false opinion, in which groups lead the market to believe that they are expecting a fall in price whereas they are in reality purchasing quietly and secretly to a much larger extent than they are selling. Conversely, they may buy openly when in reality they are selling secretly for a fall in price. All exchanges definitely forbid the publication of false news, and careful manipulators steer clear of such a charge. The evil is, generally speaking, most pronounced on American exchanges. In many States it is an offence against the law, but plainly there are innumerable ways in which either false information or false suggestions can be conveyed. It is all the more urgent, therefore, that the information collected and published by governments and private agencies, together with the official material of the exchanges, should be thoroughly reliable in character. Reputable members of the exchanges derive their assurance from such information, which is also a great safeguard for the general public.

WASH SALES AND MATCHED ORDERS

Speculators frequently unite to form syndicates or pools; similarly, various interests are often combined for the express purpose of buying or selling, in order to raise or depress the market price of a selected commodity. In an arrangement of this kind, profits are divided and losses shared equally. Broadly speaking, the system is not inherently wrong, but most of the critics contend that it is open to criticism on the ground that it encourages rather reckless plunging by the agent of a pool, who is prepared to run greater risks when he knows that a number of other persons will share with him the possible loss. Wash sales are bogus transactions in which one broker arranges to sell to another at an artificially high price. It is, of course, a form of collusion, for speculators who are unaware of the collusion are misled into thinking that there is a genuine reason for the advance in price. All exchanges have regulations directed against conduct of this description. Matched orders are somewhat similar to wash sales, but more common. In that case, speculators who desire to advance or depress market prices give orders to different brokers, instructing some to buy and others to sell. A price limit is named in each case. In this way market activity is stimulated by similar orders to buy and to sell. The official list appears with the price which has been fixed by the speculator in advance, brokers ignorant of the object in view act in perfect good faith, the chance turns upon the two sets making their transactions together, and the greater number of cases in which this occurs the greater the success of the speculator in attaining his object.

CORNERS

Corners are, however, the type of manipulation most generally condemned, chiefly because they are regarded as a device for artificially raising prices, and because as a rule they inflict considerable hardship on their victims. A corner is described as the result of an oversold market bringing about a situation in which the sellers are unable to fulfil their contracts and have to buy back from those to whom they have contracted to deliver. Control amounting to monopoly by one set of speculators is the feature of a successful corner, and there are often hardly any limits to which, in specially favourable circumstances, prices can be increased. Professor J. G. Smith describes the usual method of bringing about a corner as that in which a syndicate buys all the offerings of the short sellers and encourages the latter to go on selling until their sales exceed the amount of the commodity available for delivery. The syndicate then demands delivery in due course, refusing to settle except on its own terms.

Actual corners of spot wheat or spot cotton are regarded as practically impossible in view of the magnitude of the crops and the huge amount of capital that would be necessary for the purpose. Much depends, of course, on the power of speculators to acquire control over available supplies. Natural or artificial shortage will almost always assist them in such operation. A corner which proceeds on an accurate estimate of the future price can hardly fail to bring great profit to the speculator who engineers it. These conditions were true of the Leiter corner in wheat in Chicago in 1897, but a second attempt in 1902 failed, for on that occasion the estimate was erroneous. When corners are attempted the most effective defence by probable victims is counter manipulation. They may break the corner by continuing to sell short, thus forcing the cornerers to take the whole of the real supply and also the fictitious supply. But at best these are risky courses. Corners are not necessarily a result of dealing in futures. They are, perhaps, more common in transactions outside the exchanges than within them. Another form of abuse of speculation afforded by the exchanges is the so-called "bucket-shop." The word is of interesting origin, but it is simply a term applied to gambling on prices related to bogus sales and purchases. In Great Britain there are doubtless many bucket-shops which operate in connection with spot markets. In speculation in produce they are practically unknown. In America they are found in both fields, without speculating always in the same field. A distinctive feature of this class of speculation is that the produce is not usually bought or sold for the customer, and selling and buying does not take place with a view to delivery. According to American definition, a bucket-shop is merely a gambling institution in which the customer bets against the proprietor on the price of some article or any produce. That is, the dealings are not in the produce itself but simply in profits and losses. Bucket shops have their greatest opportunity of success when prices are falling; since the majority of their customers bet, their prices will rise. It is, therefore, to their interest that prices should always tend to fall.

THE CHECKS ON ABUSE

As will be readily imagined, governments and exchanges have recognized that the most determined efforts must be made to deal with this class of abuse. Brokers who are suspected directly or indirectly of supporting bucket-shop schemes come within strict rules of the exchange. While in America many of the States have special legislation on the subject, the evil in Great Britain is still regarded as comparatively trifling, and special legislation has not been introduced. Legislative effort has made its most conspicuous appearance in America, the first branch consisting of Acts and proposals of the State legislatures dealing with speculative markets, and the second covering schemes of Federal regulation of speculation.

In practically all the States in America this legislation has been tried. In the newer States and in those which are more powerful in agriculture, it is found in its most stringent form, but the conclusion is that, taken as a whole, the legislation has been ineffective. Some success attended the Cotton Futures Act of 1915, which gave certain powers to the Federal Department of Agriculture in the case of the cotton exchanges. Other legislation was passed in 1921, and for many years the subject has been ventilated in a long series of reports and inquiries on the evils and abuses of speculation. The chief plea is still that reform must come not so much from this effort as from the growth of an enlightened public opinion in commercial transactions and the adoption of strict principle by all engaged in world business on a large or small scale.

VALUE AND DISTRIBUTION

(*Continued from page* 398)

X

MRS. BROWN'S DEMAND SCHEDULE—(*continued*)

IN Section IX we were considering Mrs. Brown's marketing problems, and her demand for a single commodity—eggs. We now proceed to translate the mass of vague aspirations and half-formed suppositions, which she has at the back of her mind, into something explicit and logical.

We will begin by supposing that Mrs. Brown's demand schedule for eggs can be set out in the form of a table. In the first and second columns we put down the various possible prices at which eggs may be on sale. In the third column we put the number of eggs which Mrs. Brown would buy at each of the various prices scheduled. In the fourth column we put the total amount which, in each of these cases, Mrs. Brown would spend upon eggs. We then get the following example of a

DEMAND SCHEDULE

1 If the price of eggs is	2 the price of each egg is	3 and Mrs. Brown will buy	4 thus spending in all
4 a shilling	3d.	none	—
6 ,,	2d.	6	1s.
8 ,,	1½d.	12	1s. 6d.
10 ,,	1⅕d.	15	1s. 6d.
12 ,,	1d.	18	1s. 6d.
14 ,,	⅞d.	21	1s. 6d.
16 ,,	¾d.	32	2s.
18 ,,	⅔d.	36	2s.
20 ,,	⅗d.	50	2s. 6d.
22 ,,	⅓d.	66	3s.
24 ,,	½d.	96	4s.

It cannot be too strongly emphasized that our suppositions, set out here with such precision, are purely arbitrary. No two people would react to these same circumstances in exactly the same way. We are assuming, in this particular case, that the complex of motives which determine Mrs. Brown's purchase works out as follows: If eggs were 4 a shilling they would be too dear for her altogether. She would spend the whole of her money on other things. At 6 a shilling, she will buy a shillingsworth. At a slightly lower range of prices, she will spend in all 1s. 6d. But with eggs at 16 or 18 a shilling, she will buy more of them, in preference to other foodstuffs, and at still lower prices she will take into account her future as well as her present needs, and will buy a large quantity, with a view to preserving such surplus as is not immediately consumed. At the lowest price shown in the schedule, i.e. when eggs are a halfpenny each, she will think it worth while to spend as much as 4s., and will, of course, curtail her expenditure in other directions to render this investment possible.

77. We can now proceed from the *tabular* presentation of Mrs. Brown's demand schedule to its *diagrammatic* presentation.

We can do this in the following way: Along *OY* (Fig. 1) we indicate the range of prices within which conditions of supply fluctuate, i.e. we mark

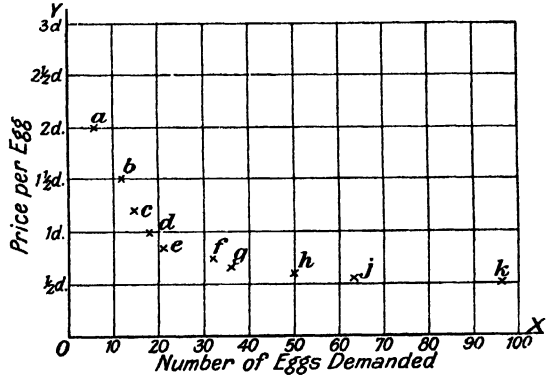

FIG 1

off a scale of *prices per egg*. Along *OX* we indicate, similarly, the quantitative limits within which the conditions of demand may operate. The scale marked off shows therefore, the *number of eggs demanded*. Now, within the area bounded by the two ordinates, *OX*, *OY*, there is an infinite number of points, each of them representing the demand for x eggs at the price of y pence per egg. To plot any particular demand schedule in the form of a curve, all we have to do is to indicate, within this area, the points which are relevant to the demand schedule we are considering, and then to connect them one with another by means of a continuous line.

78. The first operation is shown in Fig. 1. We have made a graphic representation of the statements set out in our table. The first such statement is that if eggs are 2d. each, Mrs. Brown will buy 6. From the point in the scale marked along *OY*, which indicates 2d., and from the point in the scale marked along *OX* which indicates 6 eggs, we, therefore, draw lines parallel to *OX* and *OY* respectively. The point of their intersection is marked *a*.

79. Similarly, we plot point *b* in our diagram by marking the intersection of the ordinates which

relate the ratio of eggs at 1½d. each to that of 12 eggs. This is a representation of the *second* statement in the table. And so on with points *c*, *d*, *e*, . . . *k*. The final result is that which appears in the diagram.

80. Figure 2 should not now call for much explanation. By connecting up the points *a*, *b*, . . . *k* we arrive at a curve which can be regarded as a continuous statement of the conditions of demand under a specified set of circumstances. To this we give the technical name of a *demand curve*.

We can define a demand curve as a graphic statement of such circumstances, enabling us, by

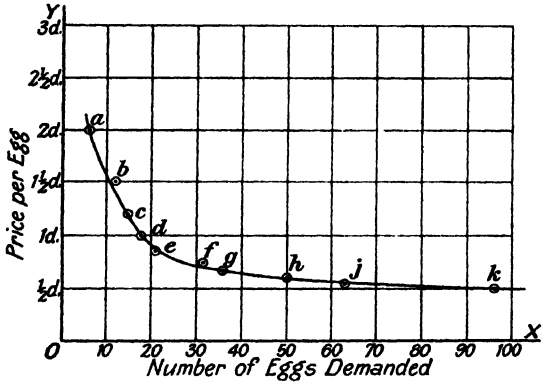

FIG. 2

taking the two ordinates of any point on the curve, to establish the relationship of *price* and *quantity demanded* under the circumstances which it is sought to represent. The demand curve represented in the diagram is, therefore, the curve which illustrates Mrs. Brown's demand for eggs at a particular time, on a particular day, in a particular market.

THE IMPLICATIONS OF A DEMAND CURVE

(1) DEMAND AND UTILITY

81. We have already considered, in connection with supply and demand, the nature of economic "laws." Among such "laws" importance attaches to the so-called *law of diminishing utility*. This is a general statement of what, perhaps, it "needs no ghost come from the grave" to tell us, viz., that the more we have of anything, the less we are likely to value successive increments of it.

82. Now it is not possible, as we know already, to find a precise objective measure of *utility*. But, perhaps, the first thing that strikes us about our demand curve is that, if anything could afford to us such an objective measure, it would be this. Mrs. Brown wants her first egg more badly than she wants her second, her second more badly than she wants her third, and so on. The intensity of her demand for successive eggs (i.e. the utility of each successive egg to her) may be regarded as roughly measurable by the price she is prepared to pay. And the demand schedule shows how much she is prepared to pay in successive instances.

THE MEASUREMENT OF UTILITY

83. This general statement lends itself to a good deal of qualification, with most of which, however, we need not here concern ourselves. The refinements of economic analysis, once we are in the regions where it is fashionable to put quantitative valuations upon attitudes of mind, are as tenuous as they are inexhaustible. We will confine ourselves here to noting that, while a demand schedule affords rough guidance as to the utility of successive increments of a commodity, it cannot claim to do more. For one thing, the "wanting" a thing—which is what we are purporting to measure—is itself made up of a complex of urges which are certainly not susceptible of individual measurement. For another, our measuring-rod is not above criticism. Not only is the value of money, expressed in terms of things in general, different at different times, but, in relation to the utility of commodities, it is different for different people at the same time; and not only that, but it may vary subjectively (i.e. for any one person) from moment to moment and almost from mood to mood. To interpret urgency of desire in terms of a monetary measure can afford, then, no more than a rough approximation to what we are seeking. Nevertheless, the attempt brings us near enough to the realities of the case, as we conceive them, to be well worth our making it.

CURRENCY AND BANKING

(*Continued from page 400*)

X

REGULATION OF NOTE ISSUES

(*continued*)

It will be convenient at this stage to indicate the nature of the influences which moulded English banking in its peculiar form. In 1708 the Bank of England's Charter was renewed and a clause was inserted which gave to the Bank a monopoly of joint-stock banking in England. Under that clause it was not lawful " for any body politic or corporate whatsoever, created or to be created (other than the said Governor and Company of the Bank of England), or for any other person whatsoever, united or to be united in covenants or partnership, exceeding the number of six persons, in that part of Great Britain called England, to borrow, owe, or take up any sum or sums of money on their bills or notes, payable at demand, or at a less time than six months from the borrowing thereof." At that time it was supposed that a note issue was essential to a banking business, but there developed a tendency for deposit banks to emerge without such powers, and the clause in the Charter of 1708 did not appear to make illegal such institutions. In Scotland there was no such restriction, and joint-stock banks of issue predominated. From 1793 and throughout the first quarter of the nineteenth century a series of financial crises occurred, in the course of which many of the country banks in England collapsed. There was the war with France, accompanied by inflation, and in 1797 the suspension of cash payments by the Bank of England. In the thirty years up to 1819 no fewer than 300 country banks in England failed, of which 147 occurred in the seven years from 1810 to 1816. During this period the movement in favour of joint-stock banks was growing. One of the leaders of this movement was Thomas Joplin, who wrote in 1822[1]—" While England and Ireland are continually subject to disasters of this kind, it seems an extraordinary fact that Scotland is totally free from them : the Scotch banks, rarely, if ever, either failing or losing money. . . . The true cause of the difference is to be found in the nature of their respective banking establishments : the Scotch banks being joint-stock companies, while the English banks are private partnerships." The reasons given by this writer for the failure of the private banks were (1) careless management, (2) speculation, and (3) the granting of loans to large local concerns through personal ties and without real security. Such influences were less likely to occur in the case of large corporate bodies governed by boards of directors who would be chosen annually at the meeting of stockholders.

[1] *Essay on the General Principles and Present Practice of Banking in England and Scotland* (Sixth Edition, 1827, page 6).

EARLY BANKING CRISES

The series of crises which occurred undermined confidence in both the private banks in England and in the Bank of England itself, and opinion was growing in favour of some method of State regulation for note issues. In 1818, Mr. Vansittart, then Chancellor of the Exchequer, brought forward a Bill to compel bankers to provide greater security for their notes, but under opposition from the country banks the Bill was withdrawn. Three years later, however, an Act was passed to alter the Charter of the Bank of Ireland in order to enable a greater number of partners to form banks outside a radius of 50 miles from Dublin. In the following year the Government offered to extend the privileges of the Bank of England to 1843, provided the Bank agreed to the terms of an Act which made it legal for any number of persons in partnership in England to issue notes payable on demand and conducting banking business outside a radius of 65 miles from London. But, although the Bank agreed to this restriction of its privileges no action was taken till 1826.

In 1824 and 1825 there was another speculative boom followed by the crisis and panic of the latter year, when seventy private banks failed within a period of six weeks. The Government attributed this panic to the " rash spirit of speculation, which has pervaded the country for some time, supported, fostered, and encouraged by the country banks." It was clear that the official policy of the Government was being moulded in the direction of some change in the existing legal position of banks. Greater security was being demanded, and the bank was offered the alternative (1) of taking advantage of its joint-stock monopoly to establish branches over the country, or (2) of losing its exclusive privileges outside a certain area round London. The Act[1] of 1826 followed. Under the terms of that Act joint-stock banks could be formed outside 65 miles of London, provided they had no London offices, and these banks could issue notes payable on demand. The same Act prohibited the issue of notes for less than £5[2]. This latter provision was intended as a protection to the poorer members of the community in the event of failure, although experience in Scotland showed that £1 notes were generally acceptable

[1] An Act for the better regulating co-partnership of certain bankers in England. Geo. IV, *c.* 46.

[2] For the vicissitudes in the Government's policy on this point cf. Clapham, *An Economic History of Modern Britain*, page 264.

and occasioned no danger, provided the issuing-bank was well-conducted and enjoyed a good reputation.

