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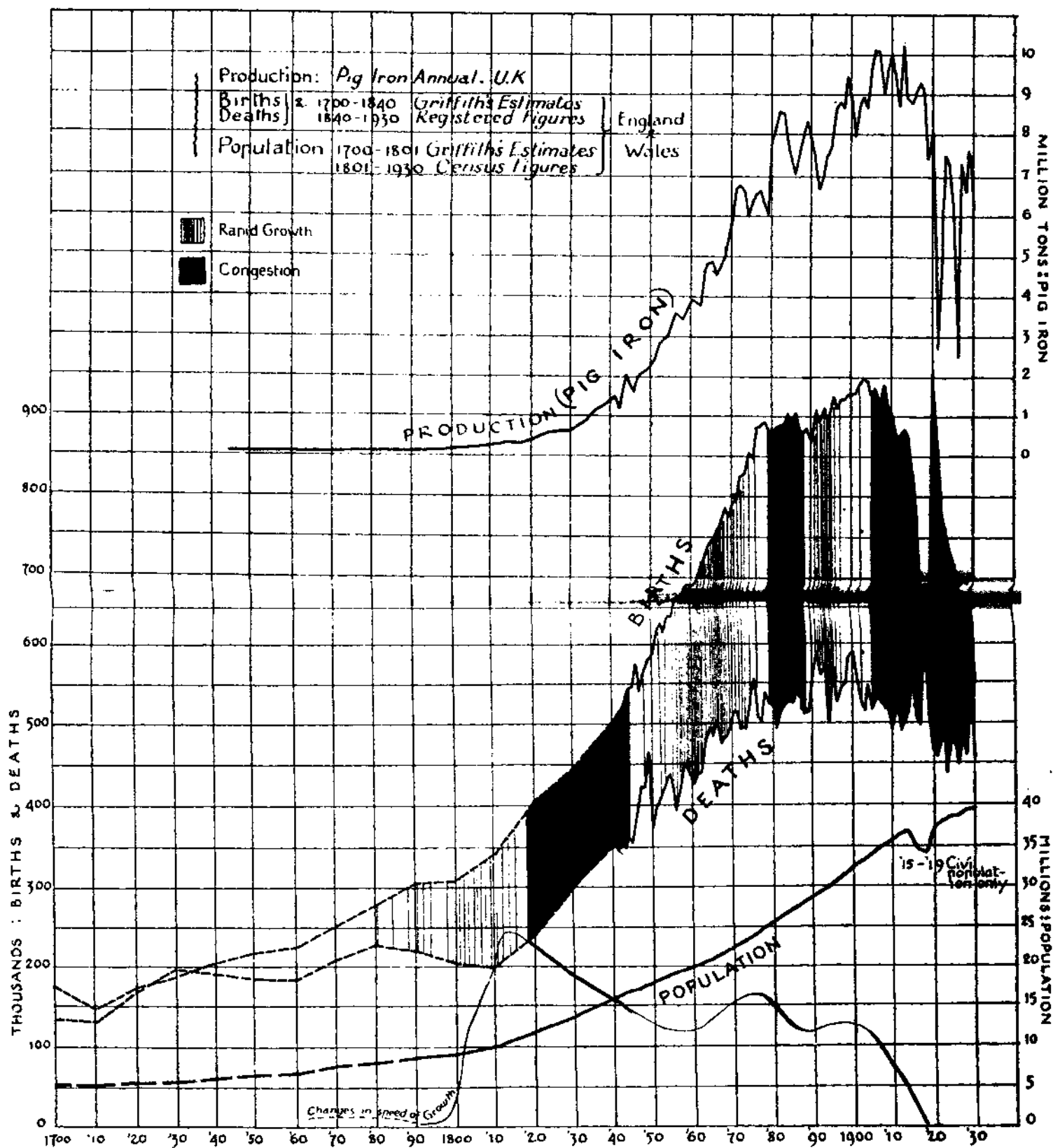
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THE ECONOMIC CONSEQUENCES OF PROGRESS



GROWTH CURVE OF INDUSTRIAL BRITAIN

[Frontispiece]

THE ECONOMIC CONSEQUENCES OF PROGRESS

BY

ROY GLENDAY

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" Truth can never be told so as to be
understood, and not believed."—WM. BLAKE.



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A new curate was explaining to the village blacksmith the nature of miracles. The blacksmith was docile, and accepted the story of Jonah in the whale's belly. As the curate put it, he said he saw no difficulty in it and was ready to believe it. The curate then went on to Shadrach, Meshach and Abednego in the burning fiery furnace. " Now the furnace ", said the curate, " was many times larger and hotter than your forge." This riled the blacksmith ; he was proud of his forge , which had been his father's before him. Besides, he could realise a furnace to himself. " No," he said, " I don't believe it, and I don't believe the b——y fish story either." And so the matter dropped.

SAMUEL BUTLER, *Note Books.*

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FOREWORD

" An idea must not be condemned for being a little shy and incoherent; all new ideas are shy when first introduced among our old ones."

SAMUEL BUTLER, *Note Books*

THE spirit of revolt against the domination of the intellect which characterises the work of so many modern thinkers and writers is a phenomenon that merits wider attention than it has yet received. Even men of science are being driven to protest. Professor Herbert Dingle of the Imperial College of Science, commenting on the new " age of unreason " which has followed the recent enthronement of mathematics as the guide to truth in the field of science, wonders " whether the twentieth century differs intellectually from the sixteenth except in the substitution of the mathematical for the mediaeval philosophy ". He writes :

Freedom of thought may be attacked in two ways. Many recently have been moved to protest against the use of external force for this purpose. But, regrettable as such control is, it cannot by its very nature constitute a real limitation. Stone walls do not a prison make, and history has shown that the blood of martyrs is the seed of the Church. Infinitely more dangerous is the menace to thought from thought itself. When, in the name of science, criticism is not chained but drugged, and unreason in robes not its own receives the homage meant for reason, thought is enslaved indeed.¹

But science, we have been told, furnishes us with a body of truth which is objective. It has not been moulded by the human temperament, nor is it affected by altera-

¹ *Nature*, Vol. 133, No. 3370.

tions in cultural environment. Perhaps this is untrue and, as Erwin Schroedinger has suggested, we should apply to science also Zola's well-known saying, that art is nature seen through the medium of a temperament—*L'art c'est la nature vue au travers d'un temperament*. Yet surely, it will be asked, this cannot be true of the "exact" sciences? Once a physical truth has been finally stated it can be put to the test of experiment by anybody, and always with the same result.

So physics can claim to be entirely independent of the human temperament. Is this claim entirely justified? I wonder. How infinitesimal is the number of experiments which have actually been carried out, in comparison with the number which might have been carried out but never have been. As Schroedinger again observes, "A selection has been made in choosing the raw material on which the present structure of science is built." And that selection has been influenced by other circumstances than the purely scientific. Consider how an advance in knowledge is made. The investigator is immediately dependent on the data here and now at his disposal, representing results achieved by former researchers. Their selection from the raw material will itself in turn have been determined by a train of thought initiated possibly at a moment in some previous period of scientific advance when a certain idea or group of ideas happened to be vital and dominant in the life of the community. Ernst Mach looked upon the scientific process itself as a gradual accommodation of thoughts to facts through a choice of what we find most useful, and a rejection of the less productive.

It seems probable therefore that, like our clothes, our ideas are susceptible to changes in fashion and environment. We laugh at the naive conception of the universe which satisfied the Greek mind, but we forget that until quite recently we were behaving much as they

were when we contentedly accepted the naivetes of the Newtonian cosmogony. Would the idea of evolution which has played such a prominent role in the modern world ever have won such general acceptance had not the rapidly changing condition of our economic environment accustomed us to the evolutionary idea? Many clear-sighted intellects were incapable of adjusting themselves to the changes which acceptance of the idea demanded at the time it first came into prominence in the nineteenth century. And even among believers, not till quite recently has anyone dared seriously to envisage the hypothesis that the universe itself, instead of being a more or less stationary thing in this respect, did, at a definite point of time relatively not very long ago, change from some quite different condition into the steadily expansive stage which, if we accept Hubble's deductions from his observations, seems to be its condition now.

The history of science is full of examples of the tragic neglect of fruitful observations due to man's inability to embark on investigation free from the bias of pre-conceived ideas. Deny as he will, man is rarely, if ever, interested in *the facts themselves*; his only interest in their investigation is that of a desire to attach to the results something else which he hopes to obtain.

If this is the situation in the so-called "exact" sciences, what must be the position in those that deal with the human spirit and its activities? The answer seems to be that the human intellect, if divorced for more than a very limited period from contact with and control by reality, soon becomes little more than a vehicle for the expression of temperament. Prejudice usurping the place of reason employs the apparatus of formal logic to erect an elaborate barrier to maintain the separation between man's spirit and reality. Not facts and tendencies, but wishes and illusions, take charge of his understanding.

The longer he remains isolated from reality the more elaborate becomes the structure of his logical defences ; the eye of wisdom grows dimmer and dimmer.

The history of the Natural Sciences bears abundant testimony to the justice of this charge. Why was it that Western knowledge, after some two thousand years of stagnation, suddenly began in the eighteenth century to blossom forth into an age of discovery such as the world had never known ? Surely it was only because certain men had discovered that the road to understanding lay through the valley of personal discipline and the effacement of self, and that only by reducing personal bias in experimental technique to a minimum, could man hope to uncover the laws of nature and attain wisdom. To grow in knowledge we must for ever be casting off the " clothes " of our intellect and striving to accustom ourselves to stand naked, unashamed, and without fear before reality. This, as William Blake well knew, is the hardest of all lessons to learn. Unless we are continually destroying the structures in which our minds habitually seek to enshrine our visions of the truth, it appears that we cannot make real progress. Present-day Economics stands out as a branch of knowledge which is suffering acutely from a lack of such treatment.

The modern business man distrusts the economist. He feels Economics to be in real danger in some hands of reducing itself to a fascinating game of logic by reason of its attempts to cut itself off from the stresses and strains of reality. What is he to make, for example, of a " science " the professors of which approach the central problem of their age in the frame of mind represented by the following quotation :

There is now fairly general agreement among economists that the non-theoretical approach to the problem of booms and depressions is bankrupt. This is a very significant change ;

for only a few years ago the view of the non-theoretical, purely descriptive, school (headed by Wesley Mitchell) were gaining more and more support. But the events of the last few years, which have raised the problem of crises in a more acute form than ever, have also demonstrated that the purely inductive method, based on quantitative analysis of empirically gained

- data, can never supply an explanation of crises.¹

Surely this is to throw overboard the basic principle of Knowledge itself. Facts and experiment are no longer to be the master of theory : they are to become its handmaid. The private prepossessions of individuals are to displace practical experience as our guide to truth !

It seems to me that before accepting this philosophy of Nihilism we should take a leaf out of the book of the naturalists who, in times when their theories grow barren, have learned to go back to nature, so that by studying her ways afresh they may grow to greater wisdom.

Some years of daily practical contact with economic problems from the angle of the business man's world have brought me into intimate touch with ideas and experiences which I have found impossible to reconcile with orthodox economic theory. I have learned that lying dormant in the soil of the business world there are abundant explanations of economic phenomena which economists tend to ignore. Could their existence be brought to the practical notice of those versed in the technique necessary to their development, I am convinced that their germination and eventual fruition would be of inestimable value to the world. So far, the soil has never been cultivated. He who would venture to do so must be prepared mentally to adapt himself to new ideas and altered situations. The *milieu* is not suitable for lovers of prescribed methods and " safe " results. The ultimate goal is to make " economics " a branch of Natural History.

¹ Erich Roll, *About Money*.

The idea which emerges from the facts set forth in this book is that the growth of a community's economic structure, whatever direction that growth may take, is bound sooner or later to come to a standstill because it cannot avoid silting up its own channels of development. That structure must accordingly be destroyed and replaced by a new one before progress can be resumed. The growth of an economic community may be likened to that of the house of a pioneer in a new country. As his family increases he will make additions to its external structure and subdivide its existing rooms. But clearly there are limits to the extent to which these additions to structure and subdivision can be taken without causing congestion. In the first place, additions to a house of specified size cannot be made without limit nor can the number of its rooms be increased indefinitely. Secondly, not more than a limited number of persons can be given separate quarters without interfering with the smooth running of the house as a whole, i.e. its catering, domestic, sanitary and heating arrangements, unless the whole internal structure is redesigned.

To escape from this congestion some of the members of the household will have to leave the parental roof and set up establishments of their own. But this process cannot be continued indefinitely. Within the communal area, as the population grows, more and more vacant land becomes occupied until a condition of congestion is reached similar to that which obtained in the case of the house. Relief in this instance can be provided only by reorganising the towns of which the houses form part. This may prove an impossible task. Yet, if my diagnosis is correct, this is the kind of problem facing many of our present-day industrial communities.

In presenting my conclusions, I have made free use of the ideas and facts collected by others : so much

was inevitable. Possibly the only originality I can claim is that of having attempted to weave the facts and ideas into a somewhat fresh pattern which, I believe, invests them with more significant form. I shall be gratified indeed if what I have written should stimulate more expert minds than my own to undertake new research which may make that pattern more definitive and, therefore, more useful. As in a swiftly changing world the scene that is being painted is apt to change before the paint on the picture is dry, I should, perhaps, place on record that the greater part of this book was written in the early months of the year 1933.

Certain of the passages dealing with the influence of money on trade development are taken from a paper : " Business Forecasting : A Quantitative Investigation of the Influence of Money on Trade Development," which I read before the Royal Statistical Society on November 17, 1931.

For generous help, counsel and kindness in the preparation of this book it is a happiness to express my gratitude to A. L. Please. I wish also to thank Lieut.-Colonel W. Sturmy Cave for assistance with the charts—and especially Richard Binns who, by marshalling the scattered fragments of my manuscript into a semblance of order, made this book possible.

I would ask forgiveness of anyone whose work I may have inadvertently quoted without proper acknowledgment.

It is perhaps unnecessary to state that I am solely responsible for the views and opinions expressed in the book, though I believe many of them are widely shared in industry to-day.

ROY GLENDAY.

June 1934.

PART I

LAWS OF GROWTH AND STRUCTURE

CHAPTER I

GROWTH AND STRUCTURE

My great religion is a belief in the blood, the flesh, as being wiser than the intellect. We can go wrong in our minds. But what the blood feels, and believes, and says, is always true.

D. H. LAWRENCE.

HISTORY shows that ever since man first made the momentous discovery that nature could be tamed and compelled to serve his ends, the world has progressed by a series of cycles of birth, growth, and decay, each cycle involving as a rule a change in the social system and the economic structure dependent on it. It is noteworthy that until quite recent times there is no evidence that successive cycles were associated with any continuous improvement in standard of living or general amenities. If we except those in which one or two basic discoveries like agriculture and the use of metals were made, each cycle seems largely to have been a repetition of its predecessor. The only improvement in material wealth to which any thought appears to have been given was the accumulation of treasure in various forms and the construction of public buildings. Even in this latter respect, the materials of cities which had been destroyed were often used again instead of new material being sought, partly, no doubt, because in civilisations based on war any settled and continuing programme of development involving "investment" was not worth the risk.

The process of world development, as we know it,

began with the prehistoric pioneers who first discovered that a supply of food could be assured by the domestication of animals and the tilling of the soil.

They introduced the rudiments of agriculture with the result that a tribal territory, which in the prehistoric world provided only a starvation subsistence to a handful of people, could be made to yield enough to supply a populous community. From its centre of discovery the art of agriculture spread slowly outwards in every direction, bringing about, as it expanded, wave upon wave, a complete transformation in man's mode of life. Villages came into existence, wealth began to accumulate, cities rose. And with the cities came crafts, industries, and commerce. As the revolution spread, the prehistoric tribal world collapsed before it. Commerce broke down tribal frontiers, thus destroying Nature's original scheme for man's advancement. Out of the tribal debris arose a long succession of nationalities and empire—flourishing for a period but always carrying within them the seeds of their ultimate dissolution.¹

This cyclical process of dissolution has displayed man in every cycle faced with one finally impossible task—that of carrying development beyond a certain stage inherent in the character of his social system. Economic systems, and systematised methods for the carrying out of individual occupations, once a country or its industry has adopted a definite *structure* or organisation for production, offer the most stubborn resistance to any attempts that may be made to interfere with them. Every settled country engaging in trade inclines to adopt a special type of industrial structure appropriate to its own inherited social traditions and the natural environment in which it settles, and possessing that degree of flexibility which is possible under the conditions. As time goes on the organisation of that structure tends to become more and more rigid so that relative absence of progress is in reality scarcely a matter for wonder.

¹ Sir Arthur Keith, *The Place of Prejudice in Modern Civilization*, p. 42.

An excellent illustration of this process and its results may be obtained from a comparison of two of the better-known basic " structures " employed in agriculture—the " extensive " and " intensive " systems of farming. The " extensive " system is a first phase in the agricultural "development of a country where the population is small and ample land is available. In such a country, it does not pay to aim at a high-yield crop ; nor is that possible. As much land as can be managed is broken up, and though the yield may be low and may become even lower when the natural stored fertility of the soil is exhausted, the output per man is sufficient to provide for his needs and leave a margin for sale or exchange. In our own times this system has been largely used in the New World where it has been aided by the great advance of mechanical invention. In the case of stock farming, the " extensive " system depends for its success on the existence of large areas of natural grazing-ground. The cattle are moved from one area to another as the season progresses, and practically the only expense involved is the cost of herding and supervision. The " intensive " system, on the other hand, depends for its success on raising the output per acre to the maximum possible. For this system to be successful the fertility of the soil must be maintained, and if possible increased, by adequate cultivation and manuring. The stock or cattle side of the organisation is as important as the crop or arable section ; the two branches are dovetailed to their mutual benefit. The cattle, if well fed and carefully bred, provide a source of income—milk, meat and hides—and their manure enriches the soil, enabling it to grow good yields of fodder crops for the animals and food crops for consumption and sale. Although the system may, and does, profit by the increased use of machinery for farm and barn operations its essential characteristics are those of the great amount of human

labour absorbed, the division of the land into small holdings, and the development of the peasant or small farmer type of rural life.

Anyone acquainted with the history of British agriculture will recognise in this latter system the basic features of present-day British farming practice. It grew out of the mediaeval threefold system. The predominant features of the latter were the self-supporting village community which did little trade with persons outside its immediate locality ; the strip or plot system of dividing the land, with its consequent low crop yield ; the common grazing-lands where the promiscuous intermingling of cattle made selective breeding impossible ; and the absence of proper fodder crops, which prevented improvement in the quality of meat for food supply or of the cattle for sale as draught animals. The introduction of the four-course rotation, with its two cereal crops of wheat and barley and its two fodder crops of clover and turnip, transformed British farming. It not only revolutionised agricultural practice but transformed the whole structure of land tenure and profoundly modified the social habits of the people. The process of " enclosure " which had been proceeding in an intermittent and leisurely fashion over a long period, became an urgent necessity. Without it the new system could not function properly ; unless the cattle were segregated their quality could not be improved. Thus were laid the foundations—a much greater output of food, immeasurably improved usefulness of animals, and greatly increased fertility of land although more heavily cropped—on which was built the rapidly increasing power and influence of the Britain of a century and a half ago. Lacking that transformation, we could not have sustained the tremendous change that the " industrial revolution " wrought in the industrial side of our national organisation ; one depended on the other.

It is common knowledge, of course, that the four-course rotation system in its turn has fallen upon bad times. Its strongest points were that it provided large surplus quantities of wheat and meat for sale in the industrial areas, and the financial success of farming was founded on those sales. Curiously enough, there also lay the system's chief weakness, for with the importation firstly of grain grown on the "extensive" system in the New World, and later of meat from the ranching countries, the financial stability of homeland four-course rotation was destroyed, and we are still struggling to avoid worse effects. The reorganisation of our agriculture to meet this changed situation effectively is one of the most urgent needs of to-day. But perhaps the habits of our people are too settled, and our system of land tenure too rigid. We may possibly decide that it is to our interests to follow from now onwards the lead of other European countries and isolate our agriculture from the forces of world progress by means of a tariff, supplemented by Empire agreements. But inevitably this must entail an obstruction of progress in the sense in which we may have been using the term.

The situation in Great Britain may usefully be contrasted with that in India, where age-long bonds of custom and religion have produced an environment so highly resistant to structural change that progress has been made almost impossible. The standard of living of the ordinary Indian peasant has scarcely altered over a period of 500 years or more ; and so long as the Indian's basic social structure remains what it is, attempts to improve his lot must continue to fail.

Over 70 per cent, of the Indian population is directly engaged in farming of some kind or other. If we include those whose occupations are closely connected with and dependent upon agriculture, the percentage rises to over 90. The factory or industrialised system of Western

civilisation finds little or no place. There are less than 750 towns with 10,000 or more inhabitants, and only 30 of 100,000 or more. But there are over 500,000 villages. The great majority of the vast Indian population—one-fifth of the whole world in numbers—lives under rural conditions. India is, and will be for a long time, a predominantly agricultural country. Further, it is a country of peasant farming. The large-scale or " extensive " system plays but a small part in Indian life. India has to carry all the responsibility of the " intensive " system, but local customs make it impossible to establish the conditions essential to its success. The fertility of the soil is low, and the ryot uses little or no manure. The meagre supplies of manure produced by his cattle are largely used as fuel. His animals are used for draught purposes only ; they are not an integral part of the farming. These conditions belong to the practice of the " extensive " system, a system which can only be maintained in health and reasonable comfort with a low density of population. The country is hopelessly overstocked with cattle, and the great bulk have a miserable and inefficient existence. The production of foodstuffs for human consumption occupies the greater portion of the cultivated area ; only a small amount is given for the direct use of animals ; most of the food for animals is obtained from the straw and stalks of human food crops, or on the grazing grounds which themselves have been much reduced by the increase in areas under cultivation necessitated by population increase. The operation of the laws of inheritance results generally in a division of land into smaller and smaller units, so that eventually one man or a joint family may hold a number of plots of varying shapes and sizes scattered over a wide area, among innumerable others similarly scattered. The same procedure operates to an enhanced degree in the case of the actual cultivators

of land, who may or may not own a few scattered plots, and who have to rent additional plots wherever they can. In a country with such an intense pressure of population, it is tragic to find, as in the Punjab, that 5 per cent, of cultivable land is lying useless because 'fragmentation has been so excessive as to prevent agricultural operations altogether, while another 1 per cent, is lost in boundaries which could be abolished by consolidation.