ENGLISH JOINT-STOCK BANKS

In 1833 a further change was made. Joint-stock banks were allowed to exist within the 65 miles radius, but the Bank of England retained its monopoly of note issue inside that area. Moreover, banks formed under the Act of 1826 were allowed to issue notes payable in London although not issued there, and to have London agents. In 1834 the London and Westminster Bank was formed, in 1836 the London Joint-Stock Bank, and in 1839 the Union and London and County Banks. Of the present-day "Big Five," only the Westminster Bank had its origin in London. The Midland Bank, Lloyds, Barclays, and the National Provincial Banks had "country" origins.

But the London joint-stock banks were still unfavourably placed. The Act of 1826 applied only to banks formed outside the 65-mile radius, and the London banks could neither sue nor be sued. They were refused admittance to the Clearing House, and were opposed by both the private banks and the Bank of England. The latter, for example, refused to grant the Westminster Bank a drawing account except on prohibitive terms. This opposition was also directed against the joint-stock issue-banks which were authorized by the Act of 1826, and the Bank of England adopted a policy of refusing any bill bearing the endorsement of a joint-stock bank. The hostility, however, gradually broke down as the "new" banking conducted by joint-stock institutions without note-issuing powers developed. In 1844 the legal disability of the London joint-stock banks was removed, enabling them to be sued and to sue. From 6th May, 1844, all banking partnerships of more than seven persons had to be incorporated under letters patent, and in 1857 the joint-stock banks were granted limited liability.

CURRENCY NOTE ISSUES

The preceding paragraphs relate to the development of banking and of the note issue up to the late war. By the Currency and Bank Notes Act of 8th August, 1914, a new form of paper money was introduced. The conditions under which that issue was made will be examined later; for the present it is sufficient to notice its nature. The amount of the issue was left to the discretion of the Treasury, and no requirements were prescribed as to the amount of metallic cover to be held. To some extent, however, the Treasury Notes were substituted for gold sovereigns and half-sovereigns which were withdrawn from circulation, and to that extent they did not involve an increase in the total circulation. But the amount of notes issued greatly exceeded the amount of gold coin withdrawn. The withdrawal of gold from circulation enabled the gold reserves of the country to be mobilized so that they could be employed more effectively if required. Treasury Notes were legally convertible into gold at the Bank of England, but the free use of gold by the public was restricted. Gold coins could not be melted into bullion nor could private persons export gold abroad. The Currency Note Commissioners, moreover, were not obliged to hold the equivalent of the sovereign in gold for every pound note which they issued. In part there was a metallic cover together with Bank of England notes and deposits at the Bank of England, both of which could be exchanged for gold. But the bulk of the Currency Note issue was covered simply by Government securities. To that extent the notes were issued upon the nation's credit. Thus at the end of August, 1926, of £303 million of Currency Notes and Certificates issued, £240 million, or fully 79 per cent, were covered by Government securities.

Other countries adopted different methods of regulating their issues. In the United States the Federal Reserve System, which was instituted in 1913 and which reorganized the entire banking system of the country, was an attempt to provide an elastic note issue, and provision was made that the reserve banks should hold a gold reserve of at least 40 per cent of their notes, but this might be temporarily relaxed upon payment of a graduated tax on the amount of the deficiency. In France, where the Bank of France enjoyed a monopoly of issue from 1848, a different method was followed. Legal maxima were periodically determined, and these were revised as circumstances warranted. In Germany, the Reichsbank was obliged to hold one-third of its note issue in the form of specie; the remaining two-thirds might be held in the form of good bills; and provision was made which enabled the legal maximum circulation to be exceeded upon payment of a tax of 5 per cent on the amount of the deficiency. In other countries different proportions of the note issue to be covered by specie were adopted. It can be seen, however, in what way a system of proportionate cover gave rise to a more elastic note issue than that which prevailed under the Act of 1844 in this country. In this country an increase or decrease in the gold holding of the issue department of the Bank of England meant an equal increase or decrease in the note issue. If, on the other hand, the prescribed gold cover was one-third, then an increase in the gold holding would enable the note issue to be increased by three times as much, while a decrease in the gold holding involved a contraction by three times that amount in the note issue.

INTERNATIONAL TRADE

(*Continued from page 402*)

X

THE PROBLEM OF DUMPING

In this section it is proposed to examine the conditions under which the special form of "dumping" as applied to articles entering into international trade makes itself felt. The problem itself is not easily defined without giving to the term "dumping" a specific application. In popular discussions the term is made to cover a considerable number of rather different trade practices, though they perhaps have in common the allegation of "unfair" competition. It has already been pointed out that no very satisfactory definition of "unfairness" in competition is possible which will be capable of universal application. Closer examination reveals the great variety of conditions under which a particular type of alleged "unfairness" may exist. These general considerations apply equally to the problem now under discussion.

The general problem of dumping occurs where goods are sold abroad at prices which are considerably lower than the prices charged for the same articles in the internal domestic market at the same time, and apart from more favourable terms of sale on account of the quantities purchased and conditions of delivery. These limiting conditions are important. It would not be valid, for example, to compare the price of household coal in this country with the price of exported industrial coal, and to argue that coal of the latter type was dumped abroad in large quantities. Nor would it be valid to allege that dumping existed where foreign purchasers of the commodity bought larger and more regular quantities for which they secured better terms than domestic purchasers if the difference in price as between the two groups reflected *merely* these more favourable terms.

It is sometimes alleged that dumping involves, in addition to a discrepancy as between home and foreign prices of the same article at the same time, the sale abroad of the article at a price which is below the cost of producing the article. This may or may not be the case, but it is not necessarily implied in the dumping practice. A price difference in respect of domestic and export sales may exist, and yet the lower export price may exceed the cost to the exporter of producing the commodity. In the present discussion the problem will be viewed under the simpler conditions of a mere price discrimination of the type already explained.

DIFFERENTIAL PRICES

Assuming, then, that such differential prices exist, it has to be considered under what conditions the phenomenon is likely to occur. It is a theorem of economics that where there is a regular market for a non-perishable commodity and where free competition prevails, the price of the commodity will tend to be uniform in all parts of the market at the same time, due allowance being made for transport and other incidental expenses which may be incurred in transferring supplies from one part of the market to another. The existence of a price discrimination as in the case of dumping, therefore, points to some limitation to the amount of free competition in the particular market. If there was free competition among several producers of an article for which there was both a home and foreign demand it is unlikely that any important divergence between the domestic and the export price at the same time would occur. If, under these conditions, home prices were higher than export prices, supplies of the article would be attracted from the export to the domestic market, and these additional supplies would tend to lower the domestic price. This movement, moreover, would be likely to continue so long as there remained any considerable or unreasonable difference between the two prices.

The existence of organized dumping, therefore, points to the fact that the industry is highly organized under a small number of dominating concerns which can work under agreement as to sales and prices. Alternatively, the industry may be largely trustified under a single unit with monopolistic or semi-monopolistic powers. But under certain conditions this would not be sufficient. Thus, if we suppose that the industry in question is wholly organized in a single unit, any attempt to discriminate as between domestic and export sales would be limited by the possibility of re-importing supplies which had already been exported. This, of course, pre-supposes that there are no protective barriers, and that the trade is otherwise free.

The existence of a protective tariff facilitates dumping by an industry which conforms to the conditions already mentioned, provided there are advantages to be gained from the practice. It does so in two ways. (1) If the tariff is a general one, or at least applies to the dumped articles, it makes it difficult, if not impossible, to re-import supplies of the commodity which have already been exported, and to re-import these supplies at prices which would compete with home supplies at the higher price. To that extent, the protective tariff tends to remove the important limitation already noticed to the policy of price discrimination as between home and foreign buyers.

(2) But the tariff also facilitates the process by securing the home market to the industry in

question, and so enabling it to charge prices to the domestic purchasers above the world level. The influence of the tariff in this connection is not necessarily to make an artificial reduction in the export price; it is rather to make an artificial advance in the domestic price.[1] Should that result obtain, however, it leads to the price discrimination between the two purchasing groups which was defined in the first instance as representing in general the characteristic of the dumping practice.

It does not, however, follow from this that the home market must always be secured by a protective tariff before an industry can dump part of its output abroad at lower prices. The tariff doubtless makes it easier for the protected industry to adopt the practice if it so desires, but it is not impossible for an industry in a free trade country to resort to the same methods. But before it could do so there would require to be other factors which secured to it the home market in a manner similar to that exercised by the protective tariff. Thus, if the article in question can be produced at low cost, it might be sold domestically at a price which was higher than the export price but not sufficiently high to attract competitive supplies from other countries or re-imports of supplies already exported by the first country. In the same way, if the foreign market is distant, there might be an appreciable difference between home and export prices, but not a sufficient difference to cover the double freightage incurred in the re-import of supplies already exported. These are instances where natural and economic conditions are fulfilling the same rôle which might otherwise be played by a tariff, but the latter may in practice be the more important influence.

REASONS FOR DUMPING

In the suggestive *Memorandum on Dumping* prepared by Professor Viner for the International Economic Conference held by the League of Nations at Geneva in May, 1927, the reasons for the practice of dumping are classified under five heads as follows—

1. Where overstocks of a commodity could only be disposed of in the home market by so cutting domestic prices that the market was "spoiled" for later supplies, these may be realized in other distant and non-regular markets at the prices which they will fetch. Under these conditions, however, the articles in question would not be dumped in a regular foreign market, otherwise that market might be "spoiled" in the same manner as the home market. If resort was had to dumping, an effort would be made to discover markets which were not regularly supplied by the industry which was adopting the practice. This form of the practice, however, is not likely to be lasting.

[1] Cf. Viner, *Memorandum on Dumping*, page 4.

2. The second example is where dumping is resorted to as a form of advertisement. If an industry is desirous of entering a new market it has to make its potential customers familiar with its products, and it is probable that the most effective manner of generating familiarity is by providing supplies at apparently attractive prices. Where this reason is operative, the industry which resorts to dumping may be disposing of part of its output in the new market at prices which are less remunerative than those which could be obtained in the regular markets in which its product is ordinarily sold. This type of dumping may occur for a longer period than the first type, but it is not likely to be of long duration unless other factors come into play. It is certainly not intended to constitute part of a permanent commercial policy.

3. The third example is probably of greatest importance. Let us suppose that the home demand for the product is inelastic, i.e. the amount demanded would not vary very greatly with the different prices which might be charged for it, and that the industry is such that important economies of large-scale production are obtainable. Under these conditions any increase in the scale of output may enable the industry to produce at lower unit costs of production. If the attempt is made to dispose of this larger output in the domestic market, little success will be obtained, since the home demand is inelastic. But regular dumping abroad may be profitable, and the export price may even be set below the level of production costs, provided the loss incurred on these export sales is more than made good by the lowering of production costs in respect of the home sales, which are maintained at the full prices. Dumping of this kind is not of the sporadic type considered in the first example; nor need it be only of short duration, as in the second. It is not impossible, subject to the conditions which have been mentioned, for the practice to be adopted for long or indefinite periods.

4. The fourth case has already been suggested by the earlier discussion. It occurs where the home market is heavily protected, so that the domestic price is raised relatively to the price obtained for export sales. The export price, however, may only be at the world level and still be remunerative to the industry. It is the higher domestic price which is secured by the local tariff.

5. The last example occurs during periods of "cut-throat" competition. It may be offensive or defensive; i.e. it may be directed against a foreign competitor in a foreign market, or it may be a defence against similar measures adopted in the first instance by the foreign competitor. But, like the first two examples, this type of dumping is likely to be only of short duration.

THE TRADE CYCLE

(*Continued from page 404*)

X

THEORIES OF THE TRADE CYCLE

In the foregoing chapters five theories of the trade cycle have been examined in some detail. Of the remaining two or three hundred theories,[1] the great majority are of negligible importance—some of them, indeed, merely fantastic. There is one, however, which, if only for historical reasons, cannot be altogether ignored, even in the most rapid survey of the question, to wit, the theory attributing trade fluctuations to harvest variations.

The general line this theory takes is to trace some direct connection between an astronomical cycle, a supposed cycle in the yield of agricultural products, and the trade cycle.

Professor W. S. Jevons some forty years ago attempted to establish a correlation between the trade cycle, a harvest cycle, and the cyclical appearance of sun spots. Within the last few years Professor Moore has attempted a similar feat, but with the planet Venus in place of the sun spots as the root cause.[2]

Professor Jevons worked out an eleven-and-a-half-year cycle. Professor Moore seeks to establish an eight-year cycle. Professor H. S. Jevons, developing the theory originally advanced by his father, has put forward arguments in favour of a three-and-a-half-year cycle.[3]

Although it is reasonable to suppose that harvest variations, as and when they occur, exercise an important influence upon trade, none of these attempts to link up an astronomical cycle, a harvest cycle, and the trade cycle is at present accepted by economists to any considerable extent.

Besides these theories of lesser importance, there are numerous subsidiary and extraordinary factors which call for at least passing mention. Certain of these factors unquestionably play a part in accentuating or otherwise modifying the different phases of the trade cycle. The speculative holding of goods off the market, the duplication of orders during the boom so as to make delivery more probable, and the cancellation of orders when trade falls off, are among the most obvious of the subsidiary factors. Wars, revolutions and lesser political events such as elections, great catastrophes, floods, earthquakes, etc., and important inventions and discoveries, are among the extraordinary factors most frequently found to influence the course of the trade cycle.

It is not proposed, however, to go further into these less well-known theories and subsidiary and extraordinary factors, important though they may be, but to sum up such information as we have already acquired as to the causation of the trade cycle.

* * *

We have specially considered five main theories: the composite theory, and four "dominant factor" theories—the psychological theory, the disproportionate production theory, the monetary theory, and the "short-circuiting" theory.

The composite theory appeared to give us "Hamlet" without the Prince of Denmark. The psychological theory, the disproportionate production theory, and the monetary theory, all took certain elements out of the composite theory, developed them, and declared them to be big enough to play the part of the missing dominant character. When it came to the test, however, none of these attempts could be considered as completely successful, although it must be granted them that they cannot be said to have failed altogether. In any case, before final judgment could be passed, they would have to be examined far more carefully and in far greater detail than is possible here.

The short-circuiting theory was the only one which definitely introduced an entirely new factor not considered in the composite theory—the possibility of purchasing power being used in such a way that, instead of taking goods *off* the market, it serves to put more goods *on* to the market. It also appeared to satisfy the tests imposed. On the other hand, there are as yet no statistical data showing to what extent purchasing power does short-circuit in actual fact. Moreover, the theory is a new one, and, while it is a good thing to keep an open mind for new theories—particularly where an unsolved problem such as the trade cycle is concerned—a healthy scepticism is equally necessary where, as here, theories run into the hundreds.

Altogether the position in some ways is more than a little puzzling. Each of the various explanations given would seem to go far towards explaining the trade cycle, and, although no one

[1] In *Business Cycles*, Professor Wesley C. Mitchell gives a brief account of several theories not considered here, in particular Beveridge's *Competition Theory*, May's *Theory of the Disproportion Between the Increase in Wages and Productivity*; Aftalion's *Theory of the Diminishing Marginal Utility of an Increasing Supply of Commodity*; Bouniatian's *Theory of Over Capitalization*; Spiethoff's *Theory of Over Production of Industrial Equipment and Under Production of Complementary Goods*; Hull's *Theory of the High Costs of Construction*; Lescure's *Theory of Declining Prospects of Profits*; Veblen's *Theory of the Discrepancy Between Anticipated Profits and Current Capitalization*; Sombart's *Theory of the Unlike Rhythm of Production in the Organic and Inorganic Realms*, and Carver's *Theory of the Dissimilar Price Fluctuations of Producers' and Consumers' Goods*.

[2] *Economic Cycles*, H. L. Moore.

[3] *The Sun's Heat and Trade Activity*, H. S. Jevons.

of them can be considered as completely satisfactory by itself, collectively they would seem to have accounted for the trade cycle several times over.

While this is so, it does not necessarily follow that one theory must be right and all the others wrong. Rather, as Mr. D. H. Robertson has put it: "in the deathless words of the Dodo, everyone has won and all must have prizes, in the sense that almost all the writers who have made any serious contribution to the study of the matter appear to have had a considerable measure of right on their side." In point of fact, each of the alleged dominant factors—psychological considerations, disproportionate production, price changes, all-round over-production—interacts with and greatly increases the force of the others. If one of these factors were totally eliminated, together with all its reactions and interactions, the remaining factors would unquestionably all shrink greatly in importance.

As Professor Pigou points out—

> "From these considerations there may result a great drama of reconciliation. Controversialists who have imagined themselves to hold incompatible opinions are not necessarily in conflict at all! One school of thought maintains that inequality in the harvest yields of different years is the dominant factor in industrial fluctuations, another that errors of forecast among business men are dominant, another that instability in the level of general prices is dominant. Each of these schools holds that, if it is right, the other two must be wrong. Our analysis shows that this is not so. Each of the above factors may be dominant in the only sense that is intelligible, in the sense, namely, that if it, and, therefore, all the effects causally due to it, were removed, industrial fluctuations, as they exist to-day, would almost entirely disappear."[1]

While this may be true, the fact nevertheless remains that at present no complete theory of the trade cycle can be said to exist. Indeed, it is to be doubted whether a satisfactory *detailed* theory of the trade cycle is ever likely to be formulated. From the present position two lines of advance are possible. By quantitative analysis we can determine to some extent the relative importance of those causal factors behind the trade cycle which have already come to light. By further qualitative analysis we may discover still other causes. But it is exceedingly difficult—in some cases practically impossible—to decide whether a factor in so complicated a movement as the trade cycle is predominantly cause or predominantly effect; while the relative importance of the various causal factors is almost certainly never the same in any two cycles.

From one point of view this difficulty in arriving at a satisfactory detailed theory of the trade cycle is not of great importance. Our chief interest in the trade cycle is practical, not academic. Inquiry into the causation of the intermittent falling off of trade is essentially a means to an end, that end being the maintenance of a state of maximum, or, more accurately, optimum trade prosperity. The real question is: Have we or can we get sufficient knowledge of the trade cycle to enable us to take positive action in this direction? If so, academic precision of detail is of academic interest only.

From another point of view, however, the fact that a really adequate theory of the trade cycle is so difficult to construct is a serious obstacle to any practical steps being taken. Professor Pigou's "great drama of reconciliation" between contending theorists has yet to be staged. Until there is something like general agreement as to the main cause of cyclical trade depression there seems little chance of any general agreement as to the nature of the appropriate remedy or remedies to be applied.

It is to this question of possible means of coping with the trade cycle that we now turn.

NOTE. An interesting article on "Theories of Business Fluctuations," by W. M. Persons, is published in the *Quarterly Journal of Economics* (Cambridge, Mass.), November, 1926. A volume to be published by the National Bureau of Economic Research (at present in the press) is probably the most complete examination of the various theories of the trade cycle.

[1] *Industrial Fluctuations*, pages 188–9

SURVEY OF INDUSTRIES

(*Continued from page* 410)

X
THE COAL MINING INDUSTRY

By THE GENERAL EDITOR

(I)

THE coal mining industry of Great Britain has been the subject of more public controversy and the field of more bitter conflict than that waged about any other industry in the country. During the war the industry was subjected to a special form of Government control. For some time after the war Europe suffered from great scarcity of coal, and it was found necessary to prolong that control. Before the Government decided to de-control the industry it appointed a Royal Commission to investigate the situation, but the recommendations of the latter were not put into force, the Government deciding to restore the industry to private competitive control. The decision to de-control the industry and the methods adopted to restore it to its pre-war position created considerable unrest, which was accentuated by the fact that de-control was followed by a severe depression of trade. When the step was taken an elaborate wages agreement was adopted which appeared to identify the interests of employers and their workpeople and was expected to produce harmony.

The depression which immediately followed de-control destroyed much of the value of the new experiment, and the relations between the two sides grew worse rather than better. The situation was saved by the French occupation of the Ruhr, which reduced German production and, by interfering with the export of German reparation coal to France, created scarcity in the latter country. For this reason the demand for British coal rapidly grew, prices advanced, the gross revenue of the industry increased, and wages rose in sympathy. Under those circumstances a new agreement, more favourable to the workers, was negotiated. But an improvement in the European political situation and the termination of a strike in the American coal industry were followed by a reduction in demand from the British industry; depression once more set in, and the labour difficulties of the earlier period were repeated.

In 1925 the Government set up a Committee of Inquiry and the Committee was followed by a Royal Commission. Pending the investigation by the Commission the Government granted a subsidy in aid of wages. The publication of the Report of the Commission in the spring of 1926 and the decision of the Government to terminate the subsidy led to a renewal of the struggle between the two sides. A national stoppage followed which, at the earliest stage, was accompanied by a general strike. The coal stoppage continued from May till November, and resulted in the substitution of district wage agreements for the national agreement which had been in force with minor differences since 1921, when the industry was released from Government control. Since then the industry has been suffering from severe depression; this still continues and shows no obvious sign of coming to an end.

IMPORTANCE OF COAL

It is not my purpose to discuss the dramatic events in the post-war history of the coal mining industry. The Report of the Samuel Commission (1926) may be purchased for a few pence by the reader who is interested in the recent history and present difficulties of the industry. Nor is it my purpose to discuss the organization of labour and the methods of remuneration which are employed. These are examined in other series which appear in the EDUCATOR under those titles. It is only possible in this review to give some of the outstanding economic characteristics of the industry.

Its importance in the national economy can scarcely be exaggerated. The mining population of Great Britain constitutes approximately one-tenth of the total population. In spite of the growing use of electricity and oil, coal remains an essential material in every other important industry in the country. Coal is the material used in generating electricity, in producing gas, in driving locomotives and the great majority of ships, as well as in the manufacture of iron (after conversion into coke) and steel and other metals. It is still largely used to fire boilers providing steam power in the great majority of manufacturing industries; coal fires remain far the most important method of heating rooms in dwelling houses, while coal-fired furnaces are employed in the provision of central heating for large establishments. During the last few years the use of coal has been economized in many directions, but when all possible economies have been achieved it will still deserve its title of "King." In 1913 the total capital invested in the industry was estimated at 135 million pounds and the total production at 136 million pounds for that year. The wages bill for 1,118,000 workers amounted to 93 million pounds; land owners received 6 million pounds in royalties; mine owners received a profit of 13 million pounds on the specified capital.

CHARACTERISTICS OF INDUSTRY
ISOLATION

Three important characteristics serve to distinguish coal mining from the great majority of other industries. The first characteristic is that

of isolation. Most of the pits are situated some distance from manufacturing and commercial centres. The miners working in an isolated pit usually live together in a purely mining village; those working in pits which are fairly close together live in villages and towns which, though larger, are hardly less homogeneous. In some parts of the country, particularly in South Wales, the pits are sunk in deep narrow valleys, which are occupied only by miners and their families and by those shopkeepers and others who depend directly and wholly upon the mining community. In most places the mining communities seem to lie apart from other communities. Often the colliery companies own the houses in which the workers dwell, and in some places housing conditions are deplorable. Even where the pits are near manufacturing centres the workers often form a clearly distinguishable part of the larger community.

Mining is a "dirty" occupation, and the miner returning home from his work fights shy of others until he has washed and changed in a house which usually offers but few facilities. The engineer works in dungarees, which he sheds on leaving the factory; the carpenter, the clerk, the railway porter and the tramway conductor leave their "identification certificates" at the works or office. But the builder who, in a steel works, pulls down and repairs or reconstructs the furnaces, works in a dense cloud of dust and hurries home to change as soon as his work is finished. The collier is like the furnace repairer. Moreover, in the fairly recent past, he frequently descended into the pit at dawn and ascended after sunset; he is still deprived of a great deal of sunshine which other workers enjoy.

His occupation is also risky. The British industry is the safest mining industry in the world, and it is safer to-day than at any time in the past. During the last fifty years the death rate from accidents has fallen from 2·57 to 1·13 per thousand workers as compared with a present rate in America of 2·9 in bituminous mines and 3·11 in anthracite mines. But mining is still regarded as risky in comparison with most other occupations in this country.

Again, the son of a miner has normally little opportunity for anything but mining. In a varied industrial community there is a great deal of mobility; the father's occupation is not an index of the probable occupation of the son about to leave school; the former is but one of dozens which are available to the son. But in isolated mining villages and towns the alternative occupations could not absorb more than a small proportion of the total number of youths seeking employment, with the result that the great majority follow their fathers into pits irrespective of their personal suitability for the occupation.

PSYCHOLOGICAL BACKGROUND

This isolation of the miner, due partly to the geographic distribution of the mines and partly to the characteristics of the work, has probably produced a very marked effect upon the psychology of the mining community and the history of the industry. Miners know each other without knowing other people. Usually they do not know the people for whom they are working; even the heads of family concerns usually live in a place in which they find more social interests. The miner is thrown back upon himself or upon people like himself. He acquires simple but strong beliefs; not having mixed much with people of different experience, he does not recognize minor differences in angles of approach, and is slow to believe that truth is many-sided. Who is not strongly for him is strongly against him. Compromise is always difficult; the subtle is vicious, while political "expediency" is anathema. He values simplicity and directness above all things. Most of these may be called human characteristics rather than merely those of miners, but the latter have experienced so much political control, with all the vices that such control sometimes means in practice, that he is more ready than others to suspect all that does not appear simple and direct and uncompromising.

What he knows and understands best is his own organization, and in some places the local lodge is the centre of all social activity, while the local president is called upon to settle problems of a social, almost family, character. The miner's loyalty to his organization and its leaders is almost proverbial. He is easily led by the chosen leader, whom he follows to the "last ditch," but he is slow to forgive when he has been deceived, and difficult to convince when his suspicions have been aroused—even when these are without real foundation. The leader in whom the men's confidence has been shaken, even though he may have acted sincerely and wisely, stands little chance of rehabilitation. Such, in brief, seems to me to be the psychological background of the industry.

(II)

DIMINISHING RETURNS

The second characteristic of the industry is of a totally different character. Every mine is subject to what economists call the law of diminishing returns or increasing costs. This law operates in more than one way, and in ways other than the one to which reference is made it is applicable to agriculture and, in the last resort, even to manufacturing industry. But in mining it also operates in a way which is not true of other industries. In an ordinary manufacturing establishment, provided adequate provision is made for repairs and replacement, the same article or group of articles may be produced day after day and year after year under the same conditions and at the same real cost of manufacture.

Such is not the case in mining, which is an extractive industry working upon a steadily

diminishing asset. The hewers of coal move gradually away from the shaft; when they have exhausted the seam at the level of the bottom of the shaft they dig deeper towards thicker seams, or move upwards towards thinner ones. For these reasons new items of cost appear and existing items become more burdensome. Main roads of increasing length have to be maintained and properly roofed, and subsidiary roads and tracks provided and maintained. There is a steady increase in the cost of timbering, ventilation and pumping, as well as of haulage. Further, the miners have to walk steadily increasing distances to the face at which they are working, so that the time actually spent in cutting coal is steadily reduced.

These disadvantages are inherent in coal mining; they are not due to faulty technique. Improved appliances may reduce the rate at which costs increase, but they cannot overtake the main tendency. In older mines, however well-equipped they may be, the cost of mining is relatively high, and ultimately becomes almost prohibitive. A stage is reached at which it is less costly to incur fresh capital expenditure in sinking a new shaft and operating from this new centre.

ABANDONMENT VALUE

The third characteristic of the industry is that a coal mine possesses no abandonment value. A warehouse which is no longer used for its original purpose may be converted to another use. A ship which is no longer required by the shipping company for which it was constructed may be sold and used by the purchaser on another route or for some special purpose, such as a whaling expedition. In the last resort it may be sold to a ship-breaker, who is able to sell the machinery and other parts of the ship to various buyers. Even a factory which appears to be highly specialized can be used, if it is not too antiquated, for another purpose.

But a coal mine which is closed down quickly becomes derelict. It can be used for no other purpose, and if it is shut down for any length of time and pumping operations cease it may become worthless even as a coal mine. For this reason, even under the most unfavourable conditions, the owners hold on tenaciously so long as there is the slightest hope of improvement. They continue to work the mine even if market conditions do not enable them to charge a price which covers the cost of operation. They spend fresh capital in order to save what has already been sunk. They work the mine beyond the margin of profitableness in the hope that the market will become more favourable and enable them to recover what they have lost.

COMMON INTEREST

This extreme reluctance to abandon an unprofitable enterprise is shared by the workers. As already stated, a coal mining village may depend upon the enterprise, and if the mine were closed the village would also become derelict. There are no alternative occupations within easy reach, and if they were no longer required in the mine the workers and their families would need to migrate to other places in search of employment. The cost of removing family and furniture is extremely heavy, while the risk attendant upon the search for employment in a strange world appears, even during a period of prosperity, extremely heavy. In the last resort the workers prefer to accept a reduction in basis rates and a fall in weekly earnings if, in that way, the enterprise can be saved and employment at the mine prolonged.

This is but another aspect of the difference between mining and manufacturing industry. In a manufacturing establishment the cost is more directly and fully under the control of the owner. Man-hour efficiency can be increased and cost per unit of output reduced by the introduction of better organization and more modern machinery. A manufacturer cannot appeal to a trade union to be allowed to pay a lower rate of wages to his workpeople on the ground that his establishment is less efficient than that of his rivals; the trade union representatives might reasonably reply that the remedy lay in his own hands and that what was possible for other manufacturers was also possible for himself. Wages agreements even provide for higher piece rates on inferior machinery than on machinery of the most powerful type.

In mining, however, the conditions may be beyond the control of the owner, and if these have become distinctly unfavourable the workpeople accept the lesser of two evils and agree to an adjustment of basis rates to the prevailing conditions. It would therefore be a mistake to assume that, in their efforts to secure a higher standard of living, miners are blind to the difficulty of standardizing wages rates and to the necessity for adjusting local rates to local conditions. Thus, national and regional negotiations which have attracted so much public attention in recent years refer not to basis rates but to those variations in the percentage additions which should follow variations in the general financial conditions of the industry in the country as a whole or in the region concerned.

A COMPETITIVE INDUSTRY

Coal mining, as distinguished from distribution, is a highly competitive industry. It is well known that there are several coalfields in this country, and that the needs of each region are mainly supplied from the mines of that region. Further, the foreign markets for British coal are supplied from those coalfields which are near the coast. Again, there are different kinds of coal which are suitable for different purposes and therefore possess a substantial monopoly of special markets. But, on the other hand, the mines in each coalfield

compete strongly in the geographical market which it serves. There are, moreover, many parts of the country where the boundaries of the regional markets meet, and on this no-man's land the competition between different coalfields is very intense. Finally, although some coals are intrinsically superior to others for certain uses, the monopoly is not complete; the question of price enters, and the price competition on the margins of monopoly is apt to be fairly severe. Hence there is, in general, a marked sympathy in the price variations of different classes of coal, as well as in the price variations of similar coal products in different parts of the country. Before the war a few attempts were made to form semi-monopolistic combines, but without success. The existence of about 2,500 firms, nurtured in a strongly competitive tradition, was generally regarded as a sufficient guarantee that no revolutionary change in the organization of capital was likely to occur.

These firms vary considerably in size and type, while the 3,100 mines which they control are of all sizes and ages. The very small pits are usually owned by manager-owners or by private partnerships. The largest firms are well-known public companies. Some colliery owners devote their attention wholly to coal mining; some own coke-oven and by-product plants, as well as large screening plants; others own brick works and thus utilize the fireclay which is obtained from the mines. Some of the largest firms also own iron, steel and manufacturing plants, colliery ownership and control being but a minor part of their activities. Some coal combines own a large number of pits and either directly or through subsidiary companies control the export and sale of the coal which they produce.

These are but illustrations of a variety of types, an exhaustive list of which cannot be given. But even the largest combines of to-day cannot be said to enjoy even a partial monopoly. The recently-formed anthracite combine apparently produces little more than half the total supply of anthracite coal, while anthracite is itself subject to keen and rapidly growing competition of coal and coal products. There does not appear to be any indication that the combine will be able to exercise effective control over the price of anthracite coal, even in the home market. The probability that a combine possessing a monopoly of the production of any other class of coal is even more remote.

During the last few months associations have been formed in Yorkshire and in South Wales for the purpose of regulating the sale and price of coal. These, however, differ from the anthracite combine in that they are not legal entities which own and control the mines; they are merely selling syndicates, based largely upon the German model, but with less power than that possessed by the Westphalian Coal Syndicate of pre-war days. Although the syndicate and combine movements form the subject of a special series of articles in the EDUCATOR[1], further reference to coal syndicates will be made in the next article. But the industry remains highly competitive.

(III)

FLUCTUATIONS IN PRICE AND DEMAND

Reference has already been made to the tenacity of firms in the face of unfavourable market conditions. Before the war, coal was steadily produced almost irrespective of immediate market prospects; a fall in price during a period of over-production brought relief at a later stage through an automatic reduction in wages regulated by sliding scale. On the other side, the demand for coal was moderately inelastic, that is to say, was largely independent of price variations. It rose or fell according to the state of trade in the consuming industries and according to weather conditions, but in any given circumstances a marked rise or fall in the price did not materially check or stimulate demand. For this twofold reason the price of coal at the pithead fluctuated between wide limits within short periods. On an overstocked market a material reduction in price was necessary to induce merchants to buy large quantities for stock; when supplies were short merchants, subject to the pressure of a persistent demand from consumers, forced up the price in their endeavour to secure sufficient for their purpose. Anyone who studies a chart of coal prices over a series of years before the war will see that the short period fluctuations in price were quite disproportionate to the actual fluctuations in supply, or even the actual fluctuations in consumers' demands.