One of the greatest of all difficulties in India is the religious one—the veneration of the cow by the Hindu, which has most unfortunate consequences for both cow and Hindu. It is difficult for the Western mind fully to understand how the taboo against killing cattle can exist side by side with apparently complete indifference to the miseries endured by starving and decrepit animals. The country is in a vicious circle. The cattle are not properly bred or fed, and so the supplies of manure which would enrich the soil, and milk which would improve the cultivator's diet and perhaps also bring in a cash income, are both inadequate. The fertility of the soil thus remains low and the ryot himself remains impoverished ; and because of these two factors he has to devote the greater bulk of his land to growing food-stuffs for his own consumption and can spare little area for fodder crops for his cattle. The latter, in consequence, become still less efficient. The sale of stock for human consumption, and the manufacture of by-products, would reduce the excessive numbers of cattle and provide additional income, but that avenue is closed to the bulk of cultivators for religious reasons. It is said that in Bengal the deterioration has reached such a stage that in spite of the teeming cattle population, large numbers of additional oxen have to be imported—and therefore fed—to assist in the work of cultivation. To break somewhere or other that vicious circle is a

10 LAWS OF GROWTH AND STRUCTURE

gigantic problem. There is another. The Report of the Linlithgow Commission declared : "*No lasting improvement in the standard of living of the great mass of the population can possibly be attained if every enhancement in the purchasing power of the cultivator is to be followed by a proportionate increase in the population.*" A well-known expert on agriculture has appended this comment :

It is of little permanent use to give the cultivator better crops if he grows them in the old way on fragmented holdings, or to give him better cattle if they are managed on the semi-starvation methods. The final result is that any improvement introduced merely serves to keep a great number of people on the old and unchanged low standard of existence. The ryot is imprisoned within walls of his own agricultural system and, year by year, his numbers grow while the walls remain.

Brooding over the Indian's destiny sits the Spirit of the monsoon.

To the cold-weather visitor the rains must at the most remain a name. Experience of a single rainy season is only the first step in the education of the student of rural India. After twenty years or so a realisation of the full significance of the monsoon becomes possible. In that time words are translated into first-hand experience. The well-known uncertainty of the monsoon produces other effects besides limiting the annual harvest. The character and outlook of the population have been affected. The people feel that the monsoon is in command. The villager is convinced that he has to accept what providence has seen fit to provide. Hence the well-marked fatalism of the people, the general stagnation of village life, and the absence of any desire on the part of the cultivator to improve his conditions. Anything approaching a high morale cannot therefore be expected under such conditions. It is not surprising to find that it does not exist.¹

To appreciate to the full the depth of India's tragedy one must contrast it with agricultural conditions in free and unfettered countries like Australia and America

¹ Howard, *The Development of Indian Agriculture*.

which are still in the first phase of their development, with a small population, and the help of labour-saving machines which make it possible to harvest a crop so meagre that a British farmer would plough it up.

I have cited the extreme case of India at length for two reasons : it provides a vivid instance of the forces of progress stultified by an economic structure built up by tradition and custom ; and it serves to illustrate how general is the ignorance that exists on this subject. Although India's whole political and economic system is under official review, and innumerable articles and books are occupied with the matter, it is relatively rare to find more than a passing reference to the " structural " condition which I have described.

Many other examples of the close dependence of economic life on social or geographical structure could be given. Starting from the Nile, Euphrates, or some other river of south-west Asia, from which agricultural civilisations based on the settled cultivation of the grains and other plants of the mountainous regions are believed to be sprung, one can trace their drift, along with that of the early men who disseminated the newly acquired knowledge of cultivation, across the continent of Europe. Each area adapted that knowledge to suit its local needs, with a social and religious frame-structure which maintained the knowledge in operation and assisted its consolidation and improvement as experience prompted. Only at rare intervals was the basic system changed by some invention or new discovery. Parts of Europe appear to have been occupied by cultivators from the second millennium B.C. onwards. Crawford's aerial survey photographs reveal the outlines of ancient fields of block formation on the South Downs which suggest that in England agriculture was practised before the invention of the plough. Beginning, probably, with a plan which depended on moving the whole community

when the soil showed signs of exhaustion—as is implied by the traces found in Europe of villages occupied for a few years and then relinquished for new ones (a system which still appears to linger in Lithuania, parts of Korea and Africa)—settled schemes of cultivation, such as the in-field and out-field and the two-field, in which each member lies fallow alternately, were gradually evolved. The effects of climate and nature of soil can most interestingly be traced in such differences of practice as obtain on the Mediterranean shore, where the main crop is sown to catch the winter rains and, again, farther north in Russia where seed can be sown in autumn for germination as the melting snows sink into the ground in spring, at which time a second crop can be sown to catch the summer rains—thus establishing a three-year rotation. The relations between these systems and the religions and customs of the people have been made plain by research, for instance, into the life of ancient Egypt, and by the accounts of the lives of primitive agricultural communities given in the Old Testament. Dr. Audrey Richards has made an extremely valuable contribution to this aspect of the subject as a result of her investigations among the south-eastern Bantu of to-day. She has shown that food—its acquisition, preparation, preservation, and distribution—is fundamental functionally in determining the organisation and working of the social, economic and religious systems, imposing on each social group and its individual members an appropriate ritual and code of behaviour.

The situation in many of the more highly civilised communities has been complicated by the superimposition of one or more types of social and economic structure upon each other, all co-existing for a period but ultimately one gaining victory over or absorbing the others. This was the condition of most of the countries of Europe during the greater part of the Middle Ages—

approximately the ten centuries between A.D. 500 and 1500.

To appreciate fully the part played by economic "structure" in determining the course of progress, we must turn aside and examine the laws which govern both the growth of populations and the distribution of their occupations and industries in the territories over which they spread.

CHAPTER II

THE LAWS OF ORGANIC GROWTH

All the misfortunes of man arise from one thing only, that they are unable to stay quietly in one room.

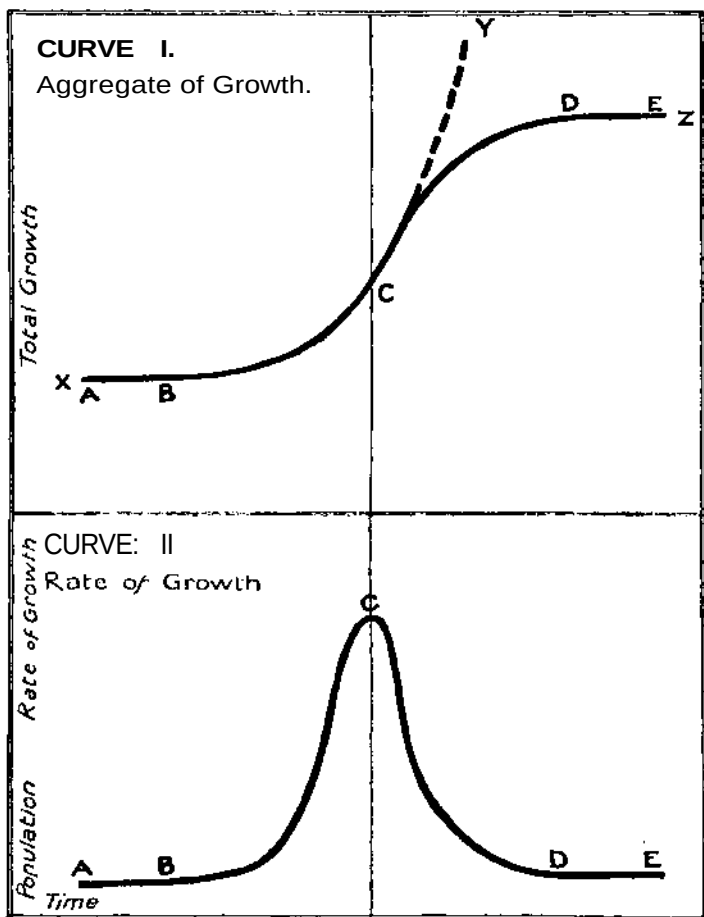
PASCAL.

WHAT precisely do we mean when we speak of a community's social or economic "structure"? Stated in broadest terms the answer is: all the various means by which it adjusts itself to its environment.

From time immemorial it has been known that the growth of populations of living creatures placed in a new environment takes place at the outset with great rapidity, but that after a certain point is reached the rate of growth decreases until it comes to a standstill in a condition of equilibrium with its environment. In more recent times scientific investigation has shown that the same course of development is pursued in such widely varying living things as animal embryos; fragments of live tissue, yeast cells, flies, etc.

Based on those experiments a vast amount of information has been collected concerning the relations between the size of a population and the conditions and area of its environment. Among the simplest organisms it has been shown that where the conditions of environment are kept constant, that is to say, where the new cells always have the same unrestricted access to food, the population increases indefinitely on the compound interest principle, as shown by the partially dotted curve marked X-Y on the chart opposite. No sooner, however,

is the supply of food decreased or limited to a definite quantity than the curve ceases to rise steeply and bends over in the characteristic shape of an "S," as shown by



STANDARD GROWTH CURVES.

the continuous curve X-Z, its rate of growth decreasing steadily until it reaches a condition of equilibrium (D-E) which is the maximum population for that environment. The shape of this curve has been well described as the

form which would be obtained if one first fashioned a letter " S " out of fairly stiff but flexible wire and then, grasping the extremities, partly stretched the wire until the upper and lower end portions were practically straight and parallel with a horizontal base, and the curve at the middle of the " S " was inclined to the right instead of to the left. This was the law which Malthus ventured to state. But recent research has shown the problem is much more than a mere ratio of population to the total means of subsistence. Experiments with yeast grown in closed vessels, for example, where the food supply available for the individual decreases as the population increases, have led to the discovery of a group of factors distinct from the action of the quantity of food. Growth has been found to cease long before the exhaustion of the means of subsistence owing to products, secreted by the organism itself, which are inimical to growth. Neither the lack of available energy nor the lack of room for expansion are the immediate cause of the cessation of growth. " What imposes a limit upon the size of a population in a limited environment is simply the life-process itself." In the case of yeast the immediate inhibiting factors are the carbonic acid, alcohol and organic acids which may be termed the " products " of growth ; in the case of multicellular organisms of more complex growth we have in addition the mutual interference of the various cell-walls and structures built up to separate the various differentiated and specialised cells and functions ; in the case of communities of men—as we shall see later—the check is often provided by the various social and economic " structures " which they erect to form a barrier between individuals and their fellows and their environment, to enable them to lead separate lives and avoid congestion.

So universal is this conformity to an " S " curve plan in the case of population that Professor Pearl has

attempted to give it the precise formulation of a mathematical law.¹ In the case of some of the more primitive forms of life it is possible that the manner in which a community adjusts itself to a limited environment may obey a definite law, but this is unlikely in the case of man. In human communities there is nearly always a substantial element of conscious regulation both of actual numbers as well as of their distribution over the area available. At the same time it seems impossible to doubt the existence of a *tendency* to conform to some such law. This is not surprising, and amounts to little more than saying that populations conform to a principle akin to one already well recognised in other fields under the name of the law of increasing and decreasing returns.

If we examine curve I (page 15) we see that a population begins by growing slowly (A-B), then more rapidly (B-C), after which the rate of growth slows down till the top of the slope is reached (C-D), thereafter it remains more or less stationary (D-E). (The changes in the *rate* of growth are plotted on curve II.) Each of the changes in the rate of growth plays a vital part in the history of a growing community, in the development of its social and economic "structure".

Through what factors are these changes in speed produced? Ignoring immigration and emigration, and assuming the population to be confined within wholly impassable barriers, there are only two factors through which the growing process can be controlled—births and deaths.² An illustration of these two factors at work

¹ Such things, for example, as the waves of immigration into the United States of America have had no effect on the "S" curve beyond steepening somewhat the general upward slope, so long as they went on, and flattening it out when they ceased. The same plan of growth has been shown to be followed by the populations of Austria, Belgium, Denmark, Hungary, Italy, Norway, Scotland, Serbia, Japan, Java, the Philippines, Baltimore City, and the World as a whole. (See Raymond Pearl, *Biology and Population Growth*.)

² If a population is unaffected by migration, the form of the population curve will be determined primarily by changes in the birth-rates and death-rates.
E.C.P. C

in shaping our population is given in the diagram used as a frontispiece. This diagram does not, of course, give the same clear picture as does our theoretical example in Chart I. Moreover since our population has not yet stopped growing the curves are incomplete, but there can be no doubt that the same main movements are present. I have endeavoured to explain changes in the rate of growth by a series of fine vertical shading lines between the birth and death curves. The lines are close together when growth is increasing rapidly, and far apart when it is slowing down. The intervening periods (shaded black) were periods of "congestion" when growth was restricted. It should be made clear that while all populations obey an "S" curve plan, some produce curves that are more drawn-out than others according to whether growth is slower or more rapid than that illustrated.

To picture the process by which a population adjusts itself to a limited environment we may employ the convenient analogy of an audience filling a concert hall. First, a few early comers arrive, who enter the hall but slowly. Then, as the time of the concert approaches, the rate of new arrivals increases rapidly. At first these latter increase the speed at which the hall fills. But since the number of entrances and gangways to the

rates. "Suppose our population to have existed for a long time under one set of conditions—e.g. the conditions of an agricultural population—to have passed through this cycle and to have stabilised down, so as to have reached the age-distribution determined by the given death-rates at ages. Now suppose it to be suddenly jerked into a fresh cycle of growth, e.g. by the advent of industry, by passing through an 'industrial revolution'. The first consequence of the sudden fresh start in growth is to send *up* the death-rate very considerably above the life-table value, owing to the greatly increased numbers of infants and children at the younger ages when mortality is high. As these increased numbers spread to the ages at which mortality is low, the death-rate rapidly drops until it reaches a minimum. As the increased numbers reach the more advanced ages there is a rapid rise to a temporary maximum, after which the death-rate steadily and continuously rises." (Udny Yule. See Presidential Address, Royal Stat. Soc., 1925, Vol. LXXXVIII, Part I). The birth-rate curve shows the effects of the initial shock in a very similar way; it rises abruptly, and then falls with a marked wave, coincident with that in the death-rate, but afterwards settles down into the normal movement for the cycle.

seats will be limited, a point will be reached when this speeding up will cause congestion which will slow down the rate at which new people are able to enter. As the number of unfilled seats will likewise begin to decline this slowing down will tend to be progressive. Last of all there will be the late arrivals, whose rate of entry will be slower still. Once the hall is filled to capacity no further people can be accommodated in it unless either its seating accommodation or its structure are altered. If we substitute a "population" for our audience, their "means of life" for the actual seats, and a "territory" for the concert hall itself and its seating arrangements, we can construct a very close parallel.¹

Let us examine in turn the parts played in building a social structure by the three factors illustrated. Starting with population, we may enquire: How comes it that a population is subject to a principle akin to that of increasing and decreasing returns? Considering a community in the "raw", casual observation might lead one to believe that an undisturbed natural animal community would live in a certain natural harmony described as the "balance of nature", and that though rhythmical changes might take place in this balance they would be more or less regular and predictable. But this idea of a general constancy in numbers, which prevailed until recently, has been rudely shattered by the investigations of Hewitt and Scton into the remarkable cycles of wild life which have gone on for ages in the forests and barren lands of Canada forming the hunting grounds of the Hudson's Bay Company. With the single exception of the beaver, there is hardly a single fur-bearing animal in Canada that does not fluctuate in numbers from year to year in the most startling manner.² Perhaps the most astonishing dis-

¹ This analogy is worked out in detail in Appendix I.

² See animal cycles in chart on p. 41.

covery of all about animal communities is that, despite the extreme vicissitudes to which they are so frequently exposed, their species composition remains very much the same over long periods. Each species appears to strive to maintain its numbers at a figure which would neither be too small for it to be destroyed by chance or by undue increase in its enemies, nor too large for it to over-eat its food supply and die of starvation or of some epidemic disease.

The general rule is that as conditions become easier, more individuals are able to survive, but as soon as a territory reaches saturation point, then climatic and mental environmental influences begin to make the death-rate rise instead of fall. The three main controls of the death-rate have been war (including in the case of animals extermination by predatory species), famine and pestilence, and, of course, changes in the birth-rate. If we remove any of these controls we have to rely on the remainder to do the work.¹

This regulation of numbers is not simply a matter of allowing nature to remove the surplus by famine, disease or extermination. There is abundant evidence pointing to the existence of some regulating power within the animal community itself—analogous to the chemical products in the case of yeast cultures—which impels groups of animals to deal with their more pressing economic problems either by migration to another region or by a change in mode of life.² The migratory impulse at times reaches an intensity which would be almost

¹ An interesting example of this process in operation among animals at the present time was given recently by Mr. A. C. Hinton (*Nature*, Nov., 1932). In the Kaibab National Park, of the Grand Canon district, the mountain lion has practically been exterminated, with the result that the deer, deprived of their natural enemy, have multiplied unchecked. In 1924 there were 30,000 of them, more than the area could support; when the grass had been eaten and the trees had been bared as far as the animals could reach, the deer starved. Starvation coupled with inactivity has sapped the strength of the deer so that they may fall before the first epidemic disease or first bad year they encounter, and possibly suffer extermination.

² See also J. C. Willis, *Age and Area*. Also *Science*, Feb. 1932.

incredible were there not on record such well-known and recurring instances as those of the migrations of the little lemmings, for example, in Norway and Sweden. In these small animals the impulse is so overpowering as to drive them sometimes as much as a hundred miles from home. The lemming has for hundreds of years attracted attention by its periodic appearance in vast numbers. It lives normally on the mountains in southern Norway and Sweden, and on the arctic tundras at sea-level farther north. Every few years it migrates down to the lowland in immense numbers. The lemmings march chiefly at night and may traverse more than a hundred miles of country before reaching the sea, into which they plunge unhesitatingly and continue to swim until they die. This migration is caused primarily by over-population in the mountain home, and the migrations are a symptom of the maximum in numbers which is always terminated by a severe epidemic, reducing the population to a few individuals. After such a "lemming year" the mountains are almost devoid of lemmings.

The records of skins obtained by the Hudson's Bay Company in Canada show that lemming years have also occurred in Arctic Canada. It is curious that the lemming years in Canada and Norway synchronise almost exactly in the two countries, and there is little doubt that the numbers are controlled by a common factor—which can only be climate.¹ The records show that Greenland and the islands of the Canadian Arctic Archipelago also have lemming maxima at the same time as the others. It might be thought that the lemming is exceptional among mammals in having such marked and regular fluctuations in its population. This is not the case. All small rodents, in all parts of the world for

¹ Charles Elton, *Animal Ecology*, to which I am indebted for many of the facts here given.

which there are any data, undergo periodic fluctuations of the order of three or four years.¹ Squirrels in North America, Europe and Asia have periodic maxima in numbers separated by intervals of five to ten years. Some of these maxima are associated with huge migrations like those of the lemming. In 1819 a vast army of grey squirrels swam across the Ohio River a hundred miles below Cincinnati, while in 1897 a great swarm passed through Tapilsk in the Ural Mountains—a solid army marching through for three days, stopping only at night. They even swam the river. In Denmark and Norway there are also periodic variations in squirrel numbers. The African springbucks behave in the same way ; perhaps once in every ten or twenty years they emigrate in vast numbers. From this emigration none return.

Men, too, whenever they have failed to acquire " control " of their environment, appear to have been subject to similar rapid changes in numbers. From these changes in numbers have arisen the well-known waves of civilisation.² In areas where natural conditions

¹ See Chart III, p. 41.

² The following table has been prepared from data given in Professor Flinders Petrie's *Revolutions of Civilizations*.

PERIODS OF CIVILIZATION.

Wave.	Approximate date of inva- wave.	in	Egypt.	In	Europe.
1st wave	Prehistoric	—	—	—	—
2nd	Prehistoric	—	—	—	—
3rd	6000 B.C.	O-Hnd	Dynasties	—	—
4th	4960 B.C.	IIIrd-VIth	Dynasties	The Early Cretan Age.	
5th	4000 B.C.	VIIth-XIVth	Dynasties	The Middle Cretan Age	
6th	2600 B.C.	XVth-XXth	Dynasties	The Late Cretan Age.	
7th	1200 B.C.	XXIst-XXXIIIrd	Dynas- ties.	Classical.	
8th	A.D. 450	The Arac		Mediaeval.	

Incidentally the so-called dead-ends in art forms by which Professor Flinders Petrie seeks to measure and compare these movements appear to be not necessarily marks of decadence as he supposes, but outward signs of the inner mechanism by which the nomadic consciousness adjusts itself to a communal or " settled " mode of life. (See T. C. Bartlett, *Remembering*.)

of food supply have permitted "control", the inhabitants, after a lapse of a period of years—sometimes amounting to centuries—seem almost invariably to have acquired power to regulate their numbers and in so doing have lost their warlike and migratory qualities. Unfortunately this has in due time rendered them an easy prey for the surrounding nomads who, living in harsher climes where any form of settled existence or artificial control of numbers was impossible, remained open to the stimulus of mass migration. The foundation of every new period of civilisation appears to have been due to an external invasion of this kind, the new invaders in due time suffering in their turn the same fate as those they dispossessed.

What do we mean when we say men have secured "control" of their environment? That the "means of life", namely food sufficiency and climate, have influenced the "placing" and movements of both animals and man during the various phases of world history, has so long been known that it is unnecessary to enlarge upon it. It is probable that the "mass" migrations of exceptionally prolific breeders like the lemmings can be collated with periods of superabundant food supply and a rapidly falling death-rate, followed by years of famine. But shortage of food and climatic change have not been the only factors. There is the third element in our concert-hall analogy—the concert hall itself and its seating arrangements representing "territory". Man and most other members of the animal world has inherent in his nature a deep-seated instinctive need for "territory"—a space in which to provide himself with the means of existence and in which he is free to conduct his life without interference from his fellows. The possession of this definite "territory" more or less reserved for himself and his family would appear essential to his free growth and development. To gratify this instinct

man will face almost any privation or danger, even death. This instinct applies to mental as well as physical needs. It is not confined to animals for it exists even among birds, where it shows a remarkable degree of refinement. On the principle of the old saying : " One hill cannot shelter two tigers," there is a tacit arrangement that each individual or pair or family shall " have " an area sufficiently large to supply its food requirements. Hawks divide up the country in this way, and similar systems play a very important part in the lives of other birds. Experiments made by trapping ringed birds in America point to yet greater refinement of this instinct. Not only does " territory " dominate the breeding pairs during spring and summer, but in the winter when the birds emigrate in search of food it dominates the flock. Experiments on crowned sparrows suggest that each definite flock has its own almost exclusive measured territorial range ; but curiously enough as soon as the nesting season begins the birds subdivide the territory among themselves.