Apart from these marked fluctuations in price, the coal industry was also subject to moderate cyclical fluctuations in trade. In 1913 over 12 per cent of the total output of coal was used in iron and steel production and about 22 per cent in other industries. This demand was obviously extremely susceptible to cyclical changes in trade. On the other hand, over 20 per cent was used in gas works and for domestic purposes, and a considerable percentage in other markets which showed little or no variation. For this reason it may be suggested that cyclical (as distinguished from seasonal) changes in the industry, though fairly marked, were not so pronounced as in those industries which have already been discussed in these pages, namely, iron and steel manufacture, engineering and shipbuilding.

PERIOD OF GROWTH

For a century before the war the industry of this country grew with great rapidity. In 1850 it was already one of the largest industries with a

[1] The series will run from the sixteenth to the thirtieth issue.

production of 56 million tons produced by 200,000 miners. By 1913 the output had increased to 287·4 million tons. Between those years it developed a very large exporting trade; in 1850 the exports amounted to 3·8 million tons, and in 1913 (including 21 million tons of bunker coal) to 94·4 million tons, representing in value (in the latter year) approximately one-ninth of the value of the total visible exports. The chief foreign markets were the Baltic region (15·9), the North Sea region (25·9), the Mediterranean region (22·8) and South America (6·9). At the time when the World War started the industry was generally assumed to be in a healthy condition, and most people anticipated that it would continue to grow at a satisfactory rate.

The importance of the export and bunker trade in coal was universally recognized. Great Britain imports vast quantities of foodstuffs and raw materials, that is, bulky cargo mainly conveyed in tramp steamers, and exports highly manufactured goods, that is, cargo containing great value in small bulk. Coal adjusted the balance between these two types of cargoes. It was sent out in ships which were able to bring back bulky cargoes at much lower freight rates than would be possible if the outward voyage were made in ballast. In 1924 coal constituted 82 per cent, in weight, of our total exports, and therefore formed the bulk of outward cargoes. Ships which carry coal to South America return with grain and thus earn revenue in both directions; vessels carrying coal to Mediterranean ports proceed to the Black Sea or Egypt for wheat. The loss of the export trade in coal would materially affect the price of foodstuffs and material, but it was generally assumed that no such danger existed.

POST-WAR DEPRESSION

During the early years of the post-war depression it was generally believed that, when world conditions once more became normal and trade in general recovered, the mining industry would resume its growth and become an increasingly important factor in the prosperity of this country. There are probably a few people left who still hold that view. But apart from a short-lived and accidental boom, to which reference has already been made, the depression still continues. And the Samuel Coal Commission showed in their Report (1926) that the economic position of the British coal industry had undergone a fundamental change. It is true that the present situation is not peculiar to this country. The coal depression is world-wide, and some of the most important factors which are operative in the British industry are also operative in the coal industry of America, Germany, and practically all other countries. But there are other adverse factors which are probably more pronounced in Great Britain than elsewhere.

Even before the war there was evidence of coming change, but it was hidden from view by the rapidity with which the demand for coal was increasing. The output for 1913 was greater than the average for 1899-1903 by 26 per cent in tonnage and 47 per cent in value. It is well known that during the same period the general price level rose as the result of the rapid increase in the world supplies of gold, but the demand for coal was growing so rapidly in relation to output that the price of that commodity rose more rapidly than the general price level, that is to say, there was not only an absolute rise in price but also a rise relatively to the prices of other things. For this reason both wages and profits showed an increase which appeared to be highly satisfactory; apart from occasional labour disputes of a serious character it was generally thought that all was well with the coal trade.

DECREASING EFFICIENCY

But the increase of 26 per cent in output was only obtained by means of an increase of 45 per cent in the total number of workers; the output per head was steadily decreasing and the real cost of mining rising. For the period 1879-1883 the annual output per head amounted to 319 tons; for the period 1909-1913 it had fallen to 257 tons. It is true that in 1908 legislation was passed reducing the maximum hours of work to eight per day, and that in many places this reduction produced a marked effect upon output. But this does not account for more than a very small part of the fall in the annual output to which reference has already been made, for it is shown by official statistics that throughout the specified period there was a definite downward trend.

The average annual output has been even lower since the war, but the conditions have been so abnormal that it would be misleading to quote available statistics. The Samuel Coal Commission, however, made one statement which is highly significant. In 1905, for every hundred men employed underground, fifty-eight were occupied at the face and forty-two in other ways. In 1925 fifty-eight men working at the face required the assistance of fifty-seven others; in other words, every ton of coal which was cut required a greater number of men to convey it to the surface. The real costs of coal mining were increasing, that is, the efficiency of the industry was diminishing. The Commission sum up the situation in the following words: "Seven men are endeavouring to live in mining, off the same total output as six did before the war, and are claiming to live as well. They can do so only if the price of coal has risen at least one-sixth more than that of other articles, and it has not done so."

The Commission further point out that, during the pre-war period considered above, American output of bituminous coal increased from 505 tons to 698 tons per head per annum, while the French,

German and Belgian outputs remained substantially unchanged. " In the last years before the war, Great Britain is at the German level; in 1925 Great Britain is below the German level, having started 25 per cent above it fifty years ago." British mining, even before the war, was losing ground relatively to other European countries as well as to America.

FALL IN DEMAND

It will thus be seen that the conditions of production in the British industry have been slowly changing, and it will be necessary to give further consideration to the factors determining efficiency. But the depression is not fully explained by this change. If the demand had continued to increase at the pre-war rate, the difficulty would not have appeared in the same form. But the demand for coal, so far from increasing, has fallen to a considerable extent. This fall is partly due to the fall in demand from those domestic industries, particularly the iron and steel industries, which are suffering from depression, but it is not due wholly to this factor.

There has also been a serious fall in the export trade. This, again, is partly explained by the growth of competition from the depressed industries on the Continent. But both in the domestic and in the foreign markets the demand has been seriously affected by the growth of substitutes, namely, oil and electricity. The factors governing the changes that have taken place in the demand for coal will be examined in the next article.

(IV)

FACTORS IN EFFICIENCY

Before proceeding to consider in detail the demand side of the coal problem it is desirable to give further consideration to the conditions of efficiency. It is necessary in this connection to draw a clear distinction between the size of a mining enterprise, the age of a mine, and the technique which is employed in mining operations. It is hardly necessary to point out that in practice these three factors are very intimately related. Generally speaking the oldest mines are much smaller than those which have been opened in recent years; moreover, the appliances which were employed in the middle of the nineteenth century, and are still in use in many of the old mines, would not be introduced into mines which are now being opened. In spite, however, of the practical difficulty of isolating any one of the three specified factors, they are clearly distinguishable in theory. It is important in discussing modern problems and tendencies that such a distinction should be drawn.

Again, it is obvious that the scale of operations is partly determined by factors beyond the control of the colliery owner. If, for example, the seam lies at great depth beneath the surface a large initial expenditure of capital is unavoidable; but if the seam is fairly near the surface the sinking of the shaft is a much less costly undertaking. In some places the seam is so near the surface that it can be exploited with very little expenditure of capital. During the national stoppage of 1926 many miners were able to work what are known as out-crops with the aid of simple tools, and to sell the product at scarcity prices which, for the time being, made the undertaking profitable. But such cases are rare, and as the shallower seams have now been fully exploited the most recent developments are to be found in the deeper seams, and involve far greater initial expenditure. In estimating the relative efficiencies of different undertakings attention should, therefore, be paid not only to the three factors already indicated but also to the position and character of the seam.

As far as natural conditions are concerned like should be compared with like. But it is impossible in practice to find two cases where natural conditions are identical; they may vary between wide limits even in the same vein of coal. In any case the available statistical material, plentiful though it appears to be for the coal industry, is not sufficiently extensive and accurate for such a comparison to be made. We should, therefore, not assume that the relation between efficiency and the method of organization can be so firmly established in the mining industry as in the great majority of manufacturing industries, where the differences in natural conditions are much less significant.

(To be concluded)

LABOUR ORGANIZATION

(*Continued from page 412*)

X

WAGES BILL AND LABOUR COST

THE long struggle over the length of the working day is due to the fact that many employers continue simply to relate hours worked with wages paid, their contention being that hours are directly proportionate to output. They assume that fewer hours entail a smaller output for a given wage, and, therefore, a higher cost of production of the commodity concerned. A reduction in hours carried beyond a certain point would naturally result in a decreased output, but in most industries this point has not yet been reached. The Industrial Fatigue Research Board has proved that shorter hours are compatible with not only the same, but even an increased, output. Its findings in general were only to be expected, since all work sooner or later involves a certain degree of fatigue. In other words, the economic law of diminishing returns operates after a certain quantity of work has been done. The result is seen in a smaller output for a given amount of effort as the days or hours pass. Even in those cases where the workers are merely machine-minders, the mental fatigue due to monotony often leads to mechanical breakdowns and accidents. There is often, too, a psychological aspect to be considered. Men who have had their working day increased will sometimes deliberately slacken their efforts in order to produce even less than they did under the shorter week or day. If men have a long day before them there is a tendency for them to consider that "there is plenty of time" for this or that particular job, and procrastination indeed becomes "the thief of time."

It is true the above considerations apply more in the case of time rates than of piece rates, but, even where work is paid for by the latter method, a man's output is not as great in the last hour of the day, or in the last day of the week if hours are so long that a large degree of fatigue sets in. The problem to be considered is, therefore, what number of hours will give a maximum output over a long period. In this connection the Industrial Fatigue Research Board is doing valuable work. If, for example, it be scientifically established that a seven hours' day in the engineering industry gives the maximum output, it will not only bear out the workers' claim, but it will clearly establish the fact that any attempt by an employer to impose longer hours will cause him to suffer through a decreased output from his factory, with the result that his share of the market will be less than before.

WORKING CONDITIONS

While the standard rate of wages and the normal day go far towards ensuring a certain standard of life, there is yet one other factor to be considered, namely, the conditions under which men work. Legislation has done, and is still doing, much to improve workshop conditions, but in many cases the legislature has only moved after long and persistent pressure had been brought to bear by the trade unions concerned. Men, when they are not forced through unemployment to accept work under any conditions, will usually consider all the advantages of a particular occupation, for their true standard of living depends upon the type and conditions of work they have to do as well as upon the money wage. Marshall points out in his *Principles of Economics* that "it matters nothing to the seller of bricks whether they are to be used in building a palace or a sewer, but it matters a great deal to the seller of labour, who undertakes to perform a task of given difficulty, whether or not the place in which it is to be done is a wholesome and a pleasant one, and whether or not his associates will be such as he cares to have." Trade unions have recognized that large numbers of men are often forced to accept work under unhealthy or risky conditions, and one of their chief functions is to see that workshops are reasonably clean and ventilated, that machinery is adequately guarded, and that due precautions are taken in risky occupations. In other words, the welfare of the worker now occupies a good deal of the attention of trade union officials. Unions themselves often define the conditions under which their members may or may not work, and also bring to the notice of factory inspectors or local health authorities any infringement of the law. The Workmen's Compensation Act, the Factory Acts, and the Merchant Shipping Acts cover a wide field of employment, but there are in addition many other Acts dealing with specific problems of industrial welfare.

THE QUESTION OF OVERTIME

Since a normal day now exists in most industries, any time worked beyond that period is called overtime. Whether the normal day is the result of agreement between employers and trade unions, or the result of an Act of Parliament, all excess hours are required to be paid for at a higher rate. The underlying assumption is that employers will only pay this higher rate when overtime is really necessary, the extra cost being a deterrent from making overtime a normal method of production. Webb, in his *Industrial Democracy*, points out that systematic overtime "insidiously affects the rate

of wages," and in time reduces the workers' standard of life, which, as we have just seen, depends upon the inter-relationship of hours and wages. It is true that there are many workers who welcome a certain amount of overtime, since it means more money to take home at the end of the week. Their attitude is often that "they might as well be working late and making a bit extra as idling their time away at home." In times of trade depression, such as the present, this is especially the case. Trade unions, however, see farther than the individual member. They realize that if they are to maintain their standard conditions, overtime work must be reduced to a minimum. Further, they realize that, while in times of trade depression there is a great temptation to their members to work overtime, it is just then that such extra work should be spread over men who have been either partially or totally unemployed. By this means the unions are relieved of serious inroads into their funds for the purpose of paying unemployment benefit.

Although trade unions insist that extra payment shall be made for overtime, they have found that this in itself is not sufficient, in many instances, to stop systematic overtime, with the result that disputes have arisen over the amount of overtime worked in a particular industry. The best illustration of such a dispute is that which occurred in the engineering industry in 1922. A Court of Inquiry was held under the Industrial Courts Act of 1919 for the purpose of interpreting Clause (*j*) in an agreement made between employers and men in 1920. Briefly, the clause in question stated that "systematic overtime is deprecated," that men should only work overtime "when necessary," and then for not more than thirty hours in any four weeks, unless in cases of emergency (which were defined). The dispute arose over the interpretation of the phrase "when necessary." The unions claimed they were to be consulted by the employers before overtime was worked, and that they, jointly with the employers, were to say whether that overtime was necessary. The employers accepted this as a challenge to their right to exercise "managerial functions," and maintained that they only were to say when overtime should be worked. The Court decided that for the efficient conduct of the industry the management alone were in a position to say when overtime was necessary, and that up to thirty hours in any four weeks it was to be regarded as reasonable. Efforts were to be made, however, to consult the workers if overtime was considered necessary beyond that limit. This is a good example of how easily questions of maintenance of normal working conditions may develop into much wider problems of control of industry.

In a number of other industries, such as the shipbuilding, textile, and printing industries, collective agreements between employers and workers define the amount of overtime to be regarded as reasonable. In certain other industries trade boards have, in recent years, extended their functions to include the fixing of higher rates of wages for overtime.

UNEMPLOYMENT

The limitation of normal hours and of overtime is necessary if the health of the worker is not to suffer. Such regulations help, as we have seen, to safeguard the worker's standard of life. Trade unions, however, also realize that long hours or systematic overtime entail a smaller number of men for a given output, and result in a greater amount of unemployment. Trade union officials fear unemployment on two grounds; first, because serious inroads are made upon the unions' funds for the payment of unemployment benefit to their members, and, secondly, because unemployment weakens loyalty, and tempts members to accept offers of work at wages below the standard rate. During post-war years widespread unemployment has not only seriously reduced trade union membership (from the peak of 8,337,000 in 1920 to 5,208,000 in 1926) but it has thrown a heavy financial burden upon the unions. In order to mitigate this burden as much as possible, trade unions have been compelled to ration employment in certain industries, and have evolved, in agreement with employers, schemes of systematic short time work, as is the case, for example, in the cotton industry. Such schemes not only reduce the amounts disbursed by the unions for the relief of their unemployed members, but they also enable the workers to qualify for benefit under the National Insurance Acts for a longer period than would otherwise be the case. Moreover, the mere fact that they are doing some work prevents demoralization through inaction, and helps to maintain the bargaining strength of the unions concerned.

In early days trade unions were, as a rule, capable of dealing satisfactorily with their own unemployed members, but the rapid changes in industry since the beginning of this century, together with the widespread dislocation as a result of the war of 1914-18, have made the problem too large and complex for trade unions. The Insurance Act of 1911 is only one indication that unemployment is a question for the State, and cannot, in equity, be left to groups of workers to solve, however well organized they may be.

In conclusion, mention must also be made of a form of unemployment arising in industries where a large amount of casual labour is the rule. Among such workers trade unionism is not strong. The schemes proposed from time to time for the decasualization of such work are instances of the realization that labour organization, to be satisfactory, depends to a large extent upon the solution of this problem.

METHODS OF REMUNERATION

(*Continued from page 414*)

X

VARIOUS FEATURES OF PIECE-WORK OR PAYMENT BY RESULTS

(*continued*)

In some trades (including trades in which home-workers or outworkers are employed) the question of the provision of materials (or services) is important. The materials provided by the worker may be of comparatively little value, or they may be so important that a difference in the value placed upon them may make a large difference in earnings. The following extract from an Order C.25, applying general minimum piece-rates in the chain trade, may be noted. The order should be consulted by any reader desiring full information. For our purpose it is only necessary to point out that the rates referred to as applicable to mastermen are higher than those for journeymen. The extract is as follows—

> For the purposes of this Schedule—
>
> The journeyman rates are applicable where the employer provides the workshop, tools, and fuel, whether or not the employer also provides the iron, and are on the basis that the hearth lilling is done by or at the expense of the worker. If done by or at the expense of the employer the minimum rates may be reduced by an amount not exceeding 2½ per cent of the rate otherwise applicable.
>
> The mastermen rates are applicable where the worker provides the workshop in which the work is carried on and the tools and the fuel, or any of these three heads of outlay, whether or not the employer provides the iron, and are on the basis that any carriage to or from the premises of the employer is performed by the worker. If performed by the employer the minimum rates may be reduced by an amount not exceeding 2d. per cwt. for carriage either way.

Another matter in which price lists will be found to vary is the definition of the combination of workers to which the list is applicable. What is regarded as individual piece-work is sometimes not work in which only one worker is concerned. If the individual piece-worker depends for assistance upon one or more other workers, whom he pays out of his earnings, then the definition of the combination may be important.