Many experiments have been made, all of which go to show that the degree of congestion among animals or insects in a given space has a definable influence on the vital processes of the individuals composing the population. Some of the most interesting and best known of these experiments were made by Professor Pearl on fruit flies (*drosophila*). " There is a profound and regular change in the rate of reproduction of *drosophila*," said Professor Pearl, " under the conditions of experiments, with increasing density of population. The rate of reproduction per mated female per day declines as density of population increases, at first extremely rapidly, and then more and more slowly at higher densities." The decrease in the rate of egg-production with increasing density of population follows the same type of mathematical equation as that which relates

the density of a gas to the mean free path of its molecules. Numerous observations of the behaviour of single flies under isolated conditions have shown that they go through regular cycles of feeding, walking or flying, resting and cleaning their legs ; that these rhythms are easily disturbed by environmental interruption, and that the denser the " population " the greater the mutual interference in rhythmic activities among the units. The time devoted to food collection, deposition of eggs and muscular development accordingly decreases. In the case of tadpoles, Dr. Podhradsky has demonstrated that where these influences occur in a condition of congestion, mutual disturbance appears to be the cause ; and that where the conditions provide a large living space, isolation seems to be responsible. The effects were intensified as the tadpoles grew. Similar rules have been found to apply to fowls. The larger the crowd the smaller the egg production, even though the number of birds per unit area, or the unit area per bird, is the same in both crowds. Locusts provide what is perhaps the most illuminating example of the mechanism of population adjustment. For here we are able to watch density of population in a given space increase to the point at which it leads to " mass " migration. Locusts produce two quite separate and distinct types of individuals depending on the density of congestion. They are known as the " solitary " and " swarming " phases respectively. Each phase is capable of being transformed into the other. The former is harmless, while the latter is responsible for the plagues of destruction which have been experienced in locust-breeding countries from time immemorial.

Professor Faure has shown that locusts raised in crowded cages invariably assume the colour and structural characteristics of the swarming phase. Those kept in isolation become typical of the solitary phase. The

factor responsible for the transformation seems to be the great activity on the part of locusts in crowded cages where every movement of an individual disturbs others and mutual excitation never dies down. The excessive activity results in an abnormally high rate of metabolism, which is associated with striking changes in colour. If solitary hoppers are made to lead an excessively active life they produce locusts of the swarming type. In South Africa practical use is made of this knowledge to prevent solitary individuals from congregating and thus avoiding the occurrence of the swarming phase.

Here then we have an explanation both of " mass migration " in a nomadic community and of the slowing down in population in a " settled " territory.

Although it is impossible to carry out laboratory demonstrations in regard to effects of " congestion " on population growth among human beings, we do know that the principal industrialised white populations of the world have been slowing down during the past fifty years, a movement which has been accompanied by an experience of " congestion ". At the present time they are nearly all approaching the stationary stage. We all know from personal experience that a feeling of being " shut in " does have a remarkable effect on individuals in all kinds of circumstances. Recent medical research on gland secretions has thrown much light on the relation between mental stimulus and physical processes and hence on this present topic. Some of our glands, it has been proved, exude highly potent substances into the blood, when balance with environment is disturbed. Scientific discovery has enabled us to appreciate that what a generation ago would have been regarded as an exclusively mental process can indeed affect even such things as the sex impulse.¹ A man, although he may

¹ There is evidence that the altered character of the basic struggle for existence in a crowded community is associated with a reduction in the intensity of the sexual drive, a fall in sex potential, and, sometimes even, a reversal in its

have ample actual land room in which to move, may feel that the free development of his personality is obstructed ; he may suffer from the same feeling of congestion as the man living in an overcrowded food area ; and this feeling, so far as we can tell, will, if at all general, have the same effect on the growth of the population in the one case as in the other. The fact that in an attempt to protect himself from the pressure of these forces of " congestion " man will also *consciously* control his birth-rate and build a social " structure " which he subdivides as his community grows in size, in the same way as he builds a concert hall and subdivides its seating capacity in order that each member may enjoy his music with the least possible distraction, is part of the machinery of adjustment.

Similarly the home and territorial instincts of animals and birds are reproduced in man. Recognition of territorial rights is one of the very first signs of the growth of civilisation in man. Thence " home " life begins and the foundation is laid for transforming the savage into the civilised human being. It is beyond question that the strictness with which territorial rights and other tribal barriers are observed by savage peoples has exercised an important influence on the development of racial characteristics and on the evolution of new races of mankind. Man, as we have noted, will not for long be content to remain unprotected from the forces of his environment. He will strive to " control " it. The boundaries of his "territory" will not—if he can help it—continue as the vague and ill-defined frontiers

orientation. While these differences are in part doubtless due to greater opportunities of dissipating nervous energy, changes in environment and diet almost certainly alter the balance of glands of internal secretion. Certain of these glands, notably the adrenals on the kidneys, are known to have a marked influence on sex potential. Removal of the preputiary has a marked effect on sex behaviour and the modifications produced by this glandular change are similar to those caused by changes in external climatic conditions and psychological factors. (See investigations by Eliot Howard on birds; Pavlov on dogs, etc.)

in which the nomad is by the force of circumstances of his wandering life compelled to acquiesce. He will search for a place where he can lead a "settled" life; a place where he can protect himself against wide fluctuations both in his numbers and in his food supply. This latter will only be possible if he can find an area where he can divorce himself from direct reliance on the fickleness of the bounty of nature by developing the arts of civilisation. In early times this could only be done in certain special favoured river valleys. Thus it was that the arts of civilisation—that is to say, the practice of life in "settlement" in contradistinction to the roaming existence of the nomad—traced back to their origins, inevitably lead us to the great river beds of the world like the Nile, the Indus and the Euphrates in each of which irrigation is a natural, not an artificial function.

When I say that man deliberately adopts a "settled" mode of life I mean that he decides no longer to allow his life to be determined solely by the direct contacts between himself and his environment. He surrounds his territory, as it were, with a wall so that he may be free to develop inside it with less interference from outside. This wall is what I have in mind when I speak of a social or economic "structure".¹ Like the hall and seating accommodation in our concert-hall analogy,

¹ In the case of nomadic peoples who have no settled "home" the territorial sense cannot, as with a "settled" people, be used to provide the basis for the erection of a social "structure" or for regulating and defining the relationships of man to man. Nomadism requires free territorial movement. The special type of society and culture created by nomadic races may be termed patriarchal, after the patriarchs of the Old Testament who belonged to that tradition. Its subdivisions are based on personal kinship, real or fictitious, rather than on locality. It is *functional* rather than *territorial*.

Of course this is only completely true of its earlier stages. "In the pastoral stage it was, broadly speaking, entirely true; and even the earlier phases of agriculture did not destroy this feature, though the gradual adoption of intensive agriculture, and, finally, the settlement of the craftsmen in towns or cities, ultimately caused it to disappear. It is to this personal conception of society that we probably owe the somewhat misty 'race theories' of modern speculation" (Edward Jenks, *The State and the Nation*).

this structure will limit the possibilities of growth. Given a particular arrangement of seating accommodation, or size of building, there is a limit to the number of people that can be accommodated in our concert hall. We can, of course, alter the structure and subdivide the seating accommodation, but only up to a certain point. For the more subdivided and specialised the accommodation becomes, the greater will be the difficulties and expense involved in making further subdivision. This is well illustrated by the honeycomb-like structures of streets and houses—called cities—built by man to enable a gradually increasing number of individuals to live by "industry" without becoming unduly congested. But in spite of these "structures" man (except possibly after many centuries of natural selection by "mass" migration, famine and disease) will remain susceptible to the old natural stimuli. Given the opportunity, his birth-rate will react to the old natural forces of growth no matter how he endeavours consciously to control it; the old "migratory" instinct will still affect the mentality of his people; and, lastly, the limitations of his natural environment will still exercise a check on his ability to increase "the means of life" by subdivision of his activities.

To escape these dangers, a human community approaching its limits of practicable growth will strive to strengthen the social structure by employing legal enactment and social custom to harden the cell-walls of the territorial and personal subdivisions established by experience. A complex code of land tenure will be built up to safeguard the subdivision of the land; the birth-rate will be controlled; systems of apprenticeship, with organisations to regulate new entrants and protect existing personnel in the principal occupations and professions, will be set up; while custom and tradition will be invoked to rivet the joists of the less easily defined though

not less restrictive framework of the social structure as a whole. The so-called "classes" are the main walls of the social structure. Without classes there can be no social structure. A structureless world is a classless world.

In the case of the older civilisations, where this process of achieving a balance with environment can be followed through several centuries, certain characteristic changes in the form of social government are to be noted. During the first or invasion stage, when "the nomads" are engaged in subduing the "settled" occupants of the area and strong personal leadership is essential, an autocratic form of government is the rule. When the decisive subjection of the invaded has been assured and the unity of the country can be achieved by law, autocracy passes into oligarchy. Finally, when the social structure has become firmly established by habit and custom, there is a gradual transformation to democracy. This passage from a "nomadic" to a "settled" condition appears, as we have already observed, to be associated with marked changes in the temperament of the people.

In our own time the French may be said to represent a typical peasant of "settled" people; the Germans, occupying as they do the cross-roads through which the invading hordes of Northmen in former centuries swept down to the fertile valleys of the Mediterranean basin, still retain many of the characteristics of the primitive nomad. Midway between the two stand the English, still exhibiting traces of the nomadic temperament yet rapidly approaching a "settled" condition. The structure which they have been engaged in building, however, unlike that of the French, is based not on a territorial or agricultural subdivision of wealth but on a functional or industrial subdivision. Herein lies its unique quality. Obviously the number of people which can be accommodated in a given area will largely depend on the type

of " structure " selected and the plan according to which it is subdivided. Among the hunting and nomadic cattle-breeding races of earlier civilisations a very wide area was needed to support a given population ; the same area when used for arable agriculture could support many more people, and this area when used as under the system of " enclosure " could support a still larger number. In other words, subdivision of the " territory "—for this is what these changes in the economic use of land in effect meant—was essential before more people could be crowded into existing areas. To maintain the subdivision, moreover, it was essential that the community should adopt a definite economic or social " structure ". For each of these different states of civilisation or " structures " there would be a limit to the size to which the population could grow without causing " congestion ", but the actual numbers in each of these populations would tend to be larger as civilisation moved from the simpler to the more complex type of subdivision in its agriculture.

Experience would lead us to expect that each enlargement of structure would be accompanied by a new cycle of population-growth starting from a base line measured by the population, reached at the end of the previous stage of civilisation. The collection of statistics is such a recent enterprise that we have only relatively few examples which can be illustrated in detail by actual figures. We know that something of the sort began to happen to our own population in the seventeenth and eighteenth centuries, when we ceased to be a purely agricultural country and entered upon the industrial age, and again in the 1850's and 1860's when we passed from a simple to a more complex industrial subdivision. A European country for which more or less detailed figures are available is Germany. In the 1850's Germany was still predominantly in the agricultural stage

of civilisation ; she did not become fully industrialised until after the Franco-Prussian War. We find that her population-growth was slowing down. The remarkable industrial development of the next twenty years, however, led to the abandonment of the old curve of growth and the starting of a new one which used the preceding curve as a base line.

It is to provide a framework in which *communal* growth can be reconciled with the exercise of the *individual* instinct for "territory" that man organises the "structures" known as social and economic systems, in the same way as he builds houses subdivided into rooms to enable him to safeguard the same instinct for privacy in his domestic life. Throughout this book I shall refer to these arrangements as "structures", so as to keep to the fore their basic purpose of acting as cell-walls, both to separate individual man from his fellows and to keep his several activities from interference with one another. Groups of individuals who have by means of their social and political systems arrived at satisfactory "structures" for subdividing their "territory" and their own activities, will *jointly* apply the same instinct in adjusting their "structures" and territories to those of other similar groups. Through this natural evolution have arisen such things as frontiers and the division of the world into States and Nations.

Given an increase in population, and our modern system of industrialisation, it is easy to understand how an economic structure like our present one has grown. The process begins with the break-up of the existing agricultural structure and the gradual enlargement of "cottage" industries. Villages turn into towns, and towns into cities. At the same time a heavy strain is thrown on the local supplies of food, clothing and building materials. To supply these increased demands the agricultural system must be reorganised and the pro-

cesses of manufacture mechanised. But growth will not end there. Soon the community will find that it is unable to provide all its raw material needs and food supply from within the confines of its own native area. National organisation and specialisation must give place to international organisation and specialisation. But other nations will be doing likewise. Soon the expansion of one National system will begin to impinge on that of another. Competition will replace co-operation, and this will slow down the process of expansion by international specialisation. Slowing down, however, is not easy. Population growth will not respond immediately to forces of congestion ; and in any case those already born will have to be provided with employment when they reach the earning stage. The inevitable result will be " congestion " followed by competitive migration and, in all probability, war. Even so the problem will not have been solved. The primitive agriculturist, who has owed his success in the struggle for existence to the fact that he has never specialised, will have become even more specialised than the ant. In many areas his chance of survival will depend on his ability to throw off the shackles of specialisation and become more generalised. Meanwhile he will endeavour to save his society from complete disintegration by erecting a protective wall against external interference, and by limiting the freedom of action of individuals within it by co-ordinating their economic activities into combines, cartels and other similar organisations. This is the stage which has been reached by the world of to-day.¹

To complete the picture we must enquire what happens if, owing to some unforeseen circumstances, a population which has built up an elaborate social and economic

¹ In Appendix I will be found a brief statistical analysis of the relation of these changes in economic structure to population growth over the past century in the United Kingdom, illustrated by charts.

" structure ", manages to escape from it. The answer suggested by experience of other growing things is that the released population will immediately recommence to grow at what might be termed compound interest. A piece of living tissue, for example, freed from the environment of the body and placed in an unrestricted laboratory medium, will cease to follow the " S " curve plan and start to multiply by geometric progression.

The release of the forces of growth by removal of " structural " control is strikingly exemplified by what has happened on certain occasions when man has unwittingly interfered with the " structure " which nature has imposed on communities of animals and plants. The most familiar example is the sudden introduction of a species of animals into a country to which it is a stranger and in which it does not at first harmoniously fit, such as the introduction of the rabbit into Australia and New Zealand. In such cases there is usually a definite and characteristic sequence of events. At first the animal is unnoticed, or else is prized as a link with the home country. The starling was introduced into New Zealand by acclimatisation societies bent on brightening the country with British birds. In the next stage the animal may suddenly appear in the dimensions of a plague, accompanied by a migration or by another secondary plague as when huge armies of rats marched over New Zealand. The starling was instrumental in spreading the seeds of the common English blackberry in New Zealand, and was thus one of the biggest factors in the production there of the blackberry plague—the formation of thickets of blackberry, covering the country for miles, making agriculture impossible, and in some places forming a danger to lambs, since the latter got caught inextricably on the thorns. After a number of years there is often a natural dying down of the animal plague. This is due in most cases not to the direct efforts of mankind in

killing off the pests, but rather to the animal striking a sort of balance with its new surroundings and acquiring a set of checks which act fairly efficiently. The rabbits in New Zealand are now subject to periodic epidemics which reduce their population.

That human populations follow similar rules is suggested both by Germany's change-over from agriculture to industry, already quoted, and also by our own experience in the eighteenth century, when our territory, which in the centuries previous to the industrial age had never been able to support a population of more than between five and seven millions, found itself within less than a hundred years supporting over four times that number. A closer analogy than that of animals and plants is perhaps to be found in the behaviour of the emigrant populations of Europe in the New World during the nineteenth century, the rapid expansion in whose numbers was in many cases viewed by the local inhabitants as approaching the dimensions of a plague.¹

¹ Modern Japan provides a highly instructive example of the effects of "releasing" from structural control a stationary population in a congested world. "During the Tokugawa Shogunate (1603-1868), life, though often hard and penurious, was perhaps as agreeable for the minority and as tolerable for the majority as it has ever been in any place or time. Peace and good order were maintained throughout the country; a fair balance was held between population and economic resources, *the number of people remaining stationary for two hundred years*; and in the Sih-no-ko division of Society there was a rough but workable method of apportioning social status according to economic and social contribution" (the italics are mine). The restoration of the Emperor to power in 1868 after a lapse of seven centuries was "contemporaneous with that brisk westernising of certain parts of Japanese life that made the European world realise for the first time that such a people as the Japanese were actually in existence" . . . "The population of Japan proper numbered over 62 millions in 1928; in 1878, fifty years before, it numbered only half this figure—it had doubled itself in less than two generations. It is still increasing" (W. R. Crocker, *The Japanese Population Problem*).

Only a fraction of Japan's present numbers can be provided with anything much beyond the barest necessities from the produce of her own soil. "The problem which has to be faced, not only by Japan but by the whole of the world, is Japan's population problem of to-day. Even if the growth in her population were arrested now, there are probably at least fifteen million children already born who will have to seek employment as they leave school, that is, fifteen million children will want employment in excess of the people who leave industry by death or otherwise. Until that problem is solved Japan must continue to increase her exports. If she is driven out of one trade she will

enter another. Every alteration in the nature or destination of her exports will cause some dislocation in the industries of other countries—not least in our own " (B. Ellinger, Broadcast address, Oct., 1933).

In India also, it is the attempt made to incorporate within her inflexible Eastern structure the advances of Western civilisation which is causing most of the trouble. The population of India is 353,000,000. These stupendous figures represent an increase since the last census of 10·6 per cent.—that is to say, an increase equivalent to nearly the whole of the present population of England and Wales. This rate of increase has not been equalled since 1881—91, but there is no reason to suppose that with continuing improvements in sanitation and hygiene, and the reduction (if not the elimination) of the incidence of famine and plague, a rate of increase substantially as high will not be maintained unless some unforeseen cause should introduce a serious modification in the conditions of life among the general run of the population. Since 1881 the population has increased by practically 40 per cent.

Another similar example is China, where the imitation of America and Europe which has so profoundly influenced Chinese education offers no solution of the deeper problems of the nation.

CHAPTER III

THE REGULATION OF OUTPUT

And the way shall he pointed out. Strangely it shall not go either this way, as ye expected, not that way as ye thought ; but elsewhere, unthought, unknown.

BACCHIAE.

I

To include industries in generalisations about " living " things might appear to invite scepticism. Yet the statement that industries and their outputs appear ultimately to follow the plan of organic growth expressed in the "S" curve simply means that things cannot go on for ever growing at a fixed percentage rate—the rate of compound interest. When man claims, in regard to most of the goods he consumes, that he has *produced*, he is often unconsciously guilty of magnifying his own part in co-operation with nature. It would be nearer the truth to say that nature produces the goods and man *releases* or selects those he requires. Most of the various earlier types of economic structure already discussed, as well as those in operation to-day, if traced back to their beginnings, will be found to have had as their primary aim the control of nature or of natural forces. This vital fact, generally overlooked by economists, is of cardinal importance to an understanding of the true nature of the economic problems with which the world is confronted to-day. When man clears the ground and tills the soil, he makes it easier for nature to release her bounty in the things he needs. When he encloses in a

field certain cattle capable of a high milk yield in order to separate them from and prevent them breeding with their fellows, he is selecting from nature's bounty. So with the uses of coal, machinery and a host of modern scientific discoveries, which are primarily methods of unleashing nature's stored-up resources of energy. " Starvation in a world of plenty " was the inevitable fate of the races which were compelled to live in the more northerly regions of the globe until they began to organise and control natural things. Roads, ships, railways, storage equipment (including cold storage) after all are but devices for transferring goods from areas where nature is generous, to others where she is less so ; and it cannot be gainsaid that had these means never been devised or employed, the major part of the fruits of the earth would have been lost or wasted.

The traditional occupation of cattle-breeding affords ample illustration of this truth. All those engaged in the pastoral pursuits have to cope periodically with three great problems. First, the herds and flocks are liable to be decimated by famine, drought, or plagues like rinderpest, leaving the communities who depend upon them face to face with starvation. Even to-day cattle breeders in Africa and Australia may in a single season of drought lose stock worth £100,000 and more. Second, it is rarely practicable to guard against such losses by accumulating great reserve stocks. The account of Pharaoh's dream is instructive. The famine predicted by Joseph attacked both corn and kine. To make a reserve of cattle was not possible ; cold storage had not then been invented, and the drying and salting of meat on a large scale was impracticable. The best that could be done was to keep alive part of the existing stock by feeding it on part of the reserves of corn stored under Joseph's plan. The desperate condition of Egypt's neighbours who were purely pastoral is graphically recounted in

Exodus. It is immediately obvious, I think, that the really important thing about Joseph's innovation was that it enabled cattle as well as people to be saved from starvation.

But even Joseph's apparently far-sighted action might in itself have become an eventual source of disaster, for the third great problem which faced pastoral communities in many parts of the world in olden days arose from the fact that an increase of the means of life would stimulate the growth of population and animals, and hence inevitably, as happens even in the China of to-day, succeeding periodic famine might bring a correspondingly greater catastrophe. It was not until man learned (in the nineteenth century) how both to increase supplies of food at a rate faster than that of population growth and to control the quantities in which they were released, that he was really able to make progress in *wealth*. Economic analysis would lead us to stress the value of *investment* in storage equipment. But, of course, the really important thing was the *invention* of storage, that is, the institution of a means of conserving nature's wastage. In modern times, it was the invention of ships, railways, and cold storage, not the amount of the savings devoted to investment in them, that was responsible for the large production of goods which followed. Until storage and long-distance transport came to play their part no amount of investment of savings could have made the herds of the Argentine, Australia and New Zealand available as a source of cheap food for Britain. It is conceivable that when we have learned the full secret of our "lemming periods" we may be able to provide say, in one year, our meat supply for the next five.

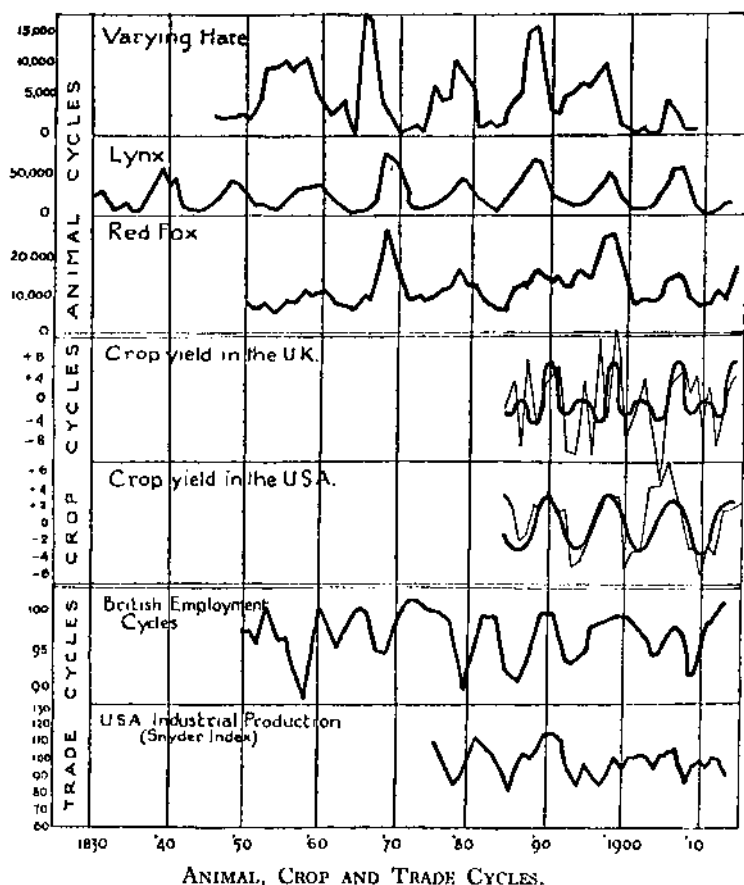
We may, to continue our analogy, quite properly speak of agricultural pursuits as "nomad" industries since their outputs, like the populations of nomadic races, are primarily controlled by fluctuations in the bounty of

nature expressed in terms of climatic change. The important fact about them is that their growth is not controlled by any man-made "structure"; though such arrangements as the subdivision of their land into fields and plantations exercise some control on development, they cannot claim up to the present that they are able successfully to control output. Before the industrial era the fluctuations in the outputs of these "nomadic" industries were the root cause of the oscillations which economists nowadays term "trade cycles". And it is agreed by nearly all investigators that harvest variations still occupy a significant place among the impulses behind industrial fluctuations—good harvests tending to promote expansions, and bad harvests contractions.¹ There has, however, been a tendency to confine studies of the subject to the ordinary grain crops, instead of extending them, as I would urge, to all natural products consumed by man, including textiles and animal products. To show the relations of all these various cycles I have plotted on the chart opposite animal fluctuations, crop cycles, as well as British and American "industrial" cycles.

We now come to the second set of human occupations represented by "industry". These I will term "settled" occupations. They comprise all the man-made industries whose outputs are subject to human control—broadly speaking, all the occupations which we have in mind when we speak of "industry" as opposed to agriculture. The thing which distinguishes them from the "nomad" occupations (agricultural) is that their outputs are controlled by man-made "structures" which in their development follow the same laws of subdivision as the populations of the territories in which they are

¹ "One cannot review the past forty years without observing that the beginning of every movement towards business prosperity and the turning-point towards every business decline were connected with the out-turn of crops" (Professor Piatt Andrew, *Quarterly Journal of Economics*, 1906, p. 350). See also Pigou, *Industrial Fluctuations*, pp. 36 ff.

founded. Reverting to our concert-hall analogy, the features corresponding to the hall, the audience and the seating accommodation in the case of an industrial system are its capital equipment, including the productive "structures", to the building of which that equipment



is devoted, the output which is emitted by those structures, and the markets in which that output is sold. Industrial outputs behave like populations. They increase when their "means of life" (i.e. their markets) are expanded and decrease when those means contract ;

and " structures " have to be built by man to control the rate of growth as soon as the gradual filling up of the markets begins to make free unfettered growth no longer practicable. Unlike the " nomad " occupations, their outputs are subject to control according to the principle of the " S " curve.

These activities also are subject to fluctuations, though these are of a different amplitude from the agricultural cycles already discussed. They are due to our inability to control changes in their " climatic " conditions. The money supply produces the abnormal " climatic " conditions which lead to industrial fluctuations, since growth in industrial capacity depends on money investment. As there is a time which lapses between the planning of an increase in production and the actual marketing of the resultant output, investment must always proceed ahead of requirements. There is thus a " period of gestation " of varying length, during which any *temporary* acceleration in the rate of consumption of the output of existing plants is liable to be interpreted by investors as a *permanent* acceleration, with the result that too many new plants are laid down. Not, however, until the first of the new plants is about to place goods on the market will this become apparent; but by this time it is too late to stop the remainder of the plants except by causing a financial crisis—and not always then. The banks, through their credit mechanism, are among the first to feel the strain and call a halt by raising the bank rate.

Actually, over-investment of this kind will tend to be limited to the particular invention or market which happens to have caught the public fancy at the moment. But the raising of the bank rate which brings the movement to an end cannot be confined to these investments ; it penalises alike the innocent and the guilty. If both prove resistant to the pressure it may be necessary to push the bank rate up to crisis point. These " indus-

trial " cycles have been rightly named " credit " cycles by Mr. R. G. Hawtrey, one of the founders of modern monetary theory, because their amplitude and length is ultimately controlled by the credit policy of the banks. They are also probably, though not necessarily in their present violent form, an ineradicable part of the growth mechanism. It will be clear that these fluctuations will, through the money supply, be linked up with the " crop " cycles, and each may either modify or reinforce the influence of the other. Should both reach their peak of intensity at the same moment a major financial crisis must occur.

II

Now let us see how an industrial system, newly established in a previously unoccupied territory, will grow. Its industries will, as we have premised, begin by expanding freely without let or hindrance from any artificial man-made social or economic " structures ". But as soon as the " first careless rapture " phase of expansion is over and the local market begins to approach saturation at current prices, habit and custom will begin to exert themselves. Individual freedom will begin to be restricted—the rudiments of a " structure " will begin to grow. In order to sell more (assuming, of course, that there are no external additions to the money supply) it will in future be necessary to produce more cheaply. The industrial units which have been subdividing freely by simple repetition of the pattern of their original cell, will now be compelled to adopt subdivision of a new type involving cell differentiation and specialisation—the type which implies correspondence with the plan of the " S " curve. Let us suppose that the boot-makers are the first to embark on this new adventure. Judging by what happens in real life they will begin by arranging that in future the manufacture of certain parts of the

work of boot-making are co-ordinated ; boot-making will be pooled, and instead of each boot-maker producing a complete pair of shoes one will concentrate on, say, cutting out the leather, another on making soles, a third on the uppers, and a fourth on assembling the completed shoe. If they find that as a result of this process four men are now able to do the work of five, they can either arrange for the whole five of them to work less time, the fifth man giving help to each of the other four in turn and then all enjoying more leisure, or the fifth man can be released for other work. Assuming, for simplicity's sake, that the maximum time any man is able to work is ten hours a day, then our group of boot-makers can release between them ten hours for some new work. They can each do two hours a day at some new trade ; or four of them can concentrate on boot-making, leaving the fifth to turn to a new occupation ; and this last is what would normally be done in an expanding community. The same process, we may presume, is going on in other occupations, the employees in which, as well as those in the new occupation, will probably need more boots. A certain number of " released " workmen will therefore be re-absorbed in the newly extended boot-making industry. This economic subdivision of labour, like that of the economic proportioning of food and territory by a population, will continue until further subdivision becomes impossible, or until a stage is reached where there are no new occupations to which those discharged can go and the process of subdivision, beginning to defeat its own object, is forcibly stopped by the community. It may be remarked that in a system using money as the medium of exchange, unless industry places a limit on the " economising " of labour, which is the primary objective of the process of subdivision, it will continue to the point at which the use of money for the payment of wages and profit is almost eliminated. In

the one case this will be done by substituting machinery for man power, and in the other by centralising the whole industry under a single salaried executive and displacing the capitalist profit earners in the several plants, firms and companies.¹

In real life, of course, the matter is far from simple. Difficulties arise, in particular, because the rate of subdivision varies considerably in different industries and is liable to become so complex that it is difficult to know when it has reached the limit beyond which it ceases to be worth while. In the British boot industry of to-day, for instance, there are nearly 150 different operations in manufacture alone, each with its special piece-rate of wages. To-day, compared with the village boot-maker's output of two or three pairs a week, we have an output per worker employed in British boot and shoe production estimated at 21 pairs per week. In America it has been estimated to be 35 pairs, and in the biggest and most up-to-date manufactory in Europe—the Bata establishment in Czechoslovakia—the number is given as 38 pairs per week, though they are not of the same type as those manufactured in England.

In the course of the process of evolution just outlined,

¹ When people state that a desire to secure monopoly, at least in some degree, is a characteristic of practically all forms of industrial combination, they are in reality referring to this universally-felt need of placing some check on the process of industrial subdivision when it has reached a certain point.

Economists rarely distinguish between inventions and machinery which cheapen the production of known commodities—and tend, subject to certain reservations, to *displace* labour—and inventions and discoveries which create new commodities and demands, thereby leading to an *absorption* of labour. Here, of course, I am referring to the former only.

That combines are brought into being by the process of development by subdivision itself and are not peculiar to our modern industrial system as such, is made plain by historical evidence. Cartels and trusts, for example, are as old as industry or commerce on any significant scale. We find them among the Phoenicians, among the Greeks of Asia Minor, under the Roman Empire, and again developing powerfully in the Middle Ages from the thirteenth century. The period of *laissez-faire* which followed the mechanical inventions of the eighteenth and early nineteenth centuries was but a brief interval in a long record of industrial combination of every sort and kind. (See Dr. Roman Piotrowski, *Cartels and Trusts, Their Origin and Historical Development from the Historical and Legal Aspects.*)

the growth of each individual industry in turn will conform to an " S " curve plan. It will begin by growing slowly, then more rapidly, until it reaches a maximum size, after which it will commence to decline. In the aggregate, industries will behave like the units of a population. As new commodities are introduced, so the demand for the old commodities will decline. The faster new industries expand, the more rapidly old ones contract and the more rapidly the industrial system as a whole reaches its limits of expansion. Changes in methods and processes will cause a similar slowing down. Generalising, a rise in the birth-rate among new products and processes means a rise in the death-rate among old products and processes, and conversely. The nearer the industrial system is to maturity, the slower it will grow and the more growth will shift from primary industries to secondary industries and luxuries whose average life-span tends to be shorter and shorter.

A new industry will often behave in the same way as the rabbit and the starling when introduced into Australia and New Zealand. At first it will pass unnoticed, then it may begin to expand so rapidly as to cause serious disturbance over a large section of the industrial field. Ultimately, however, it will strike a sort of balance with existing industries. The new and the old industries will react on each other and restrict each other's rates of growth. The faster new industries in general expand, the greater will be the pressure of this retarding influence and the shorter will tend to be the time for which the new industries will be able to sustain their periods of rapid growth.

So far it has been tacitly assumed that there has been no *outside* interference with growth—especially from the money side. This is a vital qualification. Continuing evolution along the above lines will only proceed uninterruptedly provided the money supply plays a strictly

" neutral " role and that its functions are rigidly confined to those of acting as a " carrier " or " medium of exchange ". That is to say, the basic currency used for the payment of wages and to provide reserves of cash for consumers must remain unchanged except for additions to meet the needs of a growing population, and the credit structure erected on that currency as a base must expand or contract solely in response to changes in the field of commerce and industry. The reason for imposing these limitations on the expansion of the money supply is, as we shall see later, that only under such conditions can the process of evolution by subdivision already described proceed harmoniously and to the maximum point permitted by limitations of natural environment. A basic controlling factor in that evolution is the circumstance that the incomes available for purchasing the goods produced are obtained from work done either directly or indirectly with that production. Any interference with the monetary flow within the plan during the period of growth, especially when it takes the form of substantial additions in the form of new gold discoveries or war-time paper currency inflations, will throw that evolution out of gear. Industries and processes will begin to develop *out of their turn* ; abnormal growth will be encouraged in one direction and sub-normal in another : one plan of evolution will be superimposed on another with which it is inconsistent. The source of these disturbances is the illusion created by new money that the existing limitations on growth and environment have been suddenly removed : that the market for goods at the *existing price level* has no longer a limit ; that the forces making for a slowing up in the rate of growth of old industries and processes have been released ; that the pressure on the economic system as a whole, compelling it continually to change its form and subdivide its " structure " if it wishes to continue to

grow, has been removed ; and, lastly, that the scope for new industries and processes has been suddenly enlarged.

Money is to an industrial system what food is to a population. Increase the supply of money and not only will the birth-rate of new industries and commodities rise but the death-rate of old industries and commodities will decline. Since there will have been no corresponding increase in the " territory ", i.e. the market for the consumers' goods ultimately to be produced, it is only a matter of time before a condition of " over-population ", i.e. over-production, supervenes whose severity and duration will be directly proportional to the intensity of the new money inflow.¹ Over-production, like over-population, will seek relief in migration, when it can find a way to escape from the confines of the structure of its home territory ; otherwise it will succumb to the " wasting " process of a " Business cycle " slump. In the modern world migration of surplus industrial outputs has mainly taken the form of " foreign investment ".

Since growth, both in population and production, responds in the main to the same stimuli, it is not surprising to find that new gold discoveries have set in train long-term oscillations in both population growth and production. In Appendices I and II will be found examples of the oscillations of this type which occurred in the U.K. (see especially Chart C) and in the U.S.A. during the second half of the nineteenth and beginning of the twentieth century. A more detailed account of the former will be found in Chapter VII. That the serious economic and social disturbances caused by these

¹ A *real* increase in the market under the system we are considering in which consumers obtain their incomes directly or indirectly from work done in connection with production, depends on the money required for new industries being made available only by economies in its use in the old (except of course the *new* money needed to provide for additions to the population). The reason is that an *external* addition of money will in general cause prices to rise faster than incomes and so the market for consumers' goods will fail to keep pace with output. (See Chapter VI, page 92.)

oscillations (which also followed an " S " curve course) were due to an upsetting of the established relations between the birth-rates and death-rates among individuals in the case of their populations—and among new and old industries and processes respectively in the case of production—is fully supported by the limited evidence available. In the case of production the phase of rapid growth in these cycles has been marked by a sharp divergence in the rates of growth shown by individual industries, while during the period of decline these rates have tended to drift closer together, reaching a minimum dispersion at the end of the cycle. In the case of Britain, where the amount of information in regard to the long-term trend of production is very meagre, one must be content to study these changes through their reflections in prices. In the U.S.A., however, a large amount of extremely valuable data has been collected.¹

The position of the general body of consumers at the close of one of these periods of heavy gold inflow may be likened to that of the subscribers to a new concert hall, induced to finance a reconstruction of the hall and its seating arrangements in the belief that this would result in more spacious and luxurious seats being provided for everybody, only to find when the reorganisation is complete that a part only of the audience has benefited. Moreover, their improvement in accommodation will in a substantial measure have been gained at the expense of cutting down the standard of accommodation for the remainder : the prices of all the seats will have been raised, but for a comparatively limited number only will there have been any equivalent improvement in the accommodation provided. The new hall, it is true, is

¹ For British price movements, see my paper on " Business Forecasting ", R.S.S., Vol. XCV, 1932 ; for U.S. production figures, see the studies of Wesley C. Mitchell and Warren M. Persons, as well as the many valuable publications of the " National Bureau of Economic Research ".

likely to be considerably larger than the one it has superseded, and will have many more seats. But the prices which will have to be charged for these seats to defray the high costs of reconstruction in a period of inflated prices and interest rates will be higher than those which many of the prospective additions to the music-loving population will be in a position to pay, and, in any case, seats in excess of current needs for some time to come are likely to have been provided. This surplus seating accommodation will, by increasing the load of overhead charges to be covered by the remainder, still further enhance the prices which will have to be charged for admission.

If the economic system were free to develop in all directions—if it had no established "structure" or limit to its environment—these illusions created by new money might possibly be translated into fact. But in cases of the type we are considering, an elaborate structure will have been built up, and many of its walls will have acquired such rigidity that to attempt to break them down suddenly might well lead to a collapse of the whole structure. In addition, the growing structure will already be pressing against the boundaries of its natural environment in many directions. The only changes, therefore, which the new money will be able to foster will be abnormal growth in the more mobile parts, and increasing rigidity in the less mobile. If long continued, this in due time will bring its own Nemesis by causing new structures to be built which will not only prevent a resumption of normal growth, but will also in all probability bring growth in the economic system as a whole to a standstill earlier than need be. The industrial community will become like a race of men whose bodies by an accident of nature have been made to mature as rapidly as those of monkeys, with the result that their heads have acquired the heavy skull development of an

adult monkey, arresting the development of their more slowly maturing brains.

These are the ways in which, on various occasions in the past, such events as new gold discoveries, and inflations by governments, have interfered with "natural" economic development. Populations have been made to increase before their industries were ready to accommodate more persons ; alternative sources of supply, new methods of expanding the yield of existing sources, have been exploited when the latter alone would have sufficed to keep pace with the growth in current needs ; lines of transport and communications have been laid down before the locations of key towns and industrial centres, i.e. the lines of the basal economic skeleton, had been properly thought out ; secondary industrial manufactures have been developed before primary occupations have sufficiently advanced for the proper direction of secondary development to be foreseen, and so on. These irregularities in their turn naturally aggravated the short-period fluctuations already referred to in connection with the so-called "credit cycle". In all these cases the basic trouble is caused by growth becoming more rapid than that to which "structural" conditions can readily accommodate themselves. Using once more our analogy of the concert hall, people are forced to enter the hall at a faster rate than that at which they can be transmitted through the entrances and passage-ways. On a more extended scale over-rapid secular growth can produce similar "packing", but as in this instance it is in the hall itself and the seating accommodation rather than in the entrances or passage-ways that the hold-up takes place, the cure is much more difficult and the interruption of progress much more prolonged. In the economic sphere, as in the organic, the golden rule for a long and contented life is to learn to grow slowly : never wholly to exhaust the possibilities of growth—or adaptation to change—by

completely filling the space available for that growth or by acquiring a too rigid structure. Failure to appreciate the harm which can be done by hastening growth lies at the root of many of the prevailing misconceptions regarding the part played in our industrial development by money, especially in regard to the gold discoveries of the nineteenth century. Economists have been content to treat industrial growth of any kind as synonymous with prosperity without regard to its effect on the long-term evolutionary plan of the industrial system as a whole, and without distinguishing between "natural" growth and "abnormal" growth.¹

To complete our picture we must consider the condition of a population, with its industrial units, which has expanded by repeated subdivision to the maximum capacity of a given territory. In a competitive system of the modern type competition will have whipped up the subdivision of the production chain until it has attained a condition somewhat resembling that of a tightly wound watch spring, which has grown progressively longer and thinner in order the better to charge itself with the maximum of potential energy. To achieve stability it will be imperative to provide some means of keeping that productive energy in bondage and prevent it from leading to further subdivision. Unless such a check is provided subdivision is likely to be taken beyond the point at which it should be followed by increased sales and new employment. Men will be forced out of employment, their purchasing power destroyed, without

¹ An influx of new money is especially perilous in times of political or social disturbance when a breach has already been made in the existing economic structure. As in the case of the growing cells in the wounded tissues of a living body, population and output may, under the influence of the additional money, begin to grow rapidly to fill the gaping wound. As in the case of the body also, unless that growth is stopped—or, in the case of an incomplete structure, growth falls back to its previous rate—once the damaged parts have been repaired and the original form regained, the structure will tend to grow deformed. The new growth may even behave like a cancer and threaten the life of the whole organism. Herein lies the danger of money inflation in times of war and political unrest.

any compensating advantages on the productive side. In short, the distributive system of capitalism will cease to function properly. The community and the industries directly concerned are therefore likely to take steps to replace the free play of competition by monopoly and restriction ; the industrial system will tend to ossify ; the productive brain will gradually become imprisoned in a heavy shell of regulation and control. The members of such a community, should their desire be for continued progress, will be in like position to a millionaire who, having stocked his house to capacity, seeks to acquire more furniture, but finds that he can only do so if either he expels some of the existing furniture, buys another house, or reconstructs his existing house. None of these transformations, excepting perhaps the first, can be readily effected by a community with an elaborately subdivided industrial structure, likely, in its maturer stages, to resemble a tightly packed honeycomb of long streets of small houses. Whole sections of industry and those dependent on them cannot be thrown incontinently on to the scrap-heap. To build a new house is an even more formidable task. Where, for example, are the inhabitants to be housed meanwhile ? But even so, the pent-up energies of production and population growth cannot always be kept in check ; the people may begin to clamour that they are being enslaved by an obsolete economic structure ; producers, too, may protest against the paradox of " starvation amid plenty ".

Under the system we are considering these conditions would especially be likely to arise if subdivision had been allowed to proceed beyond the optimum point, with the result that an appreciable proportion of the population found itself unable to obtain its income from production while costs of production were being reduced not by reducing numbers but by cutting down the standard of individual incomes. But the extension or reconstruction

of an existing economic structure may not always be possible, and thus the building of new economic structures is sometimes preceded by revolution. The new gold discoveries of the nineteenth century—though partially responsible for upsetting our domestic plan—served the useful purpose of enabling certain important " structural " reconstructions to be carried out in our industrial system without the necessity for complete breakdown of the existing economic framework. They also enabled a bridge to be erected, over which part of our surplus population and industrial equipment could migrate in a more or less orderly manner from the congested home territory to the freedom of then unoccupied territories overseas. In the 'fifties they assisted in the transformation of a domestic structure which was made necessary by the invention of railways and the development of industrial towns.

As one might expect, in real life the issue is not always clean-cut. There will always be unexploited new commodities or services ; the existing structure will never be completely rigid in all its departments, nor will its subdivisions necessarily have reached their uttermost limit before the need for transformation or migration begins to be felt. The community must decide whether it will continue to pursue its original line of evolution or whether it will adventure upon a new. In our own case at the time of the gold discoveries of the 'fifties and the 'nineties, the decision, though unconsciously made, was a decision to migrate part of our community to territory overseas and to allow our domestic system to continue the line of evolution then in being as best it could. Each of the migrations took some fifteen to twenty years to effect, and while in both cases there was a severe crisis when, at the conclusion of the fifteen-year period, a critical point was reached, there was no real collapse. At the same time it cannot be gainsaid that these movements

brought problems of their own. In particular they upset the *domestic* rate of interest. Growth which will take one form at one level of interest may take quite another form at another level. In this respect the economic organism behaves like certain highly sensitive plants and animals which produce different species if the temperature or humidity of their environment is markedly changed. Our domestic-growth curves both for population and pig-iron reveal definite breaks in 1874 and 1902. Thereafter the growth curves followed new paths discontinuous with and quite dissimilar from those which preceded them. Our domestic plan of evolution was upset on both occasions. The same thing happened in the new countries overseas. So long as the migrants to those areas were content to develop on lines which were complementary to our own, i.e. to act, as it were, as extensions of the home structure, all went well. Unfortunately the migrants began to build economic structures of their own, with the result that their productive efficiencies, which until then had been moving in the same direction and at approximately the same rate as in the Mother Country, acquired rates which were independent of and different from hers. Since both these sets of countries were on a common international gold standard, it was but natural for a condition of strain to develop between them, and this eventually led to serious dislocations in money incomes, rates of interest and domestic plans of evolution in all the areas concerned.

In any event, the process of transforming or enlarging a *given* structure cannot be carried beyond a certain point. Once the first basal skeleton of an economic structure has been fixed and methods of filling it in decided, there is a definite limit to the size of any stable superstructure which can be built up on it. For every type of structure there is a most convenient size, and a large change in

size inevitably carries with it a change of structural form. " A hare could not be as large as a hippopotamus or a whale as small as a herring."

In our nineteenth-century structure we find that even before 1914 the system of trade by mutual interchange on " capitalist " lines which had attained international dimension, was becoming unwieldy. Great Britain had become but one of a group of nations which, by copying the ground plan which she originated and interweaving their structures with her own, had enormously enlarged the size of the superstructure. Meantime the *domestic* structures of the countries concerned were feeling the strain of what to them appeared to be an abnormal and unhealthy growth. The crack in the British structure in 1902 was followed by an ominous subsidence in that of the U.S.A. in 1907. A crumbling of one of the main walls of the continental system occurred in the Balkans in 1911-13. The outbreak of the War in 1914 brought the twin structures in most countries crashing to the ground. To adapt a phrase applied by Mr. J. B. S. Haldane to Socialism, I find it no easier to picture the success of a world completely internationalised on the pre-War plan " than to picture an elephant turning somersaults or a hippopotamus jumping a hedge ". To grow in size is not necessarily to make progress.¹

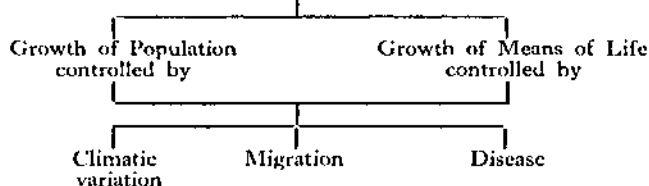
¹ It may assist the reader in following the argument in the previous two chapters if I set out the analogies between populations and production growth under (1) natural conditions and (2) artificial or " settled " conditions in a tabular form.