The liability for "scrap," i.e. faulty, broken, or defective production, is another important consideration. Piece price lists vary in regard to whether or not the worker is held responsible for products which prove to be defective, or in the extent to which the worker is held responsible, or, again, in the degree of definition of faulty production. In the steel industry the tonnage rates are often calculated for "good steel." In several sections of the pottery trade until recently the payment was on a count of articles "good from oven," but now the prices are usually "good from hand." Questions of a similar character are dealt with in the price lists or, in the piece-work agreements (where there may be no lists), for many other trades -by rule as to how the calculation should be made or as to the methods of conciliation to be adopted in arriving at a settlement. Reference has been made already to the "bad work" provisions of the cotton trade lists.

Among other features may be noted the following: (*a*) the rule that a definite period of notice, e.g. two weeks, of change from piece-work to time-work (or from time-work to piece-work) must be given, (*b*) the rule that "debit balances" be not carried forward from, say, week to week. A rule of the former kind has been operative in the London compositors' trade for many years; the rule (see Webb's *Industrial Democracy*) is stated to have been introduced in the compositors' trade to ensure that a piece-worker should get "fat" as well as "lean" jobs. Debit balances arise in some trades when the piece-worker's (or premium bonus worker's) earnings in a particular week fall below his (guaranteed) time rate; if the time rate is, say, £2 7s., and earnings on piece or premium bonus only £2, then a debit balance of 7s. might be carried into the following week in which, if his piece earnings were £2 14s., he would receive only £2 7s. (The balance might not be struck until the end of a month or other period, but we are concerned with the principle only.) The emphasis sometimes laid upon the principle that balances be not carried on from week to week may be related with the importance placed upon the guarantee of the time rate.

The various conditions of work in which the piece prices are applicable may be defined in the price lists (price lists commonly contain much more than the actual prices), or may be generally understood in the trade. The conditions may be defined for the protection of the employer as well as to safeguard the worker. Piece lists have not always operated so as to make adequate allowance for differences in facilities for production. This has sometimes resulted in enterprising employers complaining that they are handicapped by the application of "uniform" lists which are applied without differentiation to various types of plant; and in proposals that in these circumstances the piece prices should be regulated not by a uniform list but by reference to a (piece-work basis) time rate. A list again may be applicable to workers each of whom when fully employed operates a number of machines. This type of case may be used to indicate the problems which arise when there is not sufficient work to keep all the workers fully employed. The conditions actually enforced vary from trade to trade. It will be seen that here there is room for a conflict of principles. Sometimes there

will be found regulations that the work be spread out. In other cases there are regulations designed to preserve the full piece-work earnings of the workers for whom there is employment. In so far as the latter form of regulations is applicable, there is emphasis upon a rate not merely as a rate for work (a piece rate) but as an hourly rate. To this conception of fully-rated employment there is sometimes added that of full employment, i.e. when the arrangements relating to piece-workers provide for a minimum period of, say, one or two weeks. It has already been noted that method of payment is combined with a variety of rules or customs which have to be taken into account in considering conditions of employment as a whole. The rule, operative in some trades, that a man turning out to work—not informed, say, on the preceding evening that work will not be available—shall be paid for half a day or some other period may be noted.

As might be expected, the variety of feature found in the wage systems of particular industries has an historical significance. Some reference has been made to the development of methods in a number of industries. To account for many of the numerous minor features of wage payment in some industries regard must be had to the changes in technique over fairly long periods. This is well illustrated in, among others, the pottery trade and the Sheffield cutlery trades. In the former, until some years ago, the system of remuneration (piece-work—individual or collective—for the most part) was such that very often various "deductions" or "allowances" had to be taken into account in arriving at the actual wage rates. In many instances these "deductions" were made in respect of changes in method of work or in method of employment. The trade was at one time a family trade. Later employers on a larger scale began to hire the small producers, providing room to work in and material to work upon. The one-time small producer continued to engage his own assistants or attendants. He would also provide various necessaries, e.g. light. When alongside other changes in organization the factory employer came to provide for gas lighting—to replace the candles supplied by the master worker—an "allowance" was made by the worker from his piece prices, say 6d. per score dozen articles. Similar revisions of piece prices to meet other changes were made for a variety of circumstances—for the supply of work in a prepared instead of a rough state, for clay being pugged, for services such as sweeping, etc. Such "deductions," which are legally regulated by the Truck Act of 1896, appear at one time in some instances to have varied with circumstances which had no definite relationship to the real costs, e.g. where deductions for gas were higher for men than for girls, though the same amount was used.

In the Sheffield cutlery trades also a variety of industrial organization has been reflected in the differences on piece price lists, and in the payments made by certain classes of operatives for the use of working room, tools, etc. The trade was originally carried on in the workers' homes, or in separate workrooms and not under factory conditions. Though factory production has increased greatly, the earlier forms of organization are still found. Thus workers rent workplaces in factories and may work solely for the factory owner, or partly for the factory owner and partly for outside employers, or only for outside employers, and the piece lists are subject to various allowances to meet the different circumstances.

INTER-RELATIONS

It has already been mentioned that the distinction between a time-worker and a piece-worker is not always easily drawn. Of the problems which are connected with this difficulty one is that of the time-worker assisting a worker paid by the piece. The time-worker may claim—with, probably, a varying amount of foundation according to trade and circumstances—that the piece-work speed of the piece-worker tends to speed up his work. This speeding up is recognized in some instances, and various devices are employed to compensate the time-worker by means of some addition to his time-work rate. The compensation may take the form of an addition to the time rate—that is the payment of a higher time rate than is usual for the class of worker—or the addition of a percentage based on the piece-worker's earnings. Again, though the assistant is paid his time wages by the firm, it may be the custom for the piece-worker to add something each week from his piece-work earnings. Various more or less unregulated payments of this kind are still found in a number of trades.

The assistant may be paid by the piece-worker. There has been a general tendency in industry towards the elimination of the sub-contracting system; among other things it may be noted that it has become increasingly common for all wages to be paid "through the office" (i.e. by the firm employing both the piece-worker and his assistants). Where the piece-worker still pays his assistants, the extension of collective regulation has tended to a uniformity in minimum conditions. The assistant may be paid by time rate or by piece rate. When the piece-rate method is fixed the arrangement becomes one of collective piece-work. The two methods have been found side by side in the same group of workers—e.g. in the iron and steel industry a "lump" piece price has been divided, in defined proportions, among most of the members of a team, while the principal worker in the team is responsible for paying time wages to certain assistants.

UNEMPLOYMENT

(*Continued from page 416*)

X

TRADE UNIONS AND UNEMPLOYMENT

TRADE UNIONS AND INDUSTRY

THE great part played by trade unions in industry allows them to exert an important influence on unemployment. Trade disputes have already been dealt with, but the unions' work touches the industrial system for good or evil at many other points. Much harm is said to be caused by their restrictions and by the actions of trade unionists in stirring up unrest. Such things have a distinct measure of truth; and even restrictions good in themselves, or necessary as a protection against bad employers, may sometimes hamper industry.

On the other hand, the unions have done much to maintain and increase the well-being of the workpeople, which has favoured production and employment. For experience shows that better conditions increase efficiency and promote the progress of industry. Nor are restrictions on employers' conduct of their business necessarily harmful. They have sometimes substituted orderly relations for disorderly, they often favour good and efficient employers at the expense of bad, and sometimes prove a spur to invention. These varying effects, therefore, need to be considered and certain actions by employers and their societies must also be taken into account.

The relations of production to employment may now be more fully considered. First, continuous progress is needed to ensure full employment for a growing population. Otherwise, a surplus of labour is created, or irregularity of employment is greatly increased. Secondly, fluctuations in production are largely inevitable, but can be increased or decreased by the mode of conducting industry. Rushing of work or attempts to carry out contracts in an unduly short time will increase variations and create avoidable unemployment. On the one hand, therefore, free play is required for full development, and the removal of unnecessary hindrances is needed to encourage genuine and permanent increase in production. On the other, development must be steady and regular, and avoid, as far as possible, alternating periods of overwork and stagnation, so that some are not overworked and others under-employed. On the former point the unions, and on the latter the employers, seem chiefly, but not solely, to blame.

UNION POLICY AND UNEMPLOYMENT

Trade union policy aims at securing the best general conditions for the members. Thus questions of employment and unemployment may have to be subordinated to wider considerations. A course, for instance, which increases employment may involve reduced and possibly much reduced wages, and so lower the standard of living. In fact, when trade is bad, a small surplus of labour may serve to cut wage rates very seriously, and trade unions have often preferred to maintain some of their members by unemployment benefits, in order to prevent their competition from breaking wage rates. This policy within reasonable limits is frequently in their members' best interests.

The influence of trade unions on unemployment largely depends on their general policy and the principles, good or bad, on which it is based. Certain economic limits are fixed to their action. Wages are restricted by what an industry can pay, that is by the total output, subject to allowing adequate returns to capital and enterprise. To force wages above this limit results normally in a vicious circle of rising prices and wages. Demand falls off, especially in the export trades. At home enterprise is hampered and unemployment is increased. Reduction of hours without reference to output has similar effects. Again, beyond the economic limit, higher wages and better conditions can only come from improved efficiency and increased output. Such advances, indeed, improve employment directly by making production more efficient and indirectly by increasing real wages and purchasing power. Except, therefore, so far as rising wages accelerate improvements in conditions, a limit is set by capacity to pay; and the observance of this limitation proves the real test of trade union policy.

RESTRICTION OF OUTPUT

Restriction of output, whether by employers or employed, is a less simple question than is sometimes supposed. Much depends on its form and duration. Organized short time, which attempts to spread employment during trade depressions, is the regular practice in the textile and mining industries, and is often a valuable method of minimizing the evils of bad trade. This, likewise, holds good of certain regulations of output by employers, since both methods attempt to stabilize production. This may also be true of restrictions lasting for longer periods. Cut-throat competition may not in the long run favour either permanent increase or steady development of production, but tends rather to limit the increase and accentuate the fluctuations. Within these limits, such restrictions may be justified. In particular, the interdependence of trades and processes may necessitate regulation. Unemployment has sometimes been caused by the fact that increased

output in one trade or process has not been accompanied by corresponding increases in others, and this has confirmed in the workmen's minds erroneous ideas as to employment.

The adoption, as a principle, of deliberate restriction of output is different. This is sometimes done as protection against cutting of piece rates, where, though perhaps necessary, it is still a serious burden on production. Again, mistaken economic theories, like the "lump of labour" and ca' canny, make popular the idea that the less work is done, the more there will be for others, and output is restricted to make employment go farther. In recent years restriction has sometimes had the deliberate political aim of making the present system impossible. Whatever the cause, production is limited, price maintained and increased, and demand discouraged both at home and abroad. The fact that increased output means lower prices and increased demand is forgotten. This equally applies where employers deliberately restrict output or, by price fixing arrangements, keep prices above the regular competitive level. In either case development is retarded and unemployment results.

OTHER UNION REGULATIONS

Equally important is the attitude towards the general working of industry, which requires ease and elasticity to adapt conditions to ever varying needs and take opportunities as they occur. This involves readiness to utilize genuine improvements and developments, to co-operate for the smooth working of business, and to permit reasonable give and take in details. The unions' attitude towards improvements, though determined by genuine desire to protect their members' interests, sometimes injures employment by unnecessarily restricting development. Employers, too, do not always do all they might to minimize displacements, and so increase opposition to machinery; whilst in the past, as in the cotton trade, backward employers have sometimes resented the unions' insistence on the adoption of such improvements. In other directions, undue restrictions have an equally unfavourable effect, as in hindering suitable systems of payment by results or limiting too narrowly the numbers of apprentices. Too rigid insistence, again, on beneficial regulations, as with hours of labour, is also bad. This is illustrated by overtime. This, where used unnecessarily during bad trade, causes unemployment and accentuates the evils of trade fluctuations. In this respect employers are sometimes to blame and the unions are right in imposing restrictions. But, properly used, overtime can help to reduce irregular employment. In some trades additional workers are required at specially busy periods and at these periods only, and the presence of such casual labour makes employment more irregular both for themselves and others. A judicious use of overtime can at least mitigate this difficulty, and thus a too rigid limitation of it in busy years may be mischievous. The matter is one for mutual arrangement.

GOOD EFFECTS OF TRADE UNIONISM

Whilst, however, trade union restrictions sometimes increase unemployment, there is another side to the picture. Certain matters have already been indicated in which their action has proved beneficial. There is much else that they do, though in some respects they might do more, to promote good employment, to secure regularity, and to provide against the results of unemployment. Their work generally has achieved improved standards of living, and assisted production by increasing efficiency. Sometimes, indeed, though not always, the benefit of this has been reduced by restriction of output. Again, their friendly benefits have not only mitigated distress and poverty, but helped to maintain and improve efficiency. The unions, moreover, have established steady and regular conditions of bargaining between employers and employed, which have favoured regularity and development. They have also increased mobility of labour by their organization for finding employment and transferring men from places where they are unemployed to others in which men are wanted. This appreciably reduces unemployment, and decreases the danger of missed opportunities through lack of skilled men. Finally, they can, if they will, do much to establish standards of competence, and insist on efficiency of labour, but in this respect many unions fail to take their opportunities.

CONCLUSION

In short, the unions' work, and that of employers' organizations also, have had both good and bad influence. The ideal should be high production and good conditions of labour, which in the long run are most favourable to good and steady employment. The union policy most likely to be beneficial, therefore, is to promote maximum production and use their bargaining power to secure the best wages and conditions and to insist on the greatest possible regularity. Such a policy combines protection of the workmen's interests with promotion of desirable improvements and the smooth working of industry. This in turn involves the employers' co-operation, and the promotion of maximum employment requires that both sides shall meet each other half way and work together to remove the difficulties.

BOY LABOUR AND APPRENTICESHIP

(*Continued from page 418*)

X

THE WAR AND BOY LABOUR

(*a*) THE PROBLEM

WAR INFLUENCES

THE Great War raised many problems of boy labour and apprenticeship. It interrupted the training and preparation of those who had started work when the war broke out, or became liable to military service before its close. It hindered or prevented the training of others who commenced work during the war, altered the character of their employment, and exposed them to various influences which do not operate equally strongly in peace. Moreover, certain new training problems were created, like the re-training of disabled men, and the development of dilution. War conditions were a source of much harm, but they were not all loss. The machinery created to deal with them led to developments of permanent value, which might not otherwise have taken place so quickly, and post-war experiments taught valuable lessons.

As regards those who served in the Forces, attention must be given both to the effects of service on their training and to its influence on their general physique and character. The particular difficulties varied with the work for which they were preparing. Those who had been undergoing definite training before they enlisted had to make good the time and experience lost. This was the problem of interrupted apprenticeships. The boy labourers, on the other hand, were taken into the Army before they could fit themselves into definite men's jobs.

INTERRUPTED APPRENTICESHIPS

The great difficulty with the apprentices was that they returned from the army with the needs of men and the skill of half-trained youths. Whilst they had gained in physique, and often in discipline and keenness, their value as workers was otherwise no more than when they enlisted, and, in fact, they had sometimes forgotten something of what they had learnt. Consequently, the returned apprentice, a man and sometimes a married man, could not work for boy's wages, whilst the employer could not afford a man's wage for apprentice's work. Means had, therefore, to be found to bridge the gap. Otherwise the apprentice's military service might cost him his trade and he would drop into the ranks of semi-skilled or unskilled labour. This would involve sacrifices greater than those of most ex-service men. The latter sacrificed earnings during the war. The apprentice's sacrifice would continue for his whole subsequent career.

Nor could industry afford the loss of so many prospective skilled workers. Probably, with all deductions, from 150,000 to 180,000 apprentices and learners served in the Forces during the war, which meant that, after allowance for casualties and other influences, not less than 100,000 required assistance to complete their training. The loss of so many, serious in any case, would have been much more so after the war, for casualties and disablements had much reduced the supply of skilled men, and training in the workshops had been largely, in some industries almost entirely, discontinued.

OTHER INTERRUPTIONS OF TRAINING

Where the system of progression, that is of gradual progress from stage to stage, prevailed, the difficulty took a somewhat different form. The process was delayed, leaving the returned soldier some years behind his normal position. In trades like iron and steel, indeed, which are largely recruited from adults, the difficulty was in some ways less, since the soldier would at least return to a man's livelihood, but this would not apply in all such cases. Moreover, the introduction of fresh labour during the war, especially on work of national importance, created special difficulties, not only in these trades, but in jobs which the better types of boy labour would normally fill

These difficulties are due to what may be called indirect substitution. Boy labourers usually change to adult jobs some time after 18, when the most successful get permanent work. During the war, however, many enlisted before their future was decided, and, where they had worked first on munitions, their ultimate future was still more uncertain. On returning from the Army they could claim no particular jobs. Those which they would ordinarily have done were otherwise provided for, but, not having previously done them, they could lay no claim to reinstatement. This problem was not very successfully tackled, and the surplus of unemployed ex-service men seems due partly to this and partly to the type of blind alley workers, who would in any case have formed the casual fringe of industry.