SYSTEMS OF POPULATION AND PRODUCTION CONTROL

I

NOMADIC TERRITORY

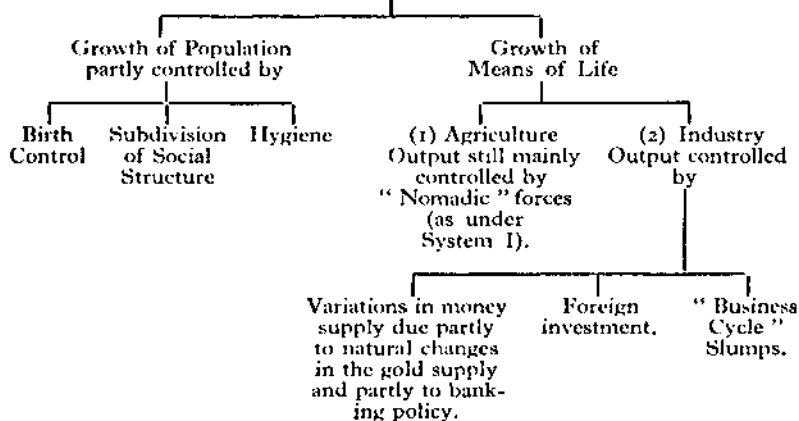
Community controlled
by Natural Forces



II

SETTLED TERRITORY

Community controlled
partly by
Man-made Structures.



CHAPTER IV

WASTE

But to a deeper searcher of nature it will plainly appear that nature is accustomed to proceed for some distance by degrees, and then by jumps, and to take these processes in turn.

FRANCIS BACON, *Dcscriptio globi intellectualis*.
(1612)

I

DR. ALFRED MARSHALL, the Father of English nineteenth-century economists, took as the text of his famous *Principles of Economics* the phrase : " *Natura nihili facit per saltum*," which he misquoted as " *Natura non facit saltum* "—" Nature does not proceed by jumps." That biological fallacy has darkened the counsel of economists for two generations. It has led many of them to assume that if the money side of the economic system worked properly, the inflow and outflow of goods and money between producers and consumers would be links in a *continuous* chain of interchange. Like one of Mr. Shaw's dramatic characters who describes man as a mere machine for converting good food into manure, they have treated the economic system simply as a passive structure through which raw materials pass in order to be converted into manufactured goods. They have ignored the changes on the production side which we have been discussing. Mr. Keynes, for example, has sought to lay the blame for economic discord on the fact that people's savings periodically exceed their " investments ", i.e. the money represented by these " savings " is hoarded in the banks or else-

where and so "wasted". He draws a tragic picture of the fate which befalls a banana-growing community which is gradually bereft of its "medium of exchange" by a process of this kind.¹

But if, within reason, business men decide to leave part of their quota of the "medium of exchange" temporarily in the banks because they do not wish to use it, there is no obvious ground—apart from the above-mentioned monetary theories—why harm should be done. The rate of trade growth varies; when it is too rapid for its environment the only way to bring its speed back to that appropriate to the particular phase of the "S" curve in which it happens to be, is to allow trade to retard and prices and the rate of interest to fall, i.e. to "hoard" savings. Naturally, while this is going on the "medium of exchange" will pile up in the banks. If we interfere with the process we merely prevent the necessary adjustment in the rate of interest—as we did after the War. Where economists have been misled is in their use of the word "waste". Dislike of waste is, no doubt, a Christian virtue. But Dame Nature, whose bounty provides most of what we consume, is, herself, very far from practising Christian virtues: she wastes annually the lives of millions of plants, wild animals, and men. Man's work of "production", indeed, is properly that of *salvaging* materials from nature's prodigal waste. His food consists of animals saved from starvation and useful plants saved from destruction by enemy weeds, bacteria or animals. His warmth is derived from vast forests buried as a result of one of nature's upheavals in the past, recovered in the form of coal. His power is that of water otherwise running to waste down the mountain-sides, harnessed and made to do his service; of the mysterious force of electricity in which nature

¹ J. M. Keynes, *A Treatise on Money*, Vol. I, Bk. III, ch. 12, pp. 176-8.

is so extravagant, which he has bent to his will ; of oil locked away unused in vast reservoirs beneath the earth's crust, or of that self-same coal.

At first glance it may perhaps seem fair to suggest that the problem and situation of a modern industrial state with highly evolved manufacturing industry can scarcely be regarded as analogous with those of natural products. I see no sound support for that view. I believe that the change from the hand-loom to machine-loom, or from ordinary mechanical ways of producing motor-cars to mass-production methods, created precisely the same fundamental problems as were encountered in making the earlier changes in the structure of our agriculture. Each involved the sudden release of a flood of new products, which had to be dammed and controlled until channels for carrying it away had been prepared or invented. A manufacturer who changes over from making motor-cars by hand to making them by mass-production may find that a given expenditure of capital will enable him to produce in a period ten times more cars than before. But his market will not normally grow as quickly as this ; it must be cultivated. Meanwhile he will be compelled to control his output, i.e. to work his plant below optimum capacity, until the market is ready to absorb his whole quantum. Normally he will prefer to meet the situation in this way than work his plant to full capacity and suffer the loss entailed in having to destroy or sell below cost the undisposed surplus. Not until production has reached optimum point will selling prices fall to the level appropriate to that structure. Once, however, the market has developed to the stage of being able to absorb the optimum output no further reduction in price will be possible until the production structure is again altered and output provided with the means of making a further "jump".

Every change in economic structure, we may then say, whether it be in the organisation of a nation or in that of an individual industry, involves in the first place a discontinuous increase in output, and in the second place, and equally important, the imposition of a limit beyond which output cannot grow unless there is a further change—or subdivision—in that structure. Output accordingly may be said to obey a "quantum" law. Progress by discontinuous quanta or "jumps" appears to be a vital and ineradicable part of the mechanism of trade growth. These "jumps" are not confined to production, but occur throughout the field of consumption also; and, since the two sets of discontinuities tend to alternate, they give trade growth an oscillatory movement. First, production takes a "jump"; then, after a time, consumption will take a "jump" to catch up production; another pause, and production will repeat the process, and so on. In the case of the "jump" in motor-car manufacture, the counterpart in the field of consumption was a series of "jumps" induced by such things as the provision of hire-purchase facilities, the building of the new concrete road systems, the provision of garage accommodation, and the like.

A simple illustration taken from railway development may help to make clear the purpose and *modus operandi* of these oscillations. A growth in traffic is normally met by increasing the number of trucks per train. Beyond a certain point, however, it is not practicable to lengthen still further existing trains; new trains must be provided. But so far as the railway company is concerned, the addition of a new train involves a discontinuous "jump" in transport costs. Broadly speaking, it will cost as much to provide an engine, guard's van, shunting facilities, etc., for a train with one truck as for one with twenty trucks. The company

accordingly will be loth to incur the additional expense until it sees the prospect of at least an increase of, say, 10 per cent, in truck-loads of goods to be carried in the fairly near future. There is likely to be a temporary interval accordingly during which there will be congestion in transport facilities. A decision to double the length of track would involve an even greater "jump" in costs, and so would doubtless entail an even longer interval of waiting and a still greater temporary congestion of traffic. It is clear that these oscillations in the provision of transport facilities will cause reflex oscillations in the traffic carried, and in the case of many classes of goods even in the actual manufacture and warehousing of the traffic goods themselves (notably if they are raw materials).

The circumstance that much of the railway development in the new countries of the world during the nineteenth century proceeded by the reverse process, i.e. the railways were built first and the traffic provided afterwards, was due primarily to the rise in raw material prices caused by the sudden acceleration of demand caused by the great gold discoveries of the period. In many of these countries food and raw material supplies had been running to waste for years for lack of transport facilities. Economists have overlooked these discontinuities because they have been accustomed to estimate the rate of growth by measuring actual output instead of potential output.

The following table of national indices of industrial production published in a pamphlet called *The Course and Phases of the World Economic Depression*, by the League of Nations, has been widely quoted as showing the development of production in the different industrial countries between 1925 and 1929:—

NATIONAL INDICES OF PRODUCTION

Countries.	1926	1927.	1928.	1929.
France	116	102	119	130
Germany	95	120	120	122
Poland	98	123	138	138
Sweden	103	108	104	127
United Kingdom	77	111	105	113
U.S.S.R.	139	164	198	223
Canada	117	125	138	154
United States	104	104 102	107	114
Base : 1925 100.				

These figures, together with those of stocks in hand of the commodities produced, have been contrasted with the figures for agricultural output in order to show that our troubles are in large part due to a lack of balance between agricultural output and industrial output. What should be compared is the productive *capacity* of industry with the output of agriculture. Agricultural output is so much under the direct control of the bounty of nature that actual and potential output tend to become the same thing, except on those rare occasions when a discontinuous jump in supply is about to be made by opening up a new territory. Industry on the other hand is under the control of man, who is able to stop output before it has gone too far beyond actual demand whatever the amount of his capacity may be. His policy and the trend of prices are determined by the pressure behind output, what he *can* produce if need be, in a given time—not by actual output itself. His problem in essence is one of raising consumption to the level of production, not the other way round. Both the nature of the problem and the strength of the powerful forces brought into play have been largely concealed from the economist by his habit of looking at the actual instead of the potential output. No business man will, if he can possibly help it, over-produce ; however excessive productive capacity may

be, the stocks on the market will never be a true index of its extent. But it will make all the difference to that man's outlook and policy whether or not there is a large fund of surplus plant, capable almost at a moment's notice of flooding the market with goods at about the same prices as his own.

The so-called paradox of "starvation in a world of plenty" is not a paradox at all: it is the natural condition. There has always been plenty in some parts of the world and starvation in others. The great discovery of the modern world has been the devising of methods of marrying the two. In tropical countries there is normally always a surplus of food, clothing and many other materials, but the people are by nature indolent; there is not much incentive to collect and store that surplus—unless population growth gets out of control. The peoples of more northerly climes, on the other hand, before the nineteenth century, never enjoyed—except temporarily in periods of abnormal harvests—a surplus of these things. They were accustomed to earning their living under hard conditions, being compelled more often than not to keep on the move in order to obtain enough food to live. In Europe, whenever a release from preoccupation with food supply provided the Northmen with a surplus of energy—or the pressure of population drove them to migration—they raided the food and accumulations of treasure of the peasant races in the irrigated parts of the more southerly areas of the Mediterranean basin. The discovery of India and the Americas in the sixteenth century opened up new outlets of expansion for these individuals. There arose great Chartered Companies, organised on military lines, to combine the conduct of trade with the foundation of Empires. It paid to encourage trade because the new lands could be made to yield wealth both in gold and in such produce as

found a ready sale in Europe. The internal economic organisation of England, the leader in this movement, was compelled thereby to undergo a revolution. The old "structure" was broken down and a new one gradually erected in its place.

The first stage in this revolution was the introduction of "enclosure", which enabled greater advantage to be taken of the bounty of nature on the land and so released resources for the foundation of the modern industrial system. The next great step forward was made in the nineteenth century, when the invention of cheap land and sea transport and cold storage broke down the barrier of distance and brought within Europe's grasp the vast agricultural and mineral resources of the virgin areas of the American continent and the Tropics. But the problem of marrying starvation and superfluity is not confined to agriculture and minerals. It occurs in the field of industrial manufacture also, though under a somewhat different guise. The main barrier to the release of industrial goods from areas of plenty to areas of scarcity (i.e. from producers who can manufacture in unlimited quantities to consumers whose buying power is limited) is *price*.

The basic objective of the modern industrial system, unlike that of its predecessors, is the gradual dissemination of the luxuries of the rich and the benefit of new inventions and discoveries to an ever-widening circle of consumers. This is the real basis of the entrepreneur's title to profit. As it is no use producing, let us say, unlimited Rolls-Royce cars when the majority of prospective customers have not even Ford car incomes, it has been necessary ever since the early days of factory production to keep what has in effect been a continuing check on the expansion of output, to allow the time for costs of production to be reduced on the one hand and the earning power of would-be consumers to be

E.C.P. F

raised on the other. The main problem of industrial production has been to hasten the bridging of the gap between the two. So long as in any group of commodities there exists this barrier of price, separating producer and consumer, the statement of the economists that trade is the exchange of goods will not apply to the goods in question. For only those goods the prices of which are within the purchasing range of consumers' incomes will figure in the pool of things to be exchanged.

Herein lies the origin of the conflict of view between the business man who says that *general* over-production is possible, and the economist who alleges that it is not. The economists, because of the way in which they define their terms, deal with goods in the latter category only. Business men, on the other hand, must also take account of goods in the former category, for any temporary inflation of purchasing power or speeding up in the placing of orders will be liable to lead them to over-produce those goods in concert.

Long years of patient experimentation and production planning have gone to the building of the present complex system of production and consumption. It is essential to realise that fundamentally it has been a question of improving the efficiency of organisation of industry, not, as is too often supposed nowadays, of overcoming money scarcity. In the last resort all incomes under the capitalist system are derived from enterprise or from the ownership of property which contributes to the production process. Whenever attempts have been made to increase money incomes by increasing the money supply, prices of finished goods have tended to rise even *faster* than incomes. This has been made clear by the experience of periods of gold discovery and war-time paper inflation during which prices, except in the case of a few specially

favoured occupations, have risen faster than incomes have, so that the real spending power of the bulk of consumers has tended to decline. The task of increasing real spendable income may be described as that of reducing the proportion of man's daily personal effort (or its wage equivalent) devoted to the production of existing goods and services, to release effort for the production of new goods and services (or what comes to the same thing—of obtaining these new things by interchanging products of his own manufacture for them).¹ In other words, it is to reduce prices while leaving consumers' money incomes unchanged. How this is achieved will be explained in a subsequent chapter. At the moment it suffices to say that the practice of expressing this interrelation of production and consumption in terms of money has been largely responsible for the ignorance which exists regarding the actual procedure.

It will readily be appreciated that the reduction of human effort per unit of output has taken far longer and called for a much more elaborate organisation of production in some cases than in others. There is no cause for wonder that development in the various parts of the industrial field has repeatedly got out of step. Nor is it surprising, when account is taken of the dis-

¹ As examples of such reductions in human effort, there are the facts that in pig-iron production, a man nowadays accomplishes in one hour what required 650 hours in 1882 ; one man can produce 9,000 times as many incandescent lamps as in 1914 ; in shipbuilding one welder will do the work of three squads of riveters.

In a country in which inflation of the money supply is prohibited, improvements in productive efficiency of this kind, as they gradually spread over the field of industry, will in time lead to a fall in the prices of finished goods and services and so to an increase in the purchasing power of incomes. Those engaged in industry accordingly will find the number and quantity of the goods and services which can be bought with a standard day's pay increasing steadily decade by decade. I estimate that if over the past 150 years or so our money supply had remained " neutral " and the white populations of the world had not outgrown their near-by supplies of land and natural resources (and thus raised their real price), an average employed British worker of to-day, instead of being only four times better off in real commodities than his predecessor at the beginning of the nineteenth century, would be five to ten times wealthier.

continuous jumps by which these changes in the production structure have perforce had to be made, that they have frequently been responsible for even more extensive cyclical disturbances of purchasing power than have the harvest fluctuations in the case of agriculture.

CHAPTER V

THE RÔLE OF MONEY

Among scientific articles there are to be found not a few wherein the logic and mathematics are faultless but which for all that are worthless, because the assumptions and hypotheses upon which the faultless logic and mathematics rest do not correspond to actuality.

WILHELM OSTWALD.

I

MONEY has not by any means been exclusively occupied as a "medium of exchange", as for convenience we assumed in Chapter IV. It has also been used as a means of accumulating "treasure", i.e. "hoarding". It is essential to appreciate the distinction between these two uses, for the difference lies at the root of much present-day confusion regarding the proper functions of money. Money, we are told to-day, should not only act as a "medium of exchange" but also as a "yard-stick" of value. To the business man using money for day-to-day commercial transactions this latter function will seem unimportant; he will not be much interested in such abstractions as the "purchasing power of money", and its correlative the "price level". His concern is with the prices of the *particular* things he wishes to buy or sell. The aspect of money as a measure of values generally will only begin to acquire importance if he is proposing to lend or borrow money on relatively long-term conditions—when he is about to engage in transactions of the type known as "investment". Even so, it does not necessarily follow that he will be interested in changes in

the *general* purchasing power of money. It will all depend on the nature of his investment. A sharp distinction must be made between two types of investors : those who use money for " productive " purposes (to produce *goods* which they themselves or their fellows will require at some future date), and those who lend money primarily in order to earn interest on it (to acquire more *money*). This latter form of " investment " in earlier days was termed " usury " to distinguish it from true or " productive " investment.

Modern minds accustomed to the fluidity of the modern credit banking system may deem the distinction which I propose to draw between the commercial and financial uses of money somewhat far-fetched. But this is largely because they have forgotten their own past, and how people used to feel about such things. We are living at the close of an era in which not only was commercial investment highly profitable, but countries likely to engage in usury or to hoard gold were not, until near its close, on the " international " gold standard which was the British " commercial " standard. By the time France, for example, had attached herself firmly to gold there was such an excess of gold that it was possible for her, like the Far East, to hoard without interfering with commercial use. I believe it was largely because Germany's debts became increasingly " financial " rather than " commercial " that she was driven to make war. Under the British banking system it was natural to assume that any money left in a bank would be lent out by the bank almost immediately to someone who wanted to buy goods, open up a new factory, mine or market, or enlarge an existing one. It is true that, even in those days, banks would use savings to strengthen their reserves or to buy securities which " had not a fresh order for goods at their tail " ; and, of course, there were people who borrowed money to make up past losses.

But, except towards the end of the period, these sums probably were not large in amount save in times of temporary crisis. On the whole, to employ savings for "productive" purposes was so much more a paying proposition that it predominated over usury.

But the nineteenth century was probably unique in this respect. Previously, the danger of people diverting the money supply to usury was a real one. Indeed, the view I am here advocating has nothing at all novel about it. It is simply the view of monetary policy taken by the practical business world for the past 500 years or so. The stringent laws against usury in the Middle Ages were intended to prevent the "medium of exchange" being hoarded and too high a charge being made for its use as a "medium of exchange", as well as to stop usury as generally understood in a land of peasant agriculture where, as in the case of the India and China of to-day, the ordinary individual is especially liable to get into debt. The canon law against usury has recently been defined by an economist as amounting in practice to saying that money was a "medium of exchange", so that the ownership passed completely to the "borrower" until he exchanged it for goods. In other words, the situation was exactly as if he had bought any other commodity, and it was unjust to charge him interest since a man ought not to be charged for using his own property. The purpose for which the money was used was none of the seller's business. If, however, a man had been *lent* money in the sense of the lender being prepared to participate in the risk of enterprise for which it was to be used, canon law recognised that the lender was entitled to a share of the profits made. The City of London Authorities of the fourteenth century, according to the historian Cunningham, approved of this distinction, holding the view that "just because men could make large sums by lending they were less likely to join in

partnerships and undertake the risks of trading " ! It is interesting to find British business men over 600 years later saying practically the same thing. A report entitled *A New British Financial Policy*, issued by the Federation of British Industries in April, 1932, commented on the fact that it had not only become the fashion for Governments and Municipal Authorities to embark on non-productive expenditure of various kinds without giving sufficient consideration to the effect of such expenditure on the supply of money and savings to meet commercial needs, but also that funds which would have been available at lower rates of interest for use in promoting British foreign development had been devoted to succouring distressed countries by providing them with loans through their governments, central banks, industries, or real property holders. The report observed that " the disturbing effects of these ' financial ' operations on industry and commerce . . . diverted on a large scale and for a considerable period ' industrial ' funds from their natural channels by encouraging investors to prefer ⁴ money lending ' to * productive investment ' ".

The notion of money as a " unit of account " exhibited by present-day economists is quite a modern idea. It hails from that part of the nineteenth century when trade generally was expanding so rapidly that it was plausible to consider it perfectly safe not only to anticipate trade events many years ahead but to expect that the larger part of the investments concerned would yield a return over a period of years. Those were the days when the compound-interest law was in full swing. But even as late as 1852 the law deeming that contracts to pay in sterling were contracts to pay in gold was still so firmly entrenched in the public mind that even economists described the idea that money value should be kept stable apart from gold as " beyond our comprehension ". No less important a personage than the great Sir Robert

Peel, in a well-known passage, said " he could not, by any effort of his own understanding, form any other idea of a pound sterling but a certain determinate weight of gold metal ". The present economic idea that the discovery of a new supply of gold or a sudden inflation of credit is a sovereign remedy for economic troubles associated with falling prices, was also doubted in those days—days, be it remembered, which saw such a remarkable influx of new gold that a strong movement grew up in favour of the substitution of a silver standard on the ground that the amount of gold available was becoming dangerously redundant.

II

The complicated exchange and currency systems of modern times were, of course, unnecessary in primitive communities, irrespective of whether they were good systems or bad. As the basic food supplies were more or less held in common it was always only in regard to luxury articles or commodities, chiefly of ornamental or religious use and having no special " trade " value, that some medium-of-exchange was found desirable and eventually indispensable. The practice in the earliest stages was to select some one of these luxury articles or another which enjoyed a " rarity " value and make it function roughly as a medium in such exchange of possessions as the owners desired to effect. The " currency " of the British Empire, for example, even during the nineteenth century, still included an extremely varied assortment of exchange media—cowrie shells, rods, rum, slaves—besides actual money ; and the money itself included rupees and dollars as well as pounds. The Virginians once employed tobacco for the purpose. So long as material media varied in different communities, competition for supremacy of exchange value among the media was inevitable. Some were gradually deposed in

favour of others which in course of time acquired high rarity or luxury valuations. Those which failed to retain their status as media were still capable of wider usefulness in other fields than the so-called precious metals are to-day. When gold and silver were first used as media, they were selected for that role primarily because they were durable (as distinct from perishable) and could be kept without deterioration, and because they were already recognised as "treasure" which could be hoarded if need be. The only practical outcome of the competition between media that we need consider is the emergence of gold and silver as the most widely accepted standards—though silver was fated ultimately to disappear as a basic medium except in the Far East and one or two areas of minor importance.

Now gold, in the phase of transition from primitive barter to exchange of goods under standards of value, had little if anything to do with what we to-day call "money" or with what we know as the bank-credit equivalent of money. Investment, in the sense of lending one's surplus in the hope of gaining a part of some other person's surplus later on, was almost unknown. The idea of employing money as a medium of exchange for investment transactions developed, however, in a quite simple and comprehensible way. For illustration, let us suppose that a meat producer desired to exchange some of his meat for wheat, grown at a distance from his own neighbourhood. He would probably discover some person in his locality willing to take the meat for him and bring back the wheat. Each owner of goods to be exchanged would be given an IOU or token covering the agreed values. When the meat and wheat growers respectively had received their exchanged produce, the IOU's would be cancelled out and the man who had done the transporting would receive from the parties to the transaction his payment in kind for services rendered.

In modern real practice the banker takes the place of the carrier, whom he relieves of the responsibility of handling the IOU's. Like the carrier, the banker will make a charge for his services as intermediary. It ought to be quite small. One of the business man's complaints against the banker is that he will use this medium-of-exchange for other transactions—for " financial " as distinguished from " commercial " or trade transactions ; and when these are profitable he charges the business man at an excessive rate. This is especially liable to happen when, as is customary nowadays, a trader obtains his medium-of-exchange in the form known as a " bank advance ", which means that he estimates beforehand the number of paper promises which he will wish the banker to handle within a given period and arranges with the banker to honour them to the amount covered. In like manner the business man will need a medium-of-exchange to operate in the matter of payment for work done. Wages, in essence, are IOU's for work done. They *could* be cancelled upon their value being obtained in the shops, and upon cancellation they *could* be returned by the shopkeeper to the bank. It is merely for convenience' sake that they are not so cancelled. It has been found easier and more practicable to have in operation for such transactions a permanent set of IOU's, which are used over and over again, and which we call currency. In some foreign countries pieces of paper or " chits " may still be found in use for currency purposes, cancelled each time they are used.

If bankers had not adopted the practice of basing the amount of currency to be put in circulation on the amount of gold they happened to be able to procure at any particular moment, there would have been no difficulty in deciding how much currency was required, for the amount would be directly proportionate to the numbers of the population using it. Its supply would

need to be varied only in cases where there were additional wage-earners to pay, or when large numbers were being promoted to higher grades of service entitling them to a larger share of the proceeds of their industry, part of which they might wish to carry in cash (though this latter could be equally well effected by means of some form of IOU). It is important to observe that no necessity to increase the amount of currency arises should industry *generally* be producing more because of greater efficiency ; for this should mean nothing more than that the currency value in all the commodities exchanged increases in proportion so that all the units are worth more. The whole community, instead of just a few individuals, should benefit accordingly. The only necessary modification is that for convenience the unit should be capable of subdivision.

But the part played by bankers and financiers has not actually been so simple as that shown in our elementary example of the meat producer and the wheat producer. That straightforward system became seriously complicated in consequence of the introduction of the idea of "treasure" to the scheme. Bankers and financiers developed the use of treasure-gold as backing for one type of IOU, and also as a form of IOU in itself. This was the rock upon which the International Gold Standard of the nineteenth century ultimately split. An IOU based on gold or silver assumes a special treasure-value which has no reference whatever to its value as a medium-of-exchange. Immediately currency is in use for two different purposes, two different classes of persons start bidding for it—those who desire to use it as a medium-of-exchange, and those who strive to obtain it for "hoarding" as treasure. So long as there is plenty of money, and the "hoarders" do not substantially increase the amount they hoard, no great harm results. Unfortunately, many of the hoarders of the world have

that peculiar quality of acquisitiveness which has been so adequately described by Freud. It consists of hoarding for hoarding's sake ; not so much because the thing hoarded has any particular value, but simply because it gives delight to the owner to add to his hoard. It was out of this combination of circumstance and human qualities that the practice of usury arose. It was rigorously condemned in mediaeval times for much the same reason as I am adducing now. The circumstance which led to the Jews becoming the moneylenders of the earth was probably in some way connected with the loss of their homeland or " territory " in the early days of their history.¹

It will be clear that the practice of usury could not continue for long in its pristine state. The usurer in the very nature of things was bound sooner or later to become involved in matters of trade. Times of distress would arise when debtors would be unable to pay in gold or silver, and the usurer would take his farm or business in lieu of money. This is still happening in peasant countries throughout the world to-day ; the condition of the Indian peasant is notorious ; and in the report on world agriculture issued by the Royal Institute of International Affairs, it is stated that millions of

¹ The most remarkable thing about the Jewish " race " is that without a " homeland " it has managed to maintain a racial unity of structure. Loss of " territory " in the case of nearly every other race has been followed by disintegration. One may hazard a guess that the Jews owe their long survival as a unit to specialisation in some *function* essential to commerce, perhaps in the same way as the ancestors of the modern gipsy are said to have owed their survival as a tribe to their skill as iron-workers in primitive times. But while in due time the gipsy's jealously-guarded secrets have become common property, or have been superseded, so that he has degenerated into the village tinker and pseudo-nomad of the present age, the Jew has been more fortunate. The gradual spread of commerce from the East into Europe has been accompanied by an ever-increasing specialisation of the commercial function, especially on its financial side. It would be natural, when desirous of accumulating wealth, for a " territory-less " people to adopt money hoarding and usury as alternatives to the practice among more fortunate races of acquiring land. Following the decline in opportunities for new " investment " or acquiring land the same thing is happening even in the non-Jewish, *but functionally* organised, industrial communities of to-day.

Chinamen are so poor that they have to burn dung to warm themselves and are never free from the money-lender.

But what first brought money employed for usury into serious direct conflict with money employed as a means of exchange was, probably, the practice of overseas investment developed in the sixteenth century in connection with the establishment of trading relations with the Indies and the New World. Money used for investment differs from money used in ordinary trading only in the longer period required for the return, or profit-result, to materialise. The vital point about our hypothetical transaction between the wheat and meat producers—a point generally overlooked in books on economics—is that, despite the fact that he has to wait for years, the wheat seller unless he turns usurer is only entitled to *meat* in repayment. This is fundamental to the distinction which I wish to draw between money used in commerce as a medium of exchange, and money used for " financial transaction " or usury. The usurer lends gold or silver, and is entitled to gold or silver in repayment ; the wheat grower is entitled only to meat or whatever may be the commodity for which his loan has been made. I am more than ever convinced that the root of the whole confusion of modern monetary theory lies in the practice of settling both types of transaction in *money*, i.e. in gold and silver.

Serious breakdown has been deferred largely, I think, because, during the nineteenth century, when usury first became general, populations were growing rapidly and there was such a demand for goods of all kinds that it did not particularly matter whether the wheat grower was prepared to take up the meat when it was ready or not. Similarly, the banker felt that it was quite safe to take over the wheat grower's liability because when the time came there would always be somebody to take the

meat. On the only occasions when matters showed signs of becoming critical, a new discovery of silver or gold stepped in to save the situation. Throughout these nineteenth-century transactions the bankers continued to regard their dealings as purely financial in character, so that debts were often not regarded as finally discharged even after the "meat" had been converted into money. But although during most of this period it was relatively easy to get obligations taken over by bankers and financiers there were some very awkward moments. In particular, there was a good deal of trouble about prices. It was never quite known whether, when the meat was ready, its price would have any relation to the price of meat at the time when the wheat grower originally made his investment. So long as the transaction remained a commercial one, i.e. the investor wanted meat, not money, changes in price would be of small account. To a man who is exchanging wheat for meat, price does not matter ; all he is concerned about is whether when the time comes he will get the amount of meat that he bargained for. He will only be interested in its price if it so happens that he does not want it and therefore has to sell it in the open market. But as he is neither a dealer in meat nor a usurer, this consideration will not weigh heavily with him ; if meat is dear, then so much the better for him ; if it is cheap, so much the worse ; but small matter either way ; his business is, not to sell meat, but to use it. A usurer, on the other hand, provided his debtor can somehow find the *money* to meet his debt will be indifferent whether the meat is used profitably or sold at a loss.

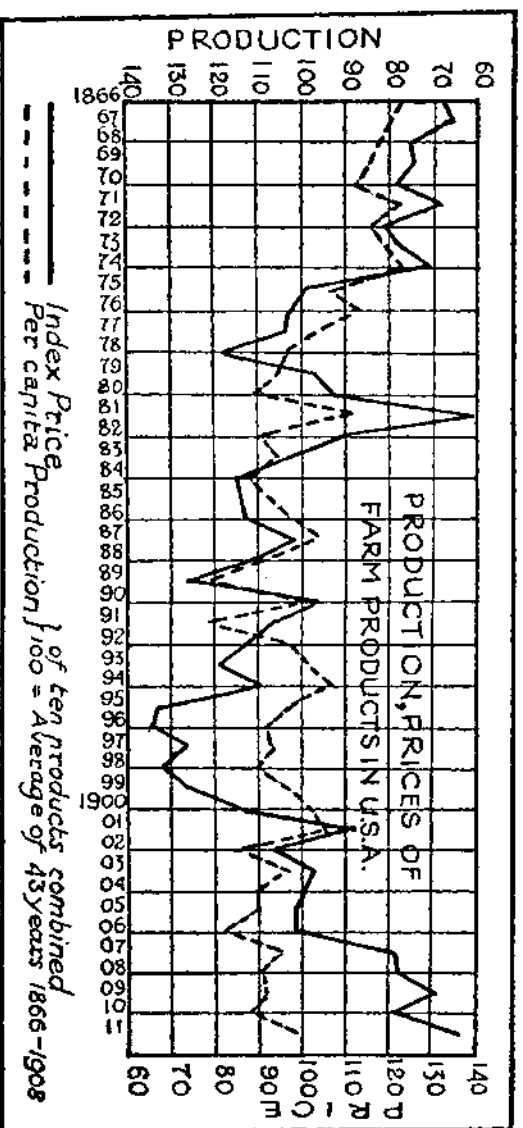
That what I am criticising is not an abstract idea out of all contact with the practical world can be made clear by reference to the period of overseas development in the middle of the nineteenth century which took place under the influence of the new gold

and silver discoveries of the 'fifties and 'sixties.¹ The successive additions of new money set going a system of periodic oscillations between agricultural production and industrial growth similar to that between new gold inflows and population growth (see p. 100). The first part of the cycle was an over-rapid opening up of an agricultural area, involving the release of an excess of agricultural produce which it took consumption anything up to twenty years to catch up. After a lull this was followed by over-expansion of industrial capacity, in turn producing an excess of industrial output which could not be absorbed until consumption had caught up and a rise in agricultural prices had restored the purchasing power of the agricultural communities. A revival of agriculture then started another cycle.

Part of this cycle is shown in the accompanying chart of prices and *per capita* production of agricultural crops in the U.S.A. between 1866 and 1911 taken from the "Crop Reporter" of the United States Department of Agriculture. The crops included are wheat, corn, oats, barley, rye, buckwheat, potatoes, hay, tobacco and cotton. These ten crops comprise more than 95 per cent, of the total crop area and more than 80 per cent, of the value of all crops grown in the United States. Since prices tend to decline as production increases, and vice versa, the production percentages are reversed to show the parallel between the trend of prices and production.

The excess of agricultural production from 1874 till the early 'nineties, following over-extension of agricultural areas between 1850 and 1870, is shown by the association of falling prices and increased production, a development which was only temporarily interrupted between 1878 and 1881 by the U.S. railway mania. The rise of prices from 1896 onwards, accompanied by stable output, signified that the rapid industrialisation of the U.S.A.

¹ See Chapter VII.



had at long last caught up agriculture. During this period the agricultural exports of the U.S.A. began to fall away as the home demand gradually absorbed the local supply. By the outbreak of the Great War, U.S.A. agriculture and industry were in approximate balance. This balance was completely upset by the new era of acceleration in agricultural and industrial growth set in train by the Great War. It is surely evident that had these developments been considered in terms of " goods " instead of, as is commonly done, transactions in " money ", the history of this period—especially the effect of gold as an over-accelerator of new growth—would not have remained a subject of controversy and mystery for so long.

It is quite incorrect to suppose that under the system I envisage, such things as wages and incomes would fluctuate widely in purchasing power—during the period in which they were earned and spent. On the contrary, provided the quantity of the basic medium of exchange, i.e. currency, is limited and only allowed to increase with population growth, there is no reason why these items should not have an even greater stability than they have to-day. And since the general price trend will, if anything, be downward, consumers will tend to profit rather than lose by any changes which occur. I agree that since the size of the credit structure which bankers would be permitted to erect on the basic currency would, as under our present system, not be limited, its size might be expected, as now, to grow with years. Thus there would remain possibilities of unsoundness due to defects in that structure, yet there is no reason to suppose that those defects would be any more serious than those in the past ; there is good cause for believing that they would be much less.

It is easy to exaggerate the effects of price changes on those who are using money as a day-to-day medium of

exchange for ordinary short-term trade transactions. The business world is perfectly familiar, and accustomed to deal, with commodities the prices of which fluctuate ; there are dealers in all the principal commodities whose special job it is to make forecasts in order that the producer may avoid undue risks. *Provided the price changes are " natural " changes* there is little cause for anxiety. By " natural " change I mean, for example, a fall due to some natural cause, such as the introduction of more efficient methods of production, an additional supply suddenly appearing on the market, a rise due to a general scarcity of supplies consequent on the exhaustion of local mines, or to demand having caught up supply. When such things happen in the ordinary course of business, allowance is made for them ; not so if they are due, for example, to a central bank's decision to expand credit for a season and let gold flow out of its vaults into home circulation or foreign fields, and then suddenly, becoming scared at the depletion of its " hoard ", to draw gold back again by restricting credit and raising the rate of interest. The position of bankers is quite different from that of traders and wage-earners. Price changes, if at all general, will upset all their debt calculations. If prices fall heavily, debtors will find that when their debts become due they are unable to meet them and there will be widespread defaults. On the other hand, if prices rise, debtors will get a handsome bonus at the expense of the creditor and will strongly resist any suggestion that they ought to give him any share of it.

If, on top of this, the bankers or dealers in debts have been practising usury—i.e. lending money to those who wanted money, not for new trade but to make up past losses, or for " non-productive " purposes—they may find themselves in the event of a fall in prices involved in very heavy losses indeed. In order to recoup themselves they will charge more for future loans of all kinds

and will endeavour to save themselves from further losses by calling in commercial loans or by raising interest rates. This will naturally be resented by those who are using money as a medium of exchange. They will justly complain that trade is being strangled because the medium of exchange is being held to ransom by the usurious policy of the banks ; and the banks will blame traders for the bad investments or speculations which have brought about the collapse. A movement will be set on foot to urge the adoption of a " stable price level " policy. Money, instead of being referred to as a medium of exchange, will now be termed " a yard-stick of value " for the measurement of debts. The length of this yard-stick must be kept constant in future, it will be urged. That such a movement should be afoot to-day is naturally to be expected after a decade in which Government and financiers have vied with each other in giving loan assistance to " distressed " countries, bankrupt municipalities, and private individuals, who wished to borrow for purposes which could never repay interest by commercial means. All such loans were of the type we have called usury.

Most surprising of all is the fact that it does not seem to have occurred to its leading advocates that this policy would be totally inconsistent with the proper functioning of money as a medium of exchange, and that a stable price level policy would make it impossible to carry on the ordinary business of exchanging goods in an orderly manner at the present stage of our industrial evolution.¹

¹ A progressive fall in the price of money should be the " natural " condition in a country approaching maturity. This ever-cheapening money provides the principal means by which such a country maintains its lead against the competition of the lower standard of living and wages of less developed peoples. Inflation destroys that natural advantage, both directly by encouraging countries of the latter type who over-anticipate the future and set up uneconomic competitive industries, and indirectly by raising—and maintaining for a considerable period—rates of interest in the former above their " natural " level.

This latter disturbs progress in two ways. First, it diverts growth from its

proper channels of evolution by making uneconomic all forms of investment which cannot pay their way at a rate of interest above the " natural " rate, i.e. it inhibits " natural " growth. Second—and what is far more dangerous—it gradually encysts even the new growing points in layers of debt charges, which steadily increase in number and thickness as inflation proceeds. These prevent a return to normal when inflation comes to an end. I am not here referring solely to debt charges as ordinarily understood by Accountants, but include such items as those which go to make up the difference between the *prime net* cost of the factors of production and the gross price as in the Account Book.

Taken as a rough figure for industry generally, I should be surprised to learn that *net* labour and materials as defined above covers much more than 50 per cent, of the gross cost of production at the present time in a wide range of articles. Most of the remaining 50 per cent, consists of financial oncosts, e.g. debt and overdraft charges, distribution costs, etc., which grow in geometric progression whenever the rate of interest rises or the rate of production falls. This is the " dead-hand ", commonly overlooked by advocates of inflation, which is paralysing large sections of industry to-day the world over.

CHAPTER VI

GOLD, PRICES AND INVESTMENT

Gold is a wonderful thing. Whoever possesses it is lord of all he wants. By means of gold one can even get souls into paradise.

CHRISTOPHER COLUMBUS.

I

FEW subjects have occasioned greater controversy than the part played by gold in the world, and the economists, I feel, are much to blame for the existing confusion. Their science began at a most unfortunate moment in our history. For when Adam Smith wrote his famous *Wealth of Nations* we were just changing over from one type of economic structure and development to another. Because his doctrine suited the new system, it became its bible. But we must go back before Adam Smith's time. Spanish practice in the use of gold in the sixteenth century was no different from that of the Romans and Venetians. English gold usage took the course it did because it reached us at a time when we were altering our basic agricultural structure in ways which made it possible to provide expanding amounts of food and clothing materials. We had got into touch with a new world overseas, able to provide us with various new and rare commodities which, unlike the luxuries of the Old World, were available in apparently inexhaustible quantities provided they could be produced or mined, and transported to this country. Need arose for reasonably settled social and political conditions, for

an outgoing of population to the new and largely uninhabited lands, and for transport and storage organisation.

While it is true that the plunders of gold and silver treasure which were the first-fruits of this age of adventure were acts of pure and simple piracy, and that the early voyages to America were primarily undertaken under the lure of the great spoils which these excursions held out, it would be a mistake to imagine that the English adventurers were merely repeating the practices of their early forerunners in Rome or Venice. The spirit of the new adventurers was different. It is no mere exaggerative romanticist who writes of Sir Walter Raleigh, last of the great Elizabethans, and forerunner of the great Imperialists of the nineteenth century, that "he dreamed a dream, and his vision showed him a vast region in South America, ruled uprightly with natives secured of their rights, and the English flourishing, not by gold mines, but by honest and honourable development of riches won from the soil. No such Empire as he dreamed of had been seen on earth for over a thousand years." Though Raleigh was quite prepared to bribe King James with the promise of gold, and though he died a broken man, his vision lived on. But to make a vision come to life something had to be done to bridge the gap between the time taken to produce the new goods overseas, and their sale in this country. The resultant modern practice of "investment" was, I think, the main key in the unlocking of the door to new wealth. To lend treasure no longer merely to get more treasure in return, but to set people to work releasing the bounty of nature and distributing its fruits among the peoples of the earth—that was the new mission of "investment".

Nevertheless, if the truth must be told, the new way of using treasure was ultimately to lead to the same impasse as the old system of hoarding it. The adven-

turous appeal of investment has made people forget that there is a limit beyond which it ceases to create wealth—and becomes nothing more than the accumulation of treasure, at one remove. The value of treasure to its possessor is that it enables him to purchase either now or at some future date his *current* necessities or any other of the good things of life he may fancy. But his ability to do this—and therefore the value of his treasure—will naturally be limited by the quantity of all those things available *at the time he spends his treasure*. Except in so far as there may accidentally be a free (i.e. unwanted) "surplus" the amount of the things his treasure will buy will be determined by the extent to which the present owners of these things are prepared to deny themselves part of their normal current quota in exchange for treasure. Since they will be requiring the bulk of the goods in question for their current consumption there will be a limit beyond which no amount of gold will tempt them to forgo their own needs.

Gold devoted to "investment" begins by being employed quite differently. It is lent to someone who will use it to buy goods *immediately*. These goods will be used to make other goods, part of which will be used to repay the loan plus interest at a *future date*. For these latter goods to be acceptable to the original lender they must not be goods of the type he is already making for himself (or purchasing elsewhere). But since the variety of basic goods is not infinite and every country strives to be self-contained in the long run, there will come a time in the lives of mature communities, when, except in the limited field of luxury, there will not be many goods which they can accept in repayment from borrowers without detriment to their domestic manufacturers. When this point is reached the field of investment will contract sharply. One

reason why this aspect of investment has been overlooked is that much of our investment in the nineteenth century was investment at compound interest in new countries whose populations (and consequently basic needs) were growing rapidly. Thus, not only was the quantity of new goods produced large in comparison with the amounts to be repaid, but what was much more important, it paid to relend immediately and without retransfer most of the sums due for repayment, so that no goods had to be sent to the original lending country. Only since the War, when we began to bring home on a substantial scale amounts due as interest on past overseas investment, did it become evident that we had reached the critical stage.

Mr. Keynes, who has allowed his imagination to play with the idea of growing rich by investment at compound interest in perpetuity, has calculated that if the £40,000 which remained, after balancing the budget, as Queen Elizabeth's share of the prodigious spoils which Drake brought back from Spain in the *Golden Hind*, had been invested at $3\frac{1}{2}$ per cent, compound interest,

it would have approximately corresponded to the actual volume of England's foreign investments at various dates, and would actually amount to-day to the total of £4,000,000,000 which I have quoted as what our foreign investments now amount to. Thus every £1 which Drake brought home in 1580 has now become £100,000. Such is the power of compound interest!¹

But in making this calculation Mr. Keynes seems to have been unaware that, in the real world, interest does not behave in this way. The life force, it is true, strives to make progress obey the compound interest law. But the structure, or framework, to which the interaction of that force on the environment in which it is operating gives rise, compels progress to follow the

¹ See *Nation and Athenaeum*, Oct. II, 1930.

path of the " S " curve. When the stage is reached in a country's economic development at which that curve begins to flatten out at the top, the investor begins to find the rate of return on his old investments declining, and the risk of adventuring in new ones increasing. He accordingly reverts to hoarding his money.

Just as there is a natural limit therefore to using gold for growing ever richer and richer by hoarding it, so there is a limit to its use in investment. Both can proceed without limit only provided that never more than a small fraction of the proceeds is actually spent, i.e. taken in consumers' goods. As regards investment, this is another way of saying that (excluding reinvestment) you cannot increase the *aggregate* of investment beyond a certain point unless you are prepared to accept a reduction in the unit of *income* received on its constituent parts, i.e. the rate of interest. In short, a man may grow as rich as he pleases by investment so long as he never makes use of his wealth !

Under the guidance of economists the world has grown so accustomed to regarding periods of new gold discoveries as periods of universal well-being that the possibility of such a situation arising has been completely overlooked. But it is high time that we ceased measuring the economic wealth of a nation by the amount of its past investment and debts, or regarding feverish activity in the field of new investment as an invariable index of good health. The price of the temporary flush of prosperity induced by investment may be a permanent weakening of the constitution of the whole economic structure. I would suggest that in important respects many of the well-known periods when prosperity was achieved by extensive investment were periods of disease rather than of health. Many consumers were deprived of their current purchasing power to provide investments whose fruits they would never

be able to enjoy, as that enjoyment would involve them in economic suicide. Even to-day it is still being generally assumed that provided the field of employment can be extended by investment of whatever kind, we are on the road to solving the problem of unemployment. It does not seem to occur to the advocates of this policy that they may be making the situation worse instead of better. As in the case of the famine relief in over-populated China, the salving of unemployed by investment in one period may be secured at the expense of increasing the numbers thrown out of work in succeeding periods. To understand how investment can produce misfortunes of this kind, it is necessary to go back to first principles.

II

The actual functioning of the new gold in building up the vast system of international trade which reached its zenith in the nineteenth century was a somewhat involved process. That gold was employed not only to throw open to European use vast areas overseas but, as has already been pointed out, it served to effect a complete transformation of the internal economic structure of Britain herself. These two aspects of our commercial policy are examined in the next chapter. It will perhaps simplify the monetary aspect of the problems involved if I assume—as indeed was for a long time the case—that these two avenues of development in a large measure formed inseparable parts of a single common plan of development, and treat the differences between money used for internal investment and money used for foreign investment as being, in the main, differences of degree rather than of kind. To elucidate the part played by "investment" in industrial progress it is convenient to revert to the analogy of a concert hall

used in earlier chapters ; the tickets of admission representing the incomes of consumers (i.e. the money available to buy the goods produced and the seats the goods bought with them (i.e. the standards of living).

In a progressive—and competitive—world, to satisfy his patrons and continue making a profit, a concert-hall owner will find it necessary to provide a steadily improving level of accommodation and entertainment for a given charge for admission (i.e. to provide a steadily increasing standard of living for a *given* money income). At first sight it might appear that there is another alternative open to him, namely, to raise both prices and incomes *pari passu* with the improvement in the entertainment provided. This alternative, however, will not be open to him under the capitalist system, for if we try to increase incomes by an addition of money to the money supply it will involve increasing selling prices even more rapidly, so that except for a favoured few, no rise in the standard of living will occur.

In our complex modern world goods pass through a large number of intermediate stages in the course of production. Now, it is broadly true that if the economic system is left alone the total of incomes equals the total of the costs of production of output at the *final* or consumable goods stage. If we inject new money, no matter where, in the economic system, it is almost impossible to prevent part of that new money from getting into and adding to the intermediate stages, and so causing prices of goods in the *final* stage to rise faster than consumers' incomes ; that is to say, causing the prices of the goods consumers buy to rise faster than their spending power.¹ In our concert analogy,

¹ " When the money stream is increased at some point, the freshly created money in the hands of its first recipients competes with ' the main daily stream for the daily stream of marketable goods ', part of which it secures for the holders of fresh money at the expense of the remaining body of purchasers. This competition shows itself in a rise in the prices of the goods in question, i.e.,

for example, an improvement in the type of entertainment or accommodation provided, will—unless special steps are taken to prevent it—mean adding to the chain of intermediate costs. If an attempt is made to offset the increase in the price of seats to which that addition will lead by raising the incomes of the audience, it will merely make matters worse (for one cannot be separated from the other, since in the case of a community the audience represents both consumers *and* producers). These additions to income will encourage the proprietor to continue improving his entertainment by adding to its chain of costs, knowing he can recoup himself by raising still further the prices charged for the seats. A spiral of inflation will thus be started which, since it will affect different prices differently, and cause the outputs of the commodities they represent to grow at uneven rates, will sooner or later result in a breakdown. The problem is to afford each member the maximum possible level of accommodation and entertainment within the limitations of his concert-hall seat (i.e. his standard-money income). This is a question of subdividing the space available and enabling, within the limits of his allocation, each individual to employ his working-time to the best advantage in pursuit of the above common ends. Although, strictly speaking, this is not a monetary problem at all, money has played a highly important part both in assisting and hindering its solution.

This brings me to the question : How should money be "invested" ? In Chapter IV I submitted that savings (except to provide for additions to the population) should be invested in such a way as to enable

in the diminution in the purchasing power of the money held by all those who do not recieve any fresh money " (Erich Roll, *About Money*).

No one has yet succeeded in devising a way of making additions to the money supply so that all prices and all incomes will be affected at the same time, and in the same degree.

prices to be reduced, leaving incomes unchanged, since only in this way could the capital system carry to the utmost practicable limits its task of gradually distributing to the widest possible range of consumers, the products of nature and industry. To explain the part played by money in this task is not easy. Two things at any rate would appear essential to success. First, consumers' money incomes must be kept as stable as possible. If they fall, then plainly part of the purchasing power on which producers rely for their market will disappear ; on the other hand, as we have seen (leaving out questions of a redistribution of wealth), if they rise selling prices will rise faster still, so that the consumer will not benefit.¹

¹ In my general analysis I have, for simplicity's sake, to confine myself to payments between consumers and producers of goods in the *final* stage of production. This is only a fraction of the *total* payments. The great mass of payments takes place between producers and producers in the intermediate stages of production. And unless something is done to prevent it these intermediate stages will not only demand a continuously expanding supply of money, but, if the total is limited, that demand will encroach on the supply held by consumers, and, by abstracting part of their purchasing power, bring the production system to a standstill. This is why it is essential to stabilise incomes as far as possible.

The distinction between cash and bank credit which nowadays it is becoming customary to ignore, was originally of fundamental importance. Cash represented consumers' incomes and balances ; Bank credit represented the money used to meet the chain of debts in the intermediate stages of the production chain—it was the money used for effecting payments between producer and producer. So long as the use of Bank credit was confined to these payments, no great harm could result from permitting over the years a steady extension of the chain of credit payments commonly termed the "inverted pyramid of credit". The money chain could grow *pari passu* with the growth in the vertical chain of production, since extension of that money chain would depend on the ability of the producers to dispose of their final goods to consumers, and its ultimate length would be controlled by that ability. Provided cash was confined to wage and salary payments, producers could not use it to extend payments in the intermediate stages of production—that is to say, they could not interfere with the stability of incomes. On the other hand, provided the total of that cash was limited and it was the only medium in which consumers' incomes were paid, it would not be easy for an inflation of producers' credits to "spill over" into an expansion of consumers' incomes sufficient to produce a cumulative inflation. The necessity of maintaining the incomes of consumers as nearly as possible equal to the final costs of production of the current output of finished goods, would provide the necessary connecting link between cash and credit. Under such a system, the only circumstance in which a steadily expanding sale of goods could be combined with a maintenance of the above-mentioned equilibrium between final costs and total income, would be that in which savings were invested in such a way as to ensure that investment was accompanied by an equally steady decline in money costs per unit of output.

The second essential to a steady increase in the distribution of goods is to concentrate savings on investments of the types which will result in those goods being put on the market continuously more cheaply. This will call for an element of *compulsion*. In a world in which goods are undergoing progressive elaboration and finish, the process of lengthening the chain of production by subdivision is likely—unless something intervenes to prevent it—to entail a rise instead of a fall in the prices of finished products. For each additional link will tend to require an addition of an element to the total of money costs.

Herein lies the importance of imposing some control on the growth of the basic money supply in a limited territory. Control is required to maintain continuing pressure on producers to compel them to take steps to alter their structure of production in such a way that, as its vertical chain of processes expands under the urge to subdivide, the width of its stream of money payments grows steadily narrower and narrower. Each additional *new* process, involving the use of money, must be accompanied by a contraction in the amount of money used in the *older* parts of the chain.

The trouble about an injection of new gold is that it will usually put a stop to this process of "cost-contraction".¹ The compulsion to "contract" or consolidate costs either by a gradual diminution of the number of hands through which the goods have to pass between the first production and final sale, or by speeding up the rate of turnover, will be removed. There will be no pressure to improve the "efficiency" of money. In consequence, as the number of processes

In an economic system subject to limitations of territory necessitating conformity to an "S" curve plan, the growth of the credit money chain should conform to that "S" plan also. (See Appendix III for a more detailed and technical discussion of this problem. Cf. E. F. M. Durbin, *Purchasing Power and Trade Depression*.)

¹ For a detailed explanation of "cost-contraction" see Appendix III.

through which the goods have to pass increases, so will the number of money handlings increase.¹

The goods which emerge from these new investments will be placed on the market at prices beyond the range of purchasing power of the incomes of nearly all consumers outside those whose incomes have been either directly or indirectly inflated by the new gold, so that the demand for these goods at current prices will be limited to the duration of the inflation.

It would be a mistake, however, to conclude that the use of new money to promote investment of this type should be condemned on all occasions. There is a limit to the extent to which it is practicable to carry the process of subdivision accompanied by "cost-contraction" in any particular industry or in any particular locality. Sooner or later the law of diminishing returns will begin to operate. Besides, in every community there comes a time when with the gradual exhaustion of natural resources and the rise in site values under the pressure of growing density of population, a rise in basic costs begins to develop which ultimately will more than counterbalance any possible price reductions by subdivision of production technique. When an important section of a country's industrial system has reached this critical point, the argument that the investment of new money decreases the purchasing power of one section of the community at the expense of inflating that of another and interrupts the natural fall in prices, loses its force. Such losses are inevitable in any event.

¹ The Lancashire cotton trade provides the classical example of an industry which developed an over-extended structure, in a period of gold inflation, a structure which must be drastically contracted if its sales are to be revived in its traditional markets. Cloth for India even to-day still passes through the following hands: the cotton broker, the spinner, the manufacturer, the calico printer, the packer, the commission merchant, the European importer, the port dealer, the up-country wholesaler, the bazaar retailer, and the pedlar, all taking their profit. According to Mr. L. B. Lee, Chairman of the Calico Printers Association, cloth in some cases passes through fourteen different classes of trader.

And in the case of a mature community which has reached the limits of subdivision they must tend to grow progressively larger with the lapse of time unless arrangements can be made to transfer part of the production units affected—and their workpeople—from the old site to a new area where natural conditions are more favourable. This is where investment of the type promoted by an increase in the gold supply can come in useful. The rise in prices and wages which it induces can be used to encourage the transfer of men and materials from an old locality to a new one. The loss in real incomes suffered by consumers generally at the time of transfer, through the rise in prices entailed, will be compensated at some future date by the fall due to the transfer of certain of their number from an area where continued cheapening of finished products by "cost-contraction" and subdivision has come to an end, to one where it can be taken a stage further. If the new locality is a virgin area the condition of those transferred to it will be like that of the rabbits released on to the Australian Continent. They will have escaped from an old "structure" where the opportunities of expansion were strictly limited to one where relatively they are infinite.

III

The new gold will get to work by increasing the current supply of the medium of exchange and so make it possible for higher prices to be offered for men and materials, thus facilitating their migration to new productive areas or uses. This is what, in fact, occurred in the seventeenth and eighteenth centuries when the Spanish gold which reached England was employed to set going the modern industrial system. It caused men to migrate from agriculture and start industry, encouraged a reorganisation of the system of agriculture so that

more food and textiles could be produced with less labour and capital, and, lastly, by providing a surplus of money beyond that needed for hoarding, encouraged its possessors to embark on the great eighteenth-century adventure of "investment".

It will be clear that the amount of new money required if this process of economic migration is to remain orderly, must not be too great. It must be just enough to encourage the migration of men from the old to the new occupations, and no more ; to lead to the production of the additional quota of materials required in connection with the new work, and, most important of all, to bring down the rate of interest to a level at which it becomes profitable to borrow—an essential preliminary to the commencement of any phase of new growth in a "settled" community. If money is provided more rapidly than this, prices will be forced to an unnatural level. The ideal would be to pump in new money in such quantities as to maintain a continuous pressure in favour of transference without inducing a relief of that pressure by a *general* increase in prices. Such a pressure, if it could be steadily maintained over a period of years, would also accelerate the production of *existing* commodities such as food and materials, as much needed in the new industries as in the old. A process of this kind is not easy to control. If the supply of new money is either continued beyond the point desired or injected in too uneven doses it will lead to abuses ; instead of causing a rise in wages and prices just sufficient to induce migration and bring on to the market the amount of extra production needed, it will lead to competitive bidding between the "new" and the "old" industries, unaccompanied by migration or corresponding additions to output.

The "pull" required to effect a migration will vary with the nature of the migration. It would need, for

example, a greater "pull" to induce workers and capital to emigrate from one country to another than to shift them from, say, an agricultural area to a neighbouring growing industrial centre. That is not all. If the community into which the new money is injected is one in which there lie pent up a number of revolutionary inventions, whose release has been prevented by "congestion", the forces operating to compel an over-rapid migration from the old to the new structure may prove uncontrollable. Moreover, the new structure may be so much more productive than the old, that it may yield a hundredfold or more in profit, since the incentive to reduce prices to the appropriate level will take some time to operate. These profits will serve alike still further to over-intensify the rate of change-over, and to prevent a return to orderly progression once the change-over has been completed. Nevertheless, however widespread and prolonged these excesses may be, *in the long run*, through the operation of the forces of competition, organised growth will resume its sway. The new structure will begin to consolidate. Profit margins and prices will again commence to decline and the process of economising money will be resumed. Ultimately those employed in the reorganised structure will enjoy the benefits of the new developments and inventions in the form of lower prices, relaxation in the effort needed to maintain a given standard of living, and new amenities. When this stage is reached the new money will have become dispersed over the industrial field till there will no longer be an unallocated surplus.

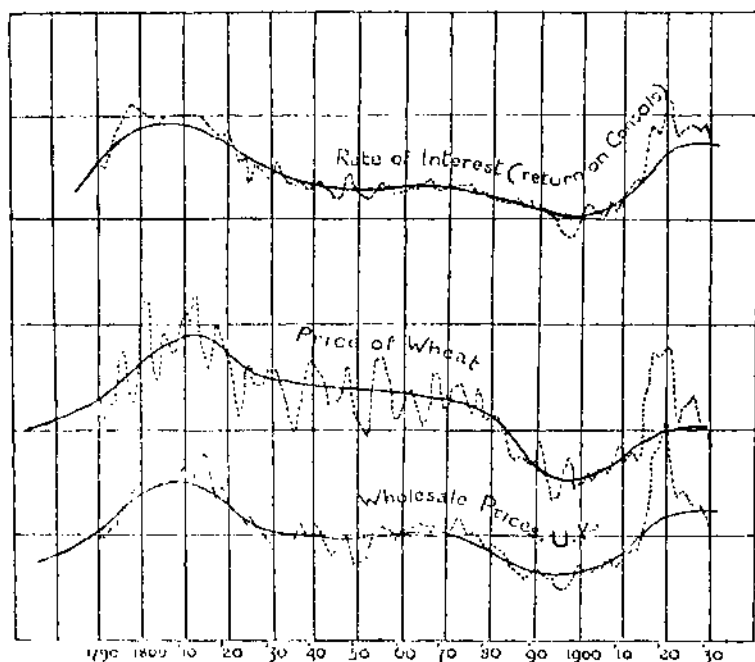
Unfortunately, in the actual periods when additions were made to the world's money supply the money was administered in such strong doses and uneven quantities that nearly all the excesses I have described were suffered. The difficulties of those periods were further enhanced by another factor whose importance has been almost

universally overlooked—that of population growth. Any sudden large inflow of new money in a country whose economic structure is still in a fluid state will be liable to induce population growth to take on a new lease of life. This growth in numbers will not only disturb the orderly adjustment of the new money to economic needs at the time of inflow but, what is far more important, will set going a deflationary movement some fifteen or twenty years later. The source of that deflationary movement will be the circumstance that these additions to the population will not reach the earning stage until some fifteen or twenty years after birth, by which time the new money will have become absorbed into the general money pool. Ensuing competition will intensify the fall in prices which will in any event be under way as a result of the operation of the forces, already mentioned, by which industry economises money in order to bridge the gap between costs of production and consumers' incomes. Thus, every time there is a sudden increase in the money supply in an active community, it will tend to set in train a long-period oscillation both in economic activity and population.

Examples of three such oscillations are given in the accompanying chart of British prices and the rate of interest. The first began in the Napoleonic era, a time when wars, suspensions of specie payment, and paper inflations were rife—prices being doubled in twenty years. This was the period of flux from which was to emerge England's nineteenth-century industrial structure. It was the leap forward taken by our population during those years which later played an important part in intensifying the miseries of the period known as the "Hungry Forties".

The second oscillation began in the 'fifties under the stimulus of the Californian and Australian gold and silver discoveries. In this case, since our industrial

structure was much more developed, the increase in our population was much more modest, though even so it led to congestion in the 'nineties. If the trends of American and Canadian prices during these years are examined it will be seen that the upward swing of prices in the more fluid countries overseas was much greater than in England.¹



WHOLESALE PRICES AND RATE OF INTEREST IN GREAT BRITAIN.

The third movement was set in motion by the South African gold discoveries and exploitation of the cyanide process in the middle 'nineties. Its culmination was prevented by the outbreak of the Great War in 1914. The war-time inflation carried the period of price rise right on to 1920. So prolonged and intense was that period of money inflation that the present slump must in

¹ See paper on Business Forecasting, *R.S.S. Journal*, Vol. XCV., 1932.

a measure be regarded as part of the long-overdue downward movement. By the time this oscillation began our *internal* economic structure had acquired such rigidity that our population failed completely to respond to the stimulus of rising prices and abundant money. It will be noted that apart from these oscillations the long-term trend of both prices and the rate of interest was steadily downward.

New gold will only promote new trade growth *within a given area* as long as the community has not reached maturity. Once the trade organism has expanded to the limits permitted by its "structure", gold will be powerless to make it grow further. If the "growth curves" for Great Britain in Appendix I are examined, it will be seen that the enormous inflow of new gold from 1900 onwards did not prevent the steady slowing down in the speed of growth of Great Britain's *domestic* trade which was under way. It may even perhaps be said to have accelerated it.¹ For had Britain been able to isolate her own prices and interest rates from the influence of the new gold, she might have taken a good deal further than she did the expansion of sales in her home market and in the low-level-income countries overseas in Africa, India and the Far East, by concentrating savings in promoting investments of the cost-contracting type, and

¹ Compare G. T. Jones, *Increasing Return. A Study of the Relation between the Size and Efficiency of Industries, with special Reference to the History of Selected British and American Industries, 1850-1910*: "The nineteenth century was characterised by a progressive diminution in the quantity of resources consumed per unit of product in British manufacturing industries. By the close of the century, however, this movement had spent its force, so that real costs remained almost constant during the first decade of the twentieth century in at least three of the basic industries of Great Britain. ... In consequence of these developments, the *per capita* income of the United Kingdom showed no increase between 1900 and 1913, though it had increased steadily during the nineteenth century."

In regard to the incomes represented by wages, Sir Walter Layton, writing in 1911, summed up the position as follows: "If prices are taken into account it appears that the last fifteen years have also seen a halt in the rise of real wages. In certain special trades wages have continued to rise—notably in coal-mining and the cotton trades; but in other directions the movements have been sectional" (*An Introduction to the Study of Prices*).

taking industrial and commercial subdivision in general a stage further. As it was, under the influence of rising interest rates and world prices she devoted an undue proportion of her investment to the duplication of the industries and services of the Mother Country in the "white" areas which were being rapidly opened in the Dominions and the Americas under the influence of the new gold, and to improving the quality of her domestic products instead of to cheapening them.¹

Thereafter Britain could continue to expand in wealth by transferring her activities increasingly to trade overseas. The extent by which Britain's activities were diverted from domestic to foreign development is shown by the figures for British export trade, which rose from an almost stagnant figure in the middle 'nineties to over 25 per cent, of her total production by the time of the 1906 Census, reaching possibly nearly 40 per cent, in the immediate pre-war years.²

¹ The Lancashire cotton trade, again, which to-day finds itself too advanced and specialised for a world in which economic conditions allow the purchase only of cheap commodities, affords a notable example of an industry which has suffered from the effects of that policy on both the prices of its own products and the level of charges and nature of development of the transport and distribution systems used to market them. (See Appendix III.)

² By 1910 our annual overseas investments had reached in value a figure equivalent to nearly 50 per cent, of our total exports of British goods. (See also curves in Chart C, Appendix I, for exports of U.K. produce, iron and steel, emigration and foreign investment.)

CHAPTER VII

EVOLUTION AND GROWTH OF BRITAIN'S INDUSTRIAL STRUCTURE

English in the teeth of all the world, even in the teeth of
England.

D. H. LAWRENCE.

I

FEW, I think, will deny that the populations of England and parts of Europe in the sixteenth and seventeenth centuries satisfied most of the requisite conditions under which the urge to migration is fostered. By comparison, for example, with those in the Far East, they were in a state of continuous flux and movement. In our own case the existing social and economic structure had been thrown into the melting-pot, and there were many signs that the population was pressing hard on the means of subsistence, though devastations of plague for a time brought relief. As in earlier ages, the Northern nations, urged on by the inhospitality of their lands and the lash of their pitiless climates, were steadily pushing south. Under their pressure, many of the peoples of western Europe had for some time been standing on the brink of their shores, as it were, waiting only for opportunity to move to the New World overseas. But that world had to be discovered, prospected, and the road to it charted before actual migration could be practicable. Science was to provide the opportunity. The small Portuguese college of navigation founded by Prince Henry " the Navigator " did the preliminary staff work

which helped Columbus, Vasco da Gama, and others to chart the road to the Indies and so to the mainland of America. Suitable means of transport had still to be provided, the new land had to be prospected, settlements founded to act as nuclei or centres from which development could radiate. In the meantime, however, means were being provided for expanding the home resources which, by the relief they afforded to the pressure on the means of subsistence, for a time actually checked the migration stimulus. This relief, however, as our biological laws have taught us to anticipate, merely brought a more or less automatic increase in the population, so that in the end the condition was no better than before. (Indeed, when, after the conclusion of the Napoleonic wars, this increased population found itself compelled to try to live within its own home territory, the degree of misery endured for a time was probably more terrible than anything which had been experienced for two centuries. But ultimately this was to help, for it encouraged men to fix their eyes still more intently than before on the countries overseas.)

It is natural to enquire how the first precarious hold which the Old World secured on the New was able to exercise any perceptible influence on the economic conditions of our own country. It was not until the nineteenth century that the surplus populations of Europe were able to overflow at all freely into the unoccupied territories in the New World. The breakdown of the agricultural "structure" of the Middle Ages was the first stage in securing the release which was to permit the emergence of the new commercial enterprise—represented by the towns on which depended ability to take advantage of the newly discovered world overseas for the provision of markets and sources of raw materials rather than merely, as in the case of Spain, for sources of gold and other treasure to fill the rapacious coffers

of the feudal grandees.¹ Commercial enterprise, so long as it remained subordinate to the authority of a "settled and peasant form of life, had been commerce without the spirit of enterprise to give it life". It could not grow. The rise of the guilds was the first outward sign of the disappearance of that "structure" and of the coming predominance of industry over agriculture; these were the functional bodies needed to give the towns a separate corporate existence.