GENERAL EFFECTS OF WAR SERVICE

War service, moreover, affected for good or evil the general economic value of the workers, and the effect might well have been more serious for learners than boy labourers. They were likely to have forgotten what they had previously learnt, and to have lost manual dexterity, particularly in finer trades, owing to the rough work of service. In these respects, the boy labourer had far less to lose. In other ways military service often

favourably affected general character and physique. It provided discipline and control, and, where no disability nor ill-health was contracted, improved the men's general health. Often it broadened their outlook and intelligence, making the returning soldier in these ways a better worker than he was before, and counteracting the evils of blind alley employment. At the same time, service was apt to lead to general unsettlement, which made it difficult for some to stick steadily to regular work. One important firm reported that, whilst those returning from foreign service were more industrious and energetic, those from home service proved lazy.

The bad effects on the skilled worker, indeed, seem to have been less than was feared. Loss of manual dexterity and of time were largely balanced by greater keenness, broader outlook, and better grip of the needs of training. Thus, it was found possible to make good the time lost by a shorter period of further training. It is probable, too, that some of the former boy labourers were more valuable to employers than they would have been without their military service, but others proved a source of difficulty and were probably deteriorated by it.

THE WAR AND BOY WORKERS

The war period also seriously affected the growing generation, that is those who were between 10 and 14 in August, 1914, and did not become liable to military service. The trouble arose from two main causes—loss of normal opportunities of training and the bad influences of war conditions. Ordinary apprenticeship was largely postponed during the war, and it was practically discontinued, or reduced to a minimum, in non-essential industries. These included some, like printing and building, where the level of skill and training is high. In munitions trades specialization, mass production and dilution caused much substitution of boy labourers for apprentices, and even in engineering apprenticeships, though numerous, were much below the normal. Moreover, where apprenticeship started at 16, employers were deterred by the prospect of losing their apprentices after two years. Finally, the training of those who were apprenticed was apt to suffer, and they often received a specialized instead of an all-round training, though some few were " upgraded," and so obtained better work than they would otherwise have done.

Thus, most of these boys were thrown back on boy labour, under conditions which were abnormally unfavourable. Absence of parental control, with fathers in the Army, led many to run wild, and removed an influence that might have kept them steadily at work. There was some increase in minor juvenile offences. Moreover, the general conditions of munitions work had a bad effect. Lack of prospects was more than ordinarily marked, since much of the work could only last for the war. Shortage of labour caused great demands for boys and eventually excessive increases in their wages, which had most demoralizing results. Boys continually moved about to get more money, and acquired extravagant habits, which made it difficult for them subsequently to settle down to regular work and normal wages. In part the difficulties brought their own remedies. The marked development of boy welfare work in and after 1916 helped to mitigate the bad results. On the other hand, the boys had no previously acquired skill, like the interrupted apprentices, and, after the war, employers, in making good the shortage of apprentices, utilized a younger generation of boys.

NEW PROBLEMS

Among the new problems, disablements prevented many from following their previous occupations and involved serious reductions in the supply of skilled labour, but the attempt was made to train them for fresh work, and, as appears later, attained considerable success. Again, dilution has come to be thought of as a rival to apprenticeship. The method, which was adopted to meet the shortage of skilled labour supply in munitions, divided jobs, formerly skilled, among unskilled men or women under supervision of the skilled. In munitions specialization and mass production greatly favoured its adoption. In engineering, indeed, the return of normal conditions largely reinstated the old system, but dilution has since been widely advocated to meet the building shortage.

EXTENT OF WAR LOSSES

The direct losses of the war were thus considerable. The skilled labour supply was seriously affected by casualties, interruption of training, and stoppage of apprenticeships. This influenced particularly the present generation and the existing skilled workers, with the further danger of the supply being permanently reduced. The boy labour problem was also much aggravated, but these losses will very likely be confined to the war generation of boy workers, and the post-war generation may benefit from increased opportunities for apprenticeship. Direct gains are practically confined to some improvements in physique and discipline. But, ultimately, benefits will be secured from the measures taken to deal with these problems, which are the subject of the next article.

LEADERSHIP IN INDUSTRY

(*Continued from page 420*)

X

THE MACHINE

We can quite readily believe that there are men who, on looking over the industry for which they are responsible, are genuinely convinced that the fundamental cause of difficulty in leadership is to be found in machinery. If only, they might say, I had the chance of leading men forth to battle, each man with his bow or his spear, I might be able to attract enthusiasm. But the machine robs each man of the chance of his own separate effort. He must work as the machine bids him work. He is reduced to such a level of simple and monotonous work that he cannot think of his loyalties or of any relationship he may have to other human beings. The machine demands a variety of samenesses, blended together into one giant act of production. If this line of thought is justifiable, if there is to be no leadership because there is no scope for initiative, then machinery becomes the real curse of mankind. Now it is probable that the use of machinery has been as wrongly conceived as other methods in the history of industry. The philosophy of machinery is clear enough—by means of the machine we economize human labour and direct it to productive ends so that there may be more products available for the use of man. That this has been achieved is beyond question. Let angry critics assault the capitalistic system as they may, and certainly there are defects to be revealed, the ubiquity of the bicycle, for instance, is a strong evidence against them. Even if it were true that mankind had to pay the price of monotonous and heart-breaking work for an increase in the products which might widen the life he spends, it is not at all certain that it would not be for gain. It is the striking feature of modern machinery that it aids human labour for purposes of everyday life.

MONOTONY

It is by no means certain that the monotony is as irksome as some of us have thought. We may quote an American labour leader in his review of a book which laid emphasis upon this point: "The author assumes what most liberals" (the word is not used in an English political sense) "assume in respect to the deadening effect of the machine on the human spirit. Recently there has appeared a certain amount of intelligent opposition to that view. Not all of us are born craftsmen, and we may desire our creative or emotional outlets in fields other than our work—in play, in day dreams, in pottering in the garden, in tuning radios. For such people it may be that a reasonably short work day, spent in mechanical repetitive motions *according to a rhythm carefully adjusted to the individual*, may not be as unpleasant or as spiritually blasting as some would have us believe. . . . The industrial unrest which flows from uncongenial work is widespread enough and tragic enough, but it awaits more careful study before we can say that a given worker punching holes in a given strip of steel is *ipso facto* a miserable worker." Much the same argument can be found in a slightly different direction in the contention that a comparatively small proportion of the workers have any interest in advancement. The figure is put as low as 2 to 5 per cent by one of the American Bureaux of Investigation. I have dealt in my lifetime with workers on a high educational level, and my own direct experience would suggest that a far higher proportion desire advancement and are prepared to take responsibilities. It may be the case that with education more closely applied to industrial needs we may learn to give the worker better resources for intellectual consolation. We may train him, as Mr. G. Sampson said, against his calling. It may also be the case that we shall carry rhythms much farther. All I am concerned to prove at the moment is that the industrial leader must take the fact of monotony into his reckoning. There is much study yet to be given to the subject, and direct observation in a kindly way may help that study to come to practical and useful results.

INNER CULTURE

It seems to be true that at a certain stage of educated intelligence there is something to be gained by periodic changes, but even here it is not at all certain that the "educated intelligence" which proceeds from our present methods of education is as rich or self-dependent as it could be. We seem to depend on reading and to have little resource within our own memories or within our own imaginations. I daresay there are many of us who could tolerate getting our living in some way which did not strain our intelligence if it gave us opportunity to bring to memory some of the treasures we have garnered. Mr. Arnold Bennett emphasized a precious truth when he wrote about the need for reflection over what we read, and if we could cultivate the art of reflection we might make our education not only into a safeguard against monotonous work, but into a means whereby we might make monotonous work into a positive advantage. The industrial psychologists have told us of girls who have the precious gift of wandering in their imagination in a beautiful garden, and of living lives of high romance while monotonously employed. It may be that this gift is something which our ordinary

clerical type of education has despised. I have a friend who has been checked in his reading and he can repeat to himself the psalms of the day. I confess I envy him being able to say such a wonderful poem as "Whoso dwelleth under the defence of the most High." It seems to me that industrial leadership will one day be able to devote itself to this problem. Our ancestors worked much harder than we work, but they had time for the quiet rumination on beautiful thoughts which, to my mind, is true culture.

THE ARTISTIC WORK OF THE MACHINE

Nor is it just or true to allow it to be thought that the function of the machine is to do rougher and cheaper work. Mr. Clutton Brock protested fiercely against this tendency. The machine is capable of finer and more exact work than the human hand. What is to be deprecated is the tendency, with a machine, to accept less exact work, to expect throw-outs. This, in itself, comes from forgetting that man must be the master of the machine. If we faced our use of the machine with a steady intention to encourage and to cultivate a machine-handicraft we might go much farther than we have gone in the productivity of the machine and in its productivity at an ever improving standard. It is very curious that we have not yet got over the surprise of the machine doing it at all. Like Dr. Johnson's dog, we are surprised not that it should do its tricks skilfully, but that it should do them at all. We are satisfied with much too low a standard as a rule, and the emphasis is not so much upon what man can do with the machine as upon what the machine can do. Clearly it is at this point that leadership will face the question of the machine.

MACHINE AND MAN

To achieve this it will be necessary to make a simpler beginning. I would recommend every student of this subject to get pamphlet No. 36 of the Industrial Fatigue Research Board. It is a careful study by two experts of many instances in which machines have been altogether unsuitable for human operation, and where a change could readily be made. Levers have been placed at the wrong side, and at the wrong angle, and insufficient care has been taken as to the suitability of handles. In general terms the machine has been made to do its work, but the suitability of the "controls" to easy and ready use by the operator has not been fully considered. Here is a line of thought for industrial leadership. There are many reasons why we shall need to emphasize the kingdom of man over the machine side by side with the advance of machinery. It will be one of the chief problems of industrial leadership in the future. The machine is not an end in itself. It is part of the act of production, and it is important that portion of the education of each operative should consist in learning the place in the whole scheme of production which is taken by his machine. It is another instance of what we called integration. The small and apparently narrow monotony must be swept into a wider realization of its function as part of the whole. By this means we can ensure, if not the expansion of the human unit, at any rate some check on the process of narrowing. By this means we can rule and use the machine for the benefit of man.

THE FUTURE OF THE MACHINE

It is so easy to forget that as yet the age of machinery is only at its outset. We are groping along to substitute the machine for the heavy work which has fallen in the past to man's lot. We have succeeded to a very real extent, but our success is only an earnest of how great a success we shall have. It will need a balancing of what I choose to call "machine-thought," with the emphasis on the sense of freedom. We must not be content with what Mr. Clutton Brock called "the notion of a compulsory universe, in which everything compels everything else to do what it does not want to do." On the contrary, the machine must make for greater human freedom and for greater human appreciation of beauty and of goodness. It is in the realm where the machine will never function that we shall learn to appreciate its proper functions. Nor is it the case that the present development gives no occasion for questioning. Even in the United States where, up to the moment, it might be said that the triumph of the machine was indisputable, we see many signs of wonder whether mechanical and scientific progress have not outstepped man's moral powers. In other words, the question is being raised, and in particular by Professor Irving Babbitt, whether in this leveldom of mechanism which is being brought about there is not a greater need than ever for true leadership, since it may be the case that man may come to regard himself as "cut off from immediate contact with anything abiding and therefore worthy to be called real." So that man's very use of the machine for his own benefit will bring with it a determination not to be the slave of the machine which serves him.

PUBLIC FINANCE

(*Continued from page 422*)

X

MUCH of the controversy in the classification adopted in public finance leads back to Adam Smith's *Wealth of Nations* in its analysis of the cost of production, and the manner in which all income can be separated and referred to one or more of the three categories of rent, which are the return obtainable on natural agents, wages or reward of labour, and profit in the sense of gain on capital. In public industrial revenues a distinction is drawn between (*a*) the receipts of administration, whether central or local, from the rent of land or similar natural agents, (*b*) the gains of the State as proprietor of capital or lender of funds, and (*c*) the return on the industrial activities of the public authority. In many respects a grouping of this kind appears to be clear and logical. But it requires modification if it is to be brought into line with the realities of actual finance. As regards public economic revenue, Professor Bastable pointed to the return from land, including forests, industrial revenue, payments which either represented or could be converted into a capital charge, and those forms of property which did not yield a revenue but rather utility in a form which did not lend itself to such distinct measurement.

CONTROL OF PUBLIC LOANS

An important element in this part of the problem is the control of loans by public authorities. It is often regarded as desirable to restrict their borrowing powers. Under the constitution of New York State, for example, indebtedness of any city within the State in 1894 was limited to 10 per cent of the assessed valuation of its real property. In present conditions such a restriction would be generally inappropriate, if not impossible. This case was criticized on the ground that no adequate distinction was made between productive and non-productive debt, and that it involved the danger that productive municipal improvements were unnecessarily postponed. There are also miscellaneous items in national and local revenue, of which fines and gifts are the best examples. Fines, as has been already observed, are imposed not for revenue purposes but rather as deterrents. Gifts either to governments or to local authorities are generally neither large nor frequent. An interesting example is the conscience money in the British financial system, usually a voluntary payment to the Treasury in respect of income or other tax which has been evaded. Within recent years gifts have often taken the form of gilt-edged securities, such as war loan or other stock, for the purposes of cancellation. But all these items are merely points within the problem of classification of revenue as a whole. The object of this classification is practical. It is designed to prevent confusion of thought, even if no clear-cut demarcation is possible. Apart from the forms of classification to which reference has already been made, other writers have distinguished three main groups, which include direct revenue, covering public industries, public domains, and other elements; derivative revenue, including taxes, fees, assessments, and penalties; and anticipatory revenue, such as the sale of bonds or forms of commercial credit. These groups deal mainly with revenue from public lands or public industries, and they form one comprehensive section in the classification we have in mind. The next section refers to taxation and the third to public credit.

CLASSES OF REVENUE

Professor Seligman, on the other hand, took three classes in revenue, the first of which was described as gratuitous, including gifts; the second contractual, covering prices and public property and industry; and the third compulsory, including fines and penalties, taxes, fees, and special assessments. It has often been urged that ideal classification should concentrate on tax revenue and include under that heading both special assessments and fees. Taxes in turn may be conveniently described as direct and indirect. Taking the definition of John Stuart Mill, direct taxes are those demanded from the very persons who it is intended should pay. An indirect tax, on the other hand, is one demanded from some person in the expectation and with the intention that he shall indemnify himself at the expense of another. At this point reference to the precise incidence of direct and indirect taxation would be inappropriate. That must be reserved for later treatment of the problem. But it is suggested by many writers that it might be preferable to define direct taxes as those which are levied immediately on the property and income of persons and those which are paid by consumers directly to the State. All other taxes would be grouped as indirect. These indirect taxes would include customs and excise duties, taxes on business turnover, amusements and betting. Another main division is non-tax revenue, which, as has been observed already, includes the income from public or government undertakings such as railways and telegraphs, the income from social services such as education and hospital fees, the income from loans or debt services in so far as the State or the local authority is a lender of funds, and from miscellaneous sources, which is generally an unimportant item.

ORDINARY AND EXTRAORDINARY EXPENDITURE

At the Brussels Financial Conference in 1920 much attention was devoted to ordinary and extraordinary expenditure. All governments were urged to restrict their ordinary outlay, including the service of debt arising from the war, to such an annual amount as could be met from ordinary revenue or income, to abandon all unproductive extraordinary expenditure, and to reduce even productive extraordinary outlay to the lowest possible amount. To these proposals were added many other recommendations applicable to post-war conditions. The expressions ordinary or normal and extraordinary or abnormal are well understood in the study of public finance. At the moment the main point is the part which classification itself has played in the remarkable circumstances following the European War. The Brussels Conference included the leading financial experts of practically forty countries. The arrangement of ordinary and extraordinary expenditure differs in the various countries of the world. India, as we have seen, includes famine insurance as an ordinary item year after year, although that would elsewhere be regarded as wholly abnormal provision. The British Chancellor of the Exchequer in 1916, when the weight of war expenditure was beginning to be felt, insisted that the British Budget should include all normal outlay, together with war debt charges, which admittedly set a high standard in finance. In British Budgets no distinction is drawn between ordinary and extraordinary expenditure, but there is generally description of recurring and non-recurring obligations, the former being in reality the annual burdens and the latter special or exceptional burdens.

PRODUCTIVE AND UNPRODUCTIVE EXPENDITURE

The public finance of most nations includes provision for supplementary estimates, which are additions to the ordinary or estimated programme in outlay for the financial year. Mr. Gladstone frequently condemned the easy resort to supplementary provision, and argued that it was necessary to the efficacy of parliamentary control that the House of Commons should have the money transactions of the year presented to it in one mass and in one account. At the Brussels post-war conference productive and unproductive expenditure was contrasted. The same distinction is often seen in the line which is drawn between productive debt and ordinary or dead weight debt. Expenditure which produces a fair return on the capital invested is said to be productive, and analysis of classification practically always raises the question as to whether there is any relationship which can be fixed between public expenditure and national income. In other words, is there a percentage in taxation beyond which no government should go, if industry and commerce are not to be unduly penalized? During the latter part of last century numerous German writers suggested maximum percentages of this kind. But the problem is simple only on the surface. Its apparent simplicity conceals innumerable fundamental difficulties. Of these the chief are perhaps the manner in which comparisons are affected by variations in the purchasing power of money, the allowance which must be made for the development of State or public activity, the influence of the acquisition of new territory, and the manner in which the problem may be rendered more complex by social and other legislation. One writer remarked that as a general conclusion something resembling 20 per cent of the national income, other things being equal, was spent by public authorities in normal times. In an emergency like war that percentage, over a period, might be doubled, or even rather more. But, whatever the percentage was, it clearly would not have the same or even similar effect on rich and poor countries. Deeper investigation of the problem would show a wide variety in incidence and in precise effect on industry, commerce, and social progress. When the limits of taxable capacity are reached, by which is generally meant the point at which high taxation ceases to be productive, recourse in urgent cases to capital expenditure makes it possible to distribute the burden over a much longer period. In such cases posterity is called upon to make its contribution to burdens which, if attempted by the present generation, would in some cases be crushing if not overwhelming in effect.

THE ECONOMIC FUNCTIONS OF THE STATE

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X

THE INDIVIDUAL AND THE GROUP

THE NEED FOR TOLERATION

This indication of the rights of the individual and of his moral personality as the only true basis of society will involve, we are aware, a good deal of fresh thinking and challenge many prejudices. It demands in particular the utmost measure of toleration in the expression of opinions; it means that we must be prepared to admit a great deal of "non-conformity" in all spheres of life. Further, it is essential to realize that the true test will lie precisely in our capacity to tolerate "unpopular" opinions; it is evident that the whole battle will range in the field of those things by which we differ from each other, and more particularly in which a small minority maintain their difference from the majority. Religion is the obvious example; it has always proved difficult for a dominant church to allow freedom to other religious bodies. The lesson of religious toleration has by now been painfully learnt in most countries (not in all); the lesson of toleration in the sphere of political and social thought has not; any new idea, particularly if it be very critical of existing systems and radical in its suggestions of change, has to contend, against the natural—but foolish—desire to stamp out the new heresy, on the grounds of its incompatibility with existing ideas and systems. This tendency, it may be added, does not appear at the very first stage, when the new idea is thought too "wild" and "impracticable" to be otherwise than harmless; it is when it has begun to spread and becomes really active and "dangerous" that the testing time comes. Further, it should be noted that repression often gives to ideas an importance they do not deserve—they might soon disappear if left alone—and that subversive philosophies are always a symptom of some disease in the existing system, whether political or religious. There may be a point at which it should be made clear that the new idea can only be expressed at one's peril but a wise society will place that point very far indeed. Repression of speech is nearly always—we hesitate about the "nearly"—more dangerous to the repressor than to the repressed.

PERSONALITY EXPRESSED IN GROUP ACTION

Having thus arrived at what we hope to be a clear statement of individual rights, we can now ask the further question—how will these rights best be exercised?

It is nearly always assumed in current political theory that there are only two parties to be considered—the State and the individual. Such a view is to our mind very short-sighted. It assumes for one thing the identity of State and society—an error bound up with the conception of a "general will"; it ignores, and this is still more important, the numerous groups or bodies to which the individual belongs and to which he owes an allegiance as full (and as limited) as that which he owes to the State. We saw in our first chapter how those groups—church, trade union, family—differed from the State in scope and power; but, differ as they may, they are as real as the State, and allegiance to them is as vital as allegiance to the State—more vital even in some cases, either because they appeal, as does a church or a family, to a side of man that is deeper than his political instincts, or because they affect his everyday life in a more consciously direct way.

They are in fact more essential than the larger and more distant State to the full life of the individual. None of us can really be alone for very long; apart from our material wants, which require the assistance of others, we need the company of others in order to be really ourselves; we need mental and spiritual help; we need an audience; we need other minds to react on ours and on which ours can react. The familiar old saying about man as a political animal really cuts very deep. It is only through man that man can really express himself.

Association in groups is the only method in which this can be realized. These groups must be of all kinds in order that widely different individualities can find through them adequate expression. Few can do without the tiny family circle, and every widening of our activities and interests will demand its expression through a more or less organized group. Even religion, the most individual of all manifestations of human life, demands for most people some form of corporate expression.

REALITY OF GROUP LIFE

Few errors can be so great as to ignore the reality of group life, or, worse still, to try and crush it. This can be done: all French governments since the Revolution have endeavoured to stifle group life by restricting "freedom of association," by keeping under strict supervision and control gild, church, trade union, benevolent society. It was thus hoped to throw the citizen back on the State as the sole body to which he

owed allegiance, so as to secure the " unity and indivisibility " of France. But the result was the throwing back of the citizen on to himself and to the natural group of the family ; far from stimulating devotion to the great common good, it diminished public spirit and stimulated a narrow individualism which has been the bane of French political life.

It is, on the contrary, by serving the small group that the individual will learn to serve the greater in the right way. The virtues which normal healthy family life develops are those the State needs : the realization of a whole greater than the self, and loved by the self, which can only exist by mutual service, and yet which has no life of its own apart from its members and will never prosper by the sacrifice of any of them to an alleged common necessity. A wise State will see in a full, unfettered group life the training ground for citizenship and will further see in group action one of the channels by which to accomplish much which cannot be left to individual enterprise. Loyalty to a group is, therefore, as essential a part of the citizen's life as loyalty to the State. That those loyalties may apparently conflict is an unfortunate fact in the present organization of the world ; the one thing to do in such a case is to see whether State or group is on the point at issue truer to the real end of society and man. There is, of course, the fact that the State has the power of punishing disobedience by penalties that are denied to the others ; but its authority is in no sense more binding morally ; in fact, it is often only in so far as the destinies of those other groups may ultimately be bound up with that of the State that the latter is able to obtain the sacrificing of other allegiances to its own.

GROUPS AND STATE SOVEREIGNTY.

At present, however, we are not concerned with any hierarchy of loyalties, but with the fact that they exist, that it is often through them that the individual most fully expresses and realizes himself, and that they may very well transcend the limits of State allegiance, either spiritually if they be of a higher moral order, or physically if they link up individuals belonging to various States. While the State, to quote Professor McIver, is " exclusive, determinate and rigid, the community is a matter of degree ; it is a network of social inter-relations, here dense, here thinner, joining men over countries and continents." Any discussion of the authority and functions of the State in the sphere of economics will therefore have to take this network into account ; it will have to realize that between " State action " and " individual enterprise " lie a whole number of " group actions " which cannot be ignored, either in their present function or in the functions they might fulfil in a reorganized society.

Our emphasis on the rights both of individuals and of groups thus leads us to a rejection of the various systems which are built on the idea of the sovereignty of the State either within or without its borders. We do not believe that there is or that there should be " some single centre of ultimate reference, some power that is able to resolve disputes by saying a last word that will be obeyed " (Laski). Parliament, as we saw in a previous chapter, may be legally sovereign, but is really subject to the pressure of public opinion and limited by a host of political and social traditions it dare not flout ; in a time of crisis no " last word " would be really obeyed that had not the support of the greater part of those who share in the conscious political life of the community. And this is as it should be. A really sovereign State, above all law, tradition, custom and morality, would be a monster, and we might add that the modern State in time of war perilously approached such monstrosity.

If the idea of an internally sovereign State be but a dangerous illusion, that of an externally sovereign State is an illusion far more dangerous still, which may lead to the downfall of civilization. The State that identifies its own fancied interests with the welfare of mankind, that acts as if the world were created for its convenience, enrichment and expansion, that is in all things a law unto itself, is a peril to its neighbours, and must ultimately destroy itself by its ignoring of the realities of international dependence. Unfortunately, there is no powerful State that has not suffered at some time in its existence from this form of self-deception, and our modern political organization still rests on the fiction of equal sovereign States, although (fortunately) most States do implicitly recognize some limitation in fact of their theoretically unlimited power.

INTERNATIONAL CONTROL OF ECONOMIC CONDITIONS

(*Continued from page* 426)

EDITOR'S NOTE

[No description of the international control of economic conditions as it exists in the world to-day would be complete without some account of the control exercised by the nations allied during the world war over the economic conditions of Germany and other European countries, with the object of securing reparation payments, for, although not of a permanent nature, the effect of such control upon world conditions, during the present generation in any case, has been and is likely to be exceedingly great. The ensuing article is designed to bring out the essential features of this control.—P. W. M.]

X

ORGANIZATIONS IN THE FIELD

(*f*) THE MECHANISM OF REPARATION PAYMENTS

By DR. PER JACOBSSON

WHEN, at the Paris Conference in 1919, the representatives of the Allied and Associated Powers found themselves unable to agree upon the amounts payable in reparations by Germany, Austria, Hungary, and Bulgaria, they finally decided to set up the so-called Reparation Commission to assess the damage for which those countries were responsible and to fix the method and dates of payment. The Commission actually came to a decision regarding *Germany* at the end of April, 1921, when it fixed the total reparation debt of that country at 132,000,000,000 gold marks and also prescribed a plan of payment. That decision was accepted by Germany in the following month under the threat of an ultimatum, but after several moratoriums and the Ruhr occupation in the beginning of 1923, it was found impossible to adhere to the plan of payment and the question had to be taken up entirely afresh and on the basis of experience gained from the settlements with the other debtor countries.

The *Bulgarian* liabilities were fixed by an agreement of 21st March, 1923, under which the annual payments rise from year to year, reaching their maximum in 1934. An Inter-Allied Commission was established in Sofia to follow the development of the financial position, and payments have been made in full up to date of writing (August, 1927).

In September, 1922, the Council of the League of Nations, in response to a request to come to the financial assistance of *Austria*, prepared for that purpose a plan of reconstruction, including the issue of a guaranteed loan. In order to make the issue of that loan possible, the Reparation Commission agreed to the postponement of any claims in respect of reparations, not indefinitely, but for a reasonably long period during which the loan could be repaid, twenty years being finally determined upon as a safe period.

When, in the autumn of 1923, the financial reconstruction of *Hungary* was undertaken by the League, and a loan was about to be issued for that country also, the problem of fixing the amount of reparations to be paid was found to be very difficult, for while the Reparation Commission was unwilling to postpone all payments, as in the case of Austria, the prospective lenders seemed to have some fear of the damaging effect on the stability of Hungarian exchange which might result from any payments. On the suggestion of the Financial Committee of the League it was ultimately agreed that Hungary's total liability in respect of reparations should remain undetermined, but that she should be liable to pay an average of ten million gold crowns per annum for a period of twenty years. These payments would be made in Hungarian crowns, which were only to be converted into the currency of other countries (pounds sterling, French francs, etc.) in so far as such conversion was compatible with the maintenance of the exchange value of the Hungarian currency. This clause ensured that the transfer of funds from Hungary should not disturb the monetary stability of the country—an ingenious solution of a difficult problem which was afterwards adopted even for *Germany*.

THE DAWES REPORT

The historians of the future will probably differ in their estimate of the effect of the Ruhr occupation on the reparation problem. It will suffice here to say that in a few months the German Government had already put forward new proposals for fixing the capital liability and the annual payments. After protracted negotiations between the various Powers the Reparation Commission decided to set up an international committee of experts to consider Germany's position and to make proposals for stabilizing her currency and balancing her budget. The Chairman of that Committee was General Dawes, who later on became Vice-President of the United States, and the report of the Committee has become known as the "Dawes Report," a name which indicates better than anything else that the settlement of the reparation problem was made with the assistance of American expert opinion. The report was adopted by the governments concerned in the London agreement of 30th August, 1924, and the machinery proposed in it was set up with the least possible delay and has been working since the autumn of 1924.

In order to understand the solution of the reparation problem by the experts on the Dawes Commission, it must be remembered that those experts

had much more than a technical problem before them. If they were to succeed they had to reconcile a number of opposing views which had been strongly advocated by the various governments in the course of the controversies of the preceding years. The first difficulty arose regarding the fixation of the amounts to be paid, it being maintained, on the one hand, that the sums due must be fixed in order to obtain the necessary basis of certainty for financial and economic recovery, and, on the other hand, that reparation liabilities could not properly be fixed until the Allied debts had been settled and some experience gained of a restored Germany from which to judge of her real capacity. The experts adopted in principle the solution embodied in the scheme of reconstruction for Hungary, in which the total of the reparation liability was left open to future decision, but the actual payments to be made over a period long enough to give confidence had been fixed.

According to the Dawes plan, Germany was to make the following payments—

	Marks (000,000's omitted)	Converted into £ (000,000's omitted)
I. In the so-called Budget Moratorium period—		
First year, 1924–25 .	1,000	50
Second ,, 1925–26 .	1,220	61
II. In the so-called Transition period—		
Third year, 1926–27 .	1,200	60
Fourth year, 1927–28 .	1,750	87·5
III. In a Standard year—		
1928–29, etc. . .	2,500	125

These figures, however, were subject to certain modifications in the case of a material change in German prosperity. If during the third and the fourth years of the working of the plan the aggregate yield of the controlled revenues (see below) were to exceed 1,000 and 1,250 million gold marks respectively, the German contributions were to be increased by one-third of the excess during the two years 1927-28 and 1928-29, up to a maximum of 250 million gold marks per annum. It was soon found that the yield of the controlled revenues was much higher than had been expected, and that Germany would thus be liable to make the complementary payments. By virtue of an agreement concluded with the Agent-General for Reparation Payments, Germany undertook to make a single definite payment of 300 million marks in the third year (1926-27), in which the annuity was thus increased from 1,200 to 1,500 million marks. But the plan also contained a provision for the modification of the payments in a standard year. If the wealth of Germany should increase markedly the amounts to be received by the Allies are to rise correspondingly. Care has been taken to define clearly in the original settlement the so-called " prosperity index," according to which the extra amounts are to be calculated, so that the whole method is capable of impartial application. Should a dispute arise, in spite of all precautions, as to the application of the statistics of the prosperity index, the point at issue must be referred for arbitration not to the Reparation Commission but to the Financial Section of the League of Nations.

FOREIGN PAYMENTS

The Dawes experts had, secondly, to solve the difficult problem of foreign payments, i.e. to find a basis of reconciliation between those who held the view that Germany could pay all that she was able to raise internally for the purpose of reparations from either taxes or other sources, and those who maintained that the amount payable to the creditor countries should be limited by Germany's export surplus. A solution was found by making a clear distinction between internal payments which have to be made to the Agent-General for Reparation Payments stationed in Berlin and external payments by means of the purchase of foreign exchange. The initial obligation of the German Government is to pay in German marks. It becomes a question for later consideration in what way and to what extent these marks may be converted into pounds sterling, French francs, Italian lire, etc., and for that purpose a special safeguard was provided against the danger of the conversions causing a collapse of the German currency by the appointment of the so-called Transfer Committee to receive the payments in marks and to be responsible for the extent to which and the way in which the sums received should be transferred abroad for the benefit of the creditors. Should it prove impossible to transfer the whole of the amount received, the sums that cannot be so transferred are to accumulate in Germany up to the limit of 5,000,000,000 marks. If this limit is reached, Germany's annual payments are to be reduced to the amount that can be effectively transferred.

GUARANTEES

The third great difficulty to be overcome by the Dawes experts was that of the necessary guarantees, certain governments taking the view that strict control of Germany's finance was necessary in order to ensure that her obligations should be duly met, while others pointed out that any attempt to maintain detailed control would mean interference, waste, and political friction.

(To be concluded)

STATISTICS

(*Continued from page 428*)

X
THE MODE

CONTINUING our search for an answer to the question "What is the income of a certain group of people?" we pass from the arithmetical mean to other kinds of averages. Popularly there is supposed to be only one kind of average, that which has been already discussed. But that is a misapprehension. For an average is simply an abbreviated description of a group with respect to some variable, and there are averages which may be arrived at by ways other than by adding the values of the variables and dividing by the number of items.

ILLUSTRATIONS OF THE MODE

Of very real utility, for instance, are two types of averages which may be called "descriptive" as distinguished from arithmetical averages. One of these is called the "mode," and it may be defined as that value of the variable in which the instances are most numerous. To illustrate, let us repeat the classification of incomes in working class families in three districts of the Clyde area already given in Section VI of this series. The relevant part of the table runs thus—

Aggregate family income (per week)	Number of families
Under 20s.	29
20s. and under 30s.	63
30s. ,, ,, 40s.	64
40s. ,, ,, 50s.	89
50s. ,, ,, 60s.	135
60s. ,, ,, 70s.	92
70s. ,, ,, 80s.	60
80s. ,, ,, 90s.	51
90s. ,, ,, 100s.	40

Here the "mode" appears to lie in the group of incomes between 50s. and 60s., as that group contains a greater number of instances than any other single group. Again, in the same districts the families investigated were living in houses of the following number of rooms—

	Number of rooms						
	1	2	3	4	5	6	Total
Number of families .	110	481	111	17	2	2	723
Per cent . . .	15·2%	66·5%	15·4%	2·3%	·6%		100·0%

In this case, the "mode" is the two-roomed house. Again, an examination of the distribution of the female population in industrial occupations shows that the mode, or the industrial group containing the largest number of female workers, is that entitled "Personal Service."