At the accession of Henry VII we find a well-developed threefold division of society: (1) the export merchants—the mercer, the grocer, the gold-merchant, and so forth; (2) the local traders and independent craftsmen, and (3) small craftsmen and journeymen. As always happens when a new structure is started and its "territory" is relatively unoccupied, new-comers were permitted freely to enter the various trades and workers to become masters. But as the inevitable stage approached when the rate of growth of new opportunities began to slow down, the increasing "congestion" made it necessary to prevent new entrants coming into the system. By the middle of the sixteenth century we find that a definite class-cleavage had emerged, and that the mercantile mobility of the previous century was being replaced by rigidity. The master craftsmen were leaving handicraft more and more to apprentices and higher journeymen and devoting their own time to the commercial side of trading in the products of their craft. At the same time the journeyman class was slipping back into a state of increasing dependence, due to the fact that the more ambitious journeymen's only hope of advancement was to forsake their class and identify themselves with the fortunes of the small masters.

¹ It was not possible for the new gold to be put to commercial use in Spain, as she had expelled the Jews and had no commercial "structure".

The final end of this structure may be illustrated by a complaint in Parliament made by Sir Edwin Sandys as early as 1604, that "merchandise being the chiefest and richest of all other and of greater extent and importance than all the rest, it is against the natural right and law of the subjects of England to restrict it into the hands of some few. . . . The governors of these classes by their monopolisation of orders have so handled the matter that the mass of the whole trade of the realm is in the hands of some 200 persons at most, the rest serving for a show and reaping small benefit." In 1624—as a result of agitation—a general anti-monopoly Act was passed by Parliament.

The break-up of the guild system with its guild merchant, old urban localism and small-scale industries, was succeeded by the rise of the modern capitalist entrepreneur with his Hansa or league between cities, and ever-widening markets, on which was to be laid the foundation of the nineteenth-century international world. The basic skeleton of the new economic structure which was to make this possible had first to be constructed. It began, as I have suggested, with a return to the extremely fluid conditions of a "structureless" world. One structure was being destroyed and another was about to be constructed in its place. Perhaps the best way of describing what that new structure was to be is to say that it was [in essence a reversion to the horizontal classification according to function of the time of Feudalism in its heyday, divisions to which, as before, all nationalities were to belong. In place of the feudal classes of knights, the learned class of clerics and the working class of commons, there were bankers, traders, and the salaried and wage-earning classes with their various functional subdivisions.

The nomadic genius for the first time in its history was about to make the art of buying and selling its

main preoccupation. Its men, women and children were, in Hardy's phrase, to serve smoke and fire, rather than frost and sun. Peasant agriculture, it is true, was to continue to play a part, but a less important part than hitherto. In future, its relation to the town was to be that of servant, not master. Necessarily, a transport revolution was an indispensable feature of the change. Improvements in methods of production and distribution were useless so long as the pre-existing state of economic affairs continued. Hitherto the development of the towns had been limited, except at the seaports, to a modest specialisation in craftsmanship, and the guild system had imposed a rigid restriction upon further progress. All this had to be altered before the dream of a world-wide exchange of goods, in which all countries and all the people within those countries should share, could be realised. Social and economic barriers had to be broken down. New forms of transport had to be invented and perfected.

The English Rebellion of 1640 and the Revolution of 1688 marked the end of the system of feudalism founded on agriculture (that is, a functional or Nomadic "structure" superimposed on a "settled" or Peasant "structure"). This change has been described as marking the emergence of the "middle classes", but this, I think, conveys a false impression, and leads to confusion. That "middle class" had nothing in common with the "middle class" of the nineteenth century; it belonged to a different economic "structure". It seems to me to be both clearer and less provocative to describe the particular changes involved in the former as the release of the spirit of the nomadic invader from a structure, built upon a division of society based on agriculture, that was becoming too rigid for a people which had never grown sufficiently closely attached to the soil to become

a "settled" people and acquire the temperament of a "settled" people.

The English Revolution has been justly differentiated from that which overtook France in the eighteenth century, in the amount of emphasis which has been laid on the fact that the latter uprising was definitely one of the peasant or "settled" race. "In England the revolutionary passions were stirred by no class in its material interest. Our patriots were prosperous men, enamoured of liberty, or of religion, or of loyalty each for her own sake, not as the handmaid of class creed. Hence the moral splendour of our Great Rebellion." It would be hard to find a better description of the essential feature of the nomadic character than this by Trevelyan.¹ Here we see re-emerging in its pristine simplicity the *individual* or *personal* instinct of the pastoral nomad as opposed to the *territorial* or *communal* instinct of the "settled" peasant; and in the reorganisation of the system which was to follow, we find maintained the characteristic features of nomadic society already noted under "Feudalism". It resumed development by a process of subdivision and separation according to *function*, and carried it a stage further. That form of progress in its earlier form may be summarised as: first the household, then the guild, and finally the city, each of these in turn proceeding to expand by a process of minute subdivision until, as in the case of the guild, fear of outside competition led to the erection of a fortress-like wall against the foreign invader. Within the group, individuals might pass in due order from one class or rank to another: an apprentice became on completing his service a journeyman, and, in due course, a "master" of his craft, ultimately, it might be, the alderman or chief of his guild. "But not by his own pushing or striving—still less by any attempt to rival or thwart

¹ G. M. Trevelyan, *England under the Stuarts*.

his fellow-guildsmen, or take advantage of their weakness."

This, in embryo, was the organisation under a new guise, of the Lancashire and Yorkshire textile mills of the eighteenth and early nineteenth century, and shows the origin of the "team spirit", which still persists in those counties to-day. They never seem to have acquired a "commercial" structure open to all comers based on subdivision, not according either to land or kinship but to "money", such as exists in other parts of the country. Anyone from outside who attempts to set up in business in a typical Lancashire factory town is likely sooner or later to feel that in some curious way he is "outside the clan", that the inhabitants of the locality, notwithstanding the division into master and men, have a personal relation which the stranger can never hope to penetrate or share—a circumstance all the more curious because the people concerned are noted for generous hospitality.

But it was in the actual organisation of the conduct of buying and selling that this type of progress had its most surprising development—one so startling and unexpected in its results that few people even to-day appear to appreciate what actually happened. The notion of progress by producing more food per acre, or more output per unit of supply or industrial plant by this subdivision and specialisation of labour according to *function*, was a new idea. Practical experiment in this direction on a large scale, even had the knowledge been available in earlier times, would have been repressed as dangerous to the structure of society. Even the Romans whose energy and capacity produced such remarkable improvements in building, made scarcely any mechanical improvements in agriculture and industry. It is said to have been characteristic of the Roman Empire that Vespasian, eager as he was for public

economy, when offered a machine that would make it easier and cheaper to carry out his public works, rewarded the man but destroyed his machine. The stone which the builders of the older economic structures rejected was none the less to become the headstone of the corner of the new.

The innovation which the new leaders introduced into the process of subdivision was termed the "division of labour" by Adam Smith, the first to draw attention to it.¹ It involved using a system of production by organised teams of workmen aided by machinery, in place of production by individual craftsmen working independently. The lives of men were no longer to be ruled and controlled by attachment to "territory" but by attachment to "function". "Territorial" subdivision gave place to "functional" subdivision, and the forces of "congestion" in the latter became the future arbiters of the growth in numbers of the community as a whole. Starting with the great "sheep runs" which were to produce wool for the "staple trade", the movement gradually spread to agriculture; the system of "enclosure" was established and the four-course-rotation plan came into general use. The spirit of contemplation and enquiry blossomed forth once more, and there began an age of invention and discovery the like of which the world had never known. From the seeds of the new navigation there grew the discovery of new lands; new commodities and new amenities came in their train.²

It is convenient to date the beginning of modern capitalism from the time of the heavy European imports of Mexican and Peruvian treasures in the sixteenth and seventeenth centuries. This treasure enabled the world to profit by the newly discovered all-water routes to the

¹ *Wealth of Nations*, (1775).

² See footnote to Chapter XI, "Planning the New Era", p. 204.

East Indies and the opening up of extensive markets in the New World. These developments in turn stimulated industry and commerce in Europe by bringing a demand for larger-sized vessels, so encouraging improvements in the instruments and technique of navigation ; while the introduction of new agricultural commodities from America and new agricultural and manufactured goods (especially luxury products) from the East, stimulated general industrial activity to provide the wherewithal to pay for them. Disintegration of the rigid guild organisation, and its replacement by the more flexible and efficient capitalist employer began, and migration to the New World and the East, which was to act both as a safety valve and as a relief to the pressure of population upon the soil of Europe throughout the nineteenth century, was set in motion.

The scene opens in the sixteenth century with the vast outpouring of American gold and silver into Europe. Spain was the centre of the influx of new money which, for a period roughly dating from 1520 to 1630, poured into the Motherland at a rate which so increased that ultimately it must have exceeded the most fantastic dream of the Conquistadores ! Thereafter the gold and silver stream lessened considerably. The treasure, both public and private, in so far as it entered legally was, with minor exceptions, deposited in the House of Trade at Seville, whence it was eventually diffused throughout the world. Professor Earl Hamilton has recounted how this new gold and silver, after first being employed to promote the Castilian Golden Age, was gradually driven out by currency depreciation and the decadence of agriculture, industry and commerce—in short, by the dispelling of the illusion that gold and silver can enrich a nation without work. From Spain, part of the new money flowed to the trading centres of Holland, France and England, where the new " industrial " structure

was in the process of construction. Professor W. R. Scott has recorded how in Great Britain "the new money helped to lay the foundations of modern capitalism, and of our present-day industrial system by way of the Joint Stock Company".¹ In the middle of the sixteenth century the total capital of the joint-stock companies in existence was under £10,000 and represented only about 0·013 Per cent, of what the national wealth may be guessed to have been. By 1695, according to Professor Scott, the nominal capital of companies had increased to 1·3 per cent, of the estimated total wealth at that time. Only eight years later it had doubled, while in 1717 it was again doubled, being by that date no less than 20 millions. At the end of 1720, adding the augmented capital of the South Sea Company after the conversion, and the sums then called up by the recently established undertakings, the whole amount was about £50 millions or 13 per cent, of the estimated national wealth at that date. When it is remembered that of this total of £370 millions only about one-tenth consisted of instruments of trade—the remainder being lands, cattle, houses and household goods—the full significance of the proportion will be apparent. While many of these companies were engaged in promoting colonising enterprises in Africa, India, Virginia, New Zealand and Nova Scotia, others were concerned with domestic developments at home, such as reclaiming land by means of drainage, fishing, and water supply. The colossal profits secured by these new companies may be presumed to have provided the bulk of the savings for the further development of the enterprises in which they were made, since the other main source of savings—agricultural rents—can have played but a minor part, as the period was one of rising agricultural prices with rents lagging considerably be-

¹ *Joint Stock Companies in 1720.*

hind. The profits also provided funds for financing the mechanical inventions of the industrial revolution.¹

Let us now employ the events of this period to put to the test the principles of growth and structure adumbrated in the earlier chapters. I propose to examine them shortly under the following heads : Growth of Population, Growth of Production, Culmination of Growth.

II

GROWTH OF POPULATION

The scanty information available regarding population suggests the probability that prior to 1600 the population of England and Wales tended to fluctuate round about the 5,000,000 mark, the periods of food deficiency followed by outbreaks of disease which alternated with periods of plenty sufficing to prevent the total from ever staying permanently much above that figure. In 1700, just before that population was about to start on its new adventure of growth, it stood, according to Rickman's estimate, at between 5,000,000 and 6,000,000 ; by 1800 it had risen to nearly 9,000,000 ; by 1900 it exceeded the stupendous total of 32,000,000 !

For the first clear indication of that rapid increase of population which was to be such a characteristic feature of the nineteenth century in Britain we had to wait until the first decade of the second half of the eighteenth century—the decade in which the Seven Years War ended and Hargreaves' spinning-jenny and Watt's earliest steam engine were invented. The following table gives approximate population figures, calculated by Rickman from the registers of births, deaths and the Poll-tax and Hearth-tax returns, for England and Wales between

¹ See paper, " Business Forecasting : A Quantitative Investigation of the Influence of Money on Trade Development ", Vol. XCV, Part I, 1932, Royal Statistical Society, for further details.

1700 and 1801 (a second estimate for 1700 is given in parentheses) :

Year.	Population.	Percentage per decade.
1700 . . .	5,475,000 (6,045,000)	—
1710 . . .	5,240,000	Decrease. 429
1720 . . .	5,565,000	Increase. 6-20
1730 . . .	5,796,000	4.15
1740 . . .	6,064,000	4.62
1750 . . .	6,467,000	6.64
1760 . . .	6,736,000	4-16
1770 . . .	7,428,000	10.27
1780 . . .	7,953,000	7.07
1790 . . .	8,675,000	9.08
1801 . . .	8,892,500 (first census)	2-51 ¹ (War period)

The total increase in the population during the whole of the eighteenth century averaged only about 5 per cent, a decade. For the next fifty years the rate of increase was to be nearly three times that figure. Nevertheless, after the sharp increase which followed the Napoleonic wars, the period was marked by a more or less steady decline. The population first expanded to meet the new economic structure ; then the forces of " congestion " began slowly but remorselessly to slow the rate of growth :

	Decennial Rate of Increase of Population. Per cent.
1801--11	14-0
1811-21.	18-1
1821-31	15-8
1831-41.	14.3
1841-51	12-6
1851-61	11-9

To appreciate the remarkable change in conditions which these latter figures reveal one must consider them in relation to the territory to which they belong. The

¹ The small rate of growth in the last ten years of the century is attributable to war abroad and to bad harvests and various troubles at home.

events of the " Hungry Forties ", for example, were calamities inevitable in a country whose population was being subjected to the relentless force of the compound-interest law operating in a restricted territory. The tale of misery which can follow the operation of that law among animals has been told in the case of the lemmings ; the " Hungry Forties " gave us a glimpse of what can happen to human beings. As has already been explained, although growth at compound interest can be prevented from taking place, once it *has* occurred it will continue inexorably until either it completes its curve of growth, or part of the community takes flight in " mass " migration, or its numbers are reduced by war, pestilence or starvation. Nothing can stop it completing its course once it has begun.¹ Small wonder that under its lash wild animals have been driven to take refuge in suicide and in even worse acts of frenzy. For a community, which falls under this power, will suddenly find itself literally doomed, like a man afflicted with cancer, to suffer the agonies of an internal growth slowly gnawing away its vitals ; a growth which will continue unabated until either its appointed end or the patience of its host gives out. Perhaps the " plague, pestilence and famine "

¹ A rise in the birth-rate in any year will eventually be followed by an increase in the number of mothers, and these in their turn will in due time cause an additional increase in the birth-rate, say, from eighteen to forty-five years later (i.e. during the child-bearing ages). Each subsequent additional increase in the birth-rate will likewise produce an addition to the number of new mothers, and so on. Not till all the extra mothers have passed beyond the child-bearing ages will the impulse responsible for the original increase in the birth-rate have worked itself out. Industrial production obeys much the same rules. An increase in the rate of release of output will lead to additional investment in new plant. This new investment, as in the case of the new mothers, will, after a period, lead to an emission of additional output which will continue over a period which may be measured in months or years, according to the type of industry affected. The difference between population and output is that in the case of over-production congestion cannot restore equilibrium in the former except by causing prolonged suffering, whereas in the case of the latter " trade cycle " depression can be used to hasten readjustment by compelling the closing down of surplus and less economic plants. But this will not prevent a period of over-acceleration of growth of more than very limited duration from leading to tariff and other forms of war in an *international* system. (Cf. 1848-73 and 1896-1914).

from which, in our ignorance, we pray for deliverance, have been provided by a merciful Providence to save us from the worse agonies of another form of death.

The cause of the slowing down in the present instance was not difficult to diagnose. For years goods had been prepared at prices and in qualities which were quite outside the range of purchase of the ordinary peace-time consumer.

In time of war to increase the *speed* of output becomes all-important. Money inflation accordingly is deliberately employed to break down the barrier of price, which until then has been preventing manufacturers from expanding output faster than the rate at which human effort per unit of output can be reduced (i.e. the rate at which the real purchasing power of consumers' money incomes can be increased), by such means as the subdivision and specialisation of labour, the supplementing of human labour by machines and the economic re-organisation of the production chain. But the breach thus made in the peace-time structure of industry both over-accelerates growth in various directions and causes that structure to acquire deformities whose size and character will depend on the length of the period of abnormal growth.

The anticipation of peace with prosperity cherished during the long and weary years of the Napoleonic War was quickly dissipated. The English harvest of 1813 was the best ever known ; that of 1814 was good ; and with the conclusion of peace came a plentiful supply from abroad. The average price of wheat fell from 74^s. 4d. per quarter in 1814 to 67^s. 7d. in 1815 ; in January, 1816, it was 52^s. 6d. Tithes, rates, taxes and, above all, rates of interest, remained at their inflated war levels. The agricultural distress of 1814-15 was the most striking example this country had yet experienced of a phenomenon which has again become familiar

to us—destitution as a consequence of abundance : starvation to growers of food because harvests happen to be too bounteous.

A collapse equally disastrous overtook the manufacturing industries. War requirements for munitions, clothing and boots, both for British armies on the Continent and for subsidised allies, had maintained an effective demand for the products of the metallurgical and textile industries very large in proportion to the country's productive capacity ; while security from invasion, command of the seas and of the supply of some essential raw materials, and new machinery, had combined to give British manufacturers a monopoly of the distant markets. It is said that British overcoats were supplied even to the troops which Napoleon led to Moscow. In 1814, while Government purchases were still at their highest level, the European market was reopened. A great outburst of speculative trade began. Exports in 1815 went up to the hitherto unparalleled figure of £51·6 million. The boom and its consequences were thus described by Brougham in the House of Commons in 1816 :

Not only clerks and labourers, but menial servants, engaged the little sums they had been laying up for a provision against old age and sickness. Persons went round tempting them to trade with Holland, Germany and the Baltic ; they risked their mite in the hope of boundless profits. It went with the millions of the more regular traders. The bubble soon burst, like its predecessors of the South Sea, the Mississippi and Buenos Ayres. English goods were selling for much less in Holland and the North of Europe than in London and Manchester ; in most places they were lying a dead weight without any sale at all ; and either no returns whatever were received, or pounds came back for thousands that had gone forth. The great speculators broke ; the middling ones lingered out a precarious existence, deprived of all means of continuing their dealings either at home or abroad ; the poorer dupes of the delusion had lost their little hoards, and went upon the parish the next mishap that befell them.

Nor was this outburst of speculative trade, which overflowed and destroyed a market which had been grievously over-estimated, confined to Europe. The American markets were heavily over-stocked with all sorts of British manufactures : " broadcloth, muslins, Manchester goods, Birmingham, Sheffield and Staffordshire wares, pins, Bristol glass, pianofortes, and almost everything you can mention ". In Belgium there were riots to prevent the sale of English goods. From Germany there arose an outcry that a new British tyranny was determined to crush out German manufactures by the sale by auction of vast quantities of British goods at rubbish prices, and was even more dangerous and odious than the tyranny of Napoleon. There can be no doubt that the peculiar phenomena of British export trade at this period paved the way for the subsequent building up of hostile tariffs against England in Europe.

The origin of these disasters as well as the directions in which a remedy had to be sought will be clear to anyone who has followed the argument of the preceding chapters. In the first place, the fundamental cause of the condition of general over-production which developed was that the prices at which goods had been produced and sold during the war period were far above both the levels of the consumers' incomes and the prices which could be paid, except by relatively few ordinary peacetime consumers. Prices on the average had been doubled in barely twenty years. The accelerated needs of the war period had been met, not by inventing methods of enabling a unit of labour to produce more goods, nor by economising money costs by cutting down the number of hands through which the goods from producer to consumer would have to pass. They had been obtained by inducing men to work longer and harder by offers of inflated wages, by operating uneconomic sources of supply and obsolete methods, and, lastly, by using

methods which involved increasing instead of decreasing the number of money handlings. In addition, a substantial part of the extra supplies required had been secured by inducing non-combatants to forgo part of their normal consumption by offers of uneconomic prices. In the limited instances in which "mass" production methods and new processes had been introduced, the industries were war-time industries, the demand for whose products would cease with the declaration of peace.¹ In days when advertising was almost unknown and transport facilities and communications were primitive beyond modern comprehension, there was no question of changing these over to manufacturing for peace-time needs. Customers could not be cultivated rapidly enough to make it worth while.

But from now onwards the very forces which had encouraged producers to avoid cost-contraction for over three decades were to compel them to strive to make up the lost ground in little more than two—an impossible task. Then, as now, the best way of overcoming the post-war crisis was, first, to help save local industries from complete collapse by creating an artificial condition of "scarcity", by trying to maintain prices during the period in which surplus stocks were being absorbed and methods of production reorganised to produce on a lower cost basis; second, to concentrate effort on reducing costs of production in order to bridge as quickly as possible the gap between the inflated prices of the war period and post-war consumers' incomes.

In 1814, the prohibition of food imports was demanded, and in 1815 the Corn Law was passed forbidding the import of wheat until after the home price had reached 80s. per quarter. These Corn Laws eased the immediate situation by holding out a prospect of profit which, as

¹ Mass production in industry is the counterpart of "mass" migration among populations. Until recent years it never occurred except in response to the inflationary stimulus of war.

events proved, was largely illusory. Meantime, cost-contraction—the process of bringing prices and incomes back into proper relation—proceeded apace. Agricultural science and technique advanced, the effect of the work of scientific breeders of sheep and cattle being cumulative. Parliamentary enclosure of commons and commonable fields and meadows was accelerated. Numerous inventions for agricultural machinery were patented. The most notable of these were in threshing machines worked by horses or steam power.

Parallel developments went on in the manufacturing industries. This may be illustrated by the experience of the cotton weavers. Before the Napoleonic War they had been brought to a pitch of prosperity never known before by manual workers. With abundant demand for their labour there had been constant employment at inflated rates of remuneration. In 1804 the power-loom had begun to share in the work of weaving, though till 1813 only to a small extent, even in cotton. In that year there were about 2,400 power-looms at work in England. The number increased fivefold by 1820. The 12,000 power-looms in England of 1820 increased to 45,000 in 1829, and to 85,000 in 1833, and that class of worker which forty years before had enjoyed the highest measure of prosperity was plunged into the lowest depths of poverty.

The source of this misery was not far to seek. A resumption of orderly progress, as we have noted, demanded that prices should be lowered and the purchasing power of "income" raised by devising methods whereby a unit of labour could produce more goods in a given time than before. Further, if that economy in labour costs was to be achieved without causing an almost equivalent loss in the purchasing power available to buy the goods when produced, it was essential that (I) sales should be accelerated at least as rapidly as

output would be when the new methods of production were in operation, so that no labour would be discharged from production and thus deprived of an opportunity of earning the wherewithal to buy goods ; and (2) in so far as any labour became redundant in existing industries and occupations as a result of these economies in methods of production, it should be provided *pari passu* with new employment elsewhere. If these various movements failed to take place concurrently and at the same pace, then, since all incomes are obtained directly or indirectly from work done in connection with productive enterprise, the purchasing power available to buy the additional goods produced must inevitably fall short of requirement and a condition of over-production supervene. That such a situation was bound to develop in the primitive and transportless world of the early nineteenth century is obvious. The situation, moreover, was