ITS USES

These instances bring out the fact that the mode is a descriptive not an arithmetical average. To find it, we merely arrange the instances in groups, and pick out the group which contains most instances. It is therefore easy to discover, and unlike the arithmetical mean, which may sometimes be different from any single item in the series, it is always typical. In fact, its merit may be said to be that it indicates the case which is most likely to occur. If we were asked to guess in what size of a house any family above referred to lived, we should be more likely to be right if we guessed the mode than if we guessed any other. Similarly, our chances of being right would be greatest if we guessed that the income of any of the same families lay between 50s. and 60s., because that is the mode.

In this respect, for many kinds of descriptive work the mode is more useful than the mean. This may be illustrated from a quite different field. In certain parts of the West Highlands of Scotland, the weather is by reputation dull and wet; but it has its bright spots, when the sun may shine continuously for as many as 12 hours a day. An analysis of the hours of sunshine recorded on the successive days in a summer month might yield a result like the following—

0, 0, 12, 0, 10, 2, 0, 0, 0, 12, 12, 9, 0, 0, 0,
3, 0, 6, 12, 12, 2, 0, 11, 0, 0, 6, 0, 7, 10, 0.

The arithmetical mean of this series is four hours. But if we were choosing a picnicking district it would be rash to act on the chance of getting four hours sunshine each day. The "average," in the sense of the arithmetical mean, is not always the most likely. In this case the likeliest kind of day is one with no sunshine at all; for there were 15 such days out of the 30.

This example serves to indicate a distinction

between types of cases in which the mode and the mean are respectively the more suitable. So far as is generally known (though the contrary may still be discovered), the weather of one day has no causal bearing on that of another. The fact that there are 12 hours of sunshine to-day does not mean that there will necessarily be 12 hours, or any other number of hours, of sunshine to-morrow. Again, the fact that there are 12 hours of sunshine on the 3rd of the month does not compensate for no sunshine at all on the 7th, if the 7th is the day of our picnic. In a case of that kind, when each item in the series, so far as our knowledge goes, stands by itself, the mode is a better guide than the mean. But where there are connections, casual, or merely observed in fact, though not explained, the mean has points in its favour. For while the mode stands by itself and is uninfluenced by other items in the series, the mean takes every single item into account, and is the resultant of them all. And again, the mode does not, like the mean, yield any basis for arithmetical calculations.

Income	Families
Under 20s.	3
20s. and under 30s.	12
30s. ,, ,, 40s.	22
40s. ,, ,, 70s.	30
50s. ,, ,, 60s.	49
60s. ,, ,, 50s.	38
70s. ,, ,, 80s.	17
80s. ,, ,, 90s.	23
90s. ,, ,, 100s.	15

Income	Families
100s. and under 110s.	13
110s. ,, ,, 120s.	6
120s. ,, ,, 130s.	5
130s. ,, ,, 140s	4
140s. ,, ,, 150s.	6
150s. ,, ,, 160s.	3
160s. ,, ,, 170s.	1
170s. ,, ,, 180s.	3
Over 180s	1

"SPOTTING THE MODE"

But it must be noted that it is not in every series or group that the mode is discoverable. To explain, it is necessary at this point to introduce a distinction. We have already seen what is meant by a variable; we must now distinguish between "discrete" and "continuous" variables. By a discrete variable is meant one which changes by unit steps. Houses, for instance, are one-roomed, two-roomed, three-roomed, and so on. If, then, we classify houses on this basis, there is no difficulty in picking out the mode. On the other hand, temperature, a person's height or age, change by imperceptible gradations, while the earnings of workers and the incomes of families in a given period may differ by very small sums. All these are cases of continuous variation, and for statistical purposes require to be grouped. Such grouping, however, may be arbitrary, and the particular size or limits of groups selected may affect the mode. A different grouping might yield a different mode. For instance, let us take again our first case of family incomes, and classify them in 10s. groups. That yields the following result—

From this tabulation, apparently the mode lies between 50s. and 60s. Now if we reclassify the incomes in the proximity of this group, but with different limits, we get the following result—

45s. and under 55s.	30
55s. ,, ,, 65s.	54
65s. ,, ,, 75s.	19

Evidently, with this classification, the mode lies in the group 55s. to 65s.; and since with the former classification it lay in the 50s. to 60s. group, we might reasonably expect that it lies in the part common to both, namely, in the small group 55s. to 60s. But using 5s. groups, we find that the facts are—

45s. to 50s.	16	60s. to 65s.	29
50s. to 55s.	24	65s. to 70s.	9
55s. to 60s.	25		

Here the mode seems to be shifted into the group 60s. to 65s. And from the distribution of the cases round this level, we should suspect that it must lie nearer the lower than the upper limit, for the instances are more crowded below 60s. than above it. But an examination of the actual individual family incomes reveals the fact that they were distributed as follows—

55s.	5	59s	4	63s.	5
56s.	3	60s.	7	64s.	5
57s.	3	61s.	6		
58s.	10	62s.	6		

Thus the mode was in the 58s. group, and was actually 58s. 5d.

This case illustrates the difficulty of arriving definitely at the mode when the items are arranged in groups fixed with more or less arbitrary limits. It is possible by the use of more advanced methods, an indication of which may be given hereafter, to bring into action the whole distribution of the series in the determination of the mode and thus to reach a satisfactory result.

STATISTICAL APPENDIX

(*Continued from page* 432)

WOOL TEXTILES

THE following statistics are designed to illustrate the article on the Woollen Textile Industry which will appear in number 12 of the ECONOMICS EDUCATOR.

ANALYSIS OF U.K. EXPORTS

TABLE LXV. EXPORTS OF TOPS. Quantity (in million lb.)

Country	Exports (million lb.)						
	1913	1922	1923	1924	1925	1926	1927
Sweden	5·33	4·68	3·97	4·90	2·90	3·92	4·57
Germany	16·23	10·39	5·97	9·81	8·25	6·76	11·53
Belgium	2·37	3·26	1·94	2·33	1·63	1·88	1·72
France	1·11	·56	·87	1·01	·69	·95	1·09
Italy	2·05	·54	·35	·36	·57	·32	·51
Japan	5·15	2·42	7·16	6·54	5·61	3·76	1·94
Canada	2·82	7·50	7·50	5·24	4·48	6·28	7·10
Others	8·57	12·27	11·17	11·05	7·88	9·74	13·48
Total	43·63	41·62	38·93	41·24	32·01	33·61	41·94

TABLE LXVI. EXPORTS OF WOOLLEN TISSUES

Country	Quantities (in million sq. yd.)						
	1913	1922	1923	1924	1925	1926	1927
Sweden	·32	·78	·94	1·00	·82	·65	·70
Norway	·23	·94	·87	·48	·44	·40	·55
Denmark	·93	2·02	1·43	1·10	·99	·80	·89
Germany	7·60	1·10	·55	1·98	2·63	2·16	4·72
Netherlands	5·79	6·78	4·90	5·90	4·99	3·33	3·58
Belgium	5·76	6·53	5·07	4·31	3·41	1·69	2·51
France	7·35	5·56	3·23	2·39	2·60	1·88	1·68
Portugal	·14	·11	·19	·28	·23	·16	·16
Spain	·39	·23	·30	·21	·20	·26	·32
Italy	1·84	2·35	2·45	2·27	2·18	1·71	1·56
Greece	1·75	1·20	1·84	2·73	2·46	1·03	1·37
Turkey	2·88	1·13	2·37	2·86	2·93	1·70	1·56
China	8·77	6·71	14·48	22·85	13·74	15·18	12·01
Japan	10·21	19·18	25·83	29·72	15·31	9·57	13·22
U.S.A.	2·92	6·89	9·81	10·29	9·65	10·52	10·93
Mexico	·47	·18	·33	·31	·41	·34	·34
Peru	1·46	1·05	1·53	1·42	1·17	1·10	1·07
Chile	3·79	1·30	2·35	1·81	1·73	1·71	2·02
Brazil	2·75	1·21	1·59	1·91	2·74	1·97	1·51
Uruguay	1·20	·46	·88	·93	1·01	·91	·83
Argentine	9·71	6·80	10·25	6·98	6·38	6·11	6·93
Egypt	·48	1·69	2·15	1·51	1·44	1·10	1·18
Br. S. Africa	2·57	2·89	3·85	4·05	4·22	4·45	4·62
Br. E. Indies	15·68	1·43	3·34	6·29	5·78	6·52	7·17
Australia	12·89	17·11	13·94	13·99	10·07	8·88	9·99
New Zealand	3·97	2·50	3·44	2·61	2·31	2·52	2·58
Canada	20·13	9·52	13·55	15·07	12·49	15·99	17·53
Others	10·10	13·40	17·18	19·51	19·35	16·67	19·35
Total	142·08	121·05	148·6	164·7	131·6	119·3	130·8

TABLE LXVII

Exports of Worsted Yarns

Quantity (in million lb.)

Country	Exports (million lb.)						
	1913	1922	1923	1924	1925	1926	1927
Russia	1·59	—	·05	—	—	—	—
Sweden	1·22	2·50	1·66	1·55	1·00	1·28	1·25
Norway	1·53	1·41	1·26	1·26	1·15	1·40	1·37
Denmark	1·90	2·64	1·66	1·89	1·62	1·70	1·95
Germany	29·47	17·82	10·79	21·72	20·30	12·31	23·31
Netherlands	1·50	3·42	1·80	2·09	1·48	1·11	1·88
Belgium	1·41	·61	·44	·42	·32	·41	·53
France	1·42	·78	·71	·55	·40	·33	·28
U S.A.	·07	·56	·94	·08	·08	·03	·03
Others	9·69	13·16	15·61	15·98	12·34	12·61	14·71
Total	49·89	42·90	34·92	45·54	38·69	31·30	45·31

TABLE LXVIII

Exports of Worsted Tissues

Country	Quantities (in million sq. yd.)						
	1913	1922	1923	1924	1925	1926	1927
Sweden	·50	·47	·40	·28	·24	·21	·24
Norway	·20	·27	·18	·09	·08	·15	·23
Denmark	·17	·77	·68	·54	·44	·64	·54
Germany	2·21	·09	·03	·17	·11	·07	·23
Netherlands	·47	·21	·11	·13	·09	·08	·10
Belgium	1·47	·19	·14	·08	·04	·03	·06
France	1·77	1·01	·56	·22	·15	·18	·19
Portugal	·09	·07	·09	·11	·14	·07	·07
Spain	·19	·22	·23	·13	·12	·11	·08
Italy	1·86	·97	·78	·41	·45	·28	·22
Greece	·25	1·20	1·42	1·35	1·04	·39	·43
Turkey	1·90	1·93	1·19	·88	·60	·29	·27
China	6·19	4·25	5·13	6·17	4·07	3·87	2·90
Japan	4·06	7·28	7·70	8·05	4·69	2·50	2·96
U.S.A.	11·52	6·41	7·56	6·90	6·51	5·67	6·58
Mexico	·29	·13	·15	·09	·11	·11	·08
Peru	·37	·33	·32	·48	·28	·24	·12
Chile	1·94	·85	1·22	·64	·52	·55	·58
Brazil	·90	·56	·62	·67	1·15	·90	·82
Uruguay	·85	·21	·44	·35	·30	·34	·41
Argentine	5·59	3·26	4·91	3·19	3·35	3·51	4·27
Egypt	·62	1·29	1·19	·90	·66	·52	·46
Br. S. Africa	2·12	·96	·78	·64	·76	1·03	1·02
Br. E. Indies	6·83	1·95	1·60	1·77	1·74	1·39	1·36
Australia	7·78	5·13	4·56	2·81	2·35	1·82	2·18
New Zealand	1·66	·91	1·39	·88	1·06	·99	·89
Canada	11·53	17·49	15·34	15·08	12·19	13·02	8·90
Others	4·78	4·31	4·24	3·87	4·03	3·04	3·74
Total	78·11	62·72	62·96	56·88	47·27	42·00	39·93

TABLE LXIX

TOTAL PRODUCTION IN GREAT BRITAIN OF TOPS, NOILS, AND YARNS

	1924 (Great Britain) thousand lb	1912 (Great Britain) thousand lb.	1907 (United Kingdom) thousand lb.
Tops or slubbing (first combed)	285,808	303,758	243,500
Noils	35,076	39,755	33,000
Yarns—			
Woollen (carded)	314,291	310,149	Between 240,000 and 280,000
Worsted (combed or carded)	210,653	202,920	186,000
Alpaca and mohair (including cashmere)	14,667	25,511	
Other hair and wool	10,081	20,321	
Total—Yarns	549,692	558,901	Between 426,000 and 466,000

TABLE LXX[1]

PRODUCTION OF FABRICS OF WOOL

(*a*) Goods made for Sale

	Quantity	Selling Value
Woollen tissues, all wool—	sq. yd.	£
Weighing 16 oz. and over to the sq yd	13,428,000	4,627,000
Weighing 12 and under 16 oz. to the sq. yd	16,338,000	4,118,000
Weighing 8 and under 12 oz. to the sq yd	33,955,000	7,672,000
Weighing under 8 oz to the sq yd.	10,415,000	1,493,000
Total—woollen tissues, all wool	74,136,000 sq. yd. / 54,215,000 lb.	17,910,000
Woollen tissues, of wool mixed with other materials if known as woollens—	sq yd	
Weighing 16 oz. and over to the sq. yd.	47,543,000	6,418,000
Weighing 12 and under 16 oz. to the sq. yd.	56,097,000	6,717,000
Weighing 8 and under 12 oz. to the sq. yd.	55,449,000	6,747,000
Weighing under 8 oz to the sq. yd	16,582,000	1,467,000
Total—tissues of wool mixed with other materials	175,671,000 sq. yd. / 142,960,000 lb.	21,349,000
Worsted tissues, all wool—	sq yd.	
Linings, lastings, etc.	744,000	86,000
Other tissues, weighing 12 oz and over to the sq. yd.	11,807,000	3,991,000
Other tissues, weighing under 12 oz. to the sq. yd.	74,356,000	16,489,000
Total—worsted tissues, all wool.	86,907,000 sq. yd. / 50,812,000 lb.	20,566,000
Worsted tissues, of wool mixed with other materials if known as worsteds—	sq. yd	
Linings, lastings, etc.	25,780,000	1,762,000
Other tissues, weighing 12 oz. and over to the sq yd.	2,529,000	791,000
Other tissues, weighing under 12 oz. to the sq. yd.	41,510,000	6,356,000
Total—worsted tissues, mixed with other materials	69,819,000 sq. yd. / 25,980,000 lb.	8,909,000

[1] From the *Preliminary Reports of the Census of Production*, 1924.

TABLE LXX. (*a*) Goods made for Sale—*continued*

	Quantity	Selling Value
Tissues wholly or mainly of mohair, alpaca, and cashmere, not being pile fabrics	sq. yd. 13,593,000	1,408,000
Damasks, tapestry, and other furniture stuffs	3,318,000	831,000
Wool and mohair plushes	6,271,000	2,145,000
Flannels and delaines	26,062,000	2,592,000
Carpets, carpeting and rugs of wool (with wool or jute backs)—		
Printed tapestry and tapestry velvet carpets and rugs	6,693,000	1,617,000
Brussels and Wilton carpets and rugs	3,415,000	2,269,000
Axminster (including Chenille Axminster) carpets and rugs	9,766,000	5,219,000
Ingrain carpets and seamless squares	491,000	133,000
Woollen carpets and rugs (including copies of Oriental carpets and rugs) not elsewhere specified	1,252,000	606,000
Total—carpets, carpeting and rugs of wool	21,617,000	9,844,000
Blankets	2,989,000 pairs	3,076,000
Shawls, other than knitted	838,000 sq. yd.	308,000
Coverlets, travelling rugs, and wrappers	2,994,000	717,000
Wool and mohair braids, laces and other small wares	—	147,000
Felts	—	1,139,000
Cloth and rag hearthrugs	—	189,000
Manufactures of wool and worsted, unenumerated	—	911,000
Total value—fabrics of wool	—	92,041,000

(*b*) Goods made on Commission

	Quantity	Amount received for work done
	sq. yd.	£
Woollen tissues, all wool	3,365,000	59,000
Woollen tissues of wool, mixed with other materials, if known as woollens	4,301,000	96,000
Worsted tissues, all wool	11,044,000	158,000
Worsted tissues, of wool mixed with other materials, if known as worsteds	3,871,000	78,000
Blankets	69,000 pairs	24,000
Other manufactures of wool or worsted	—	23,000
Total value	—	438,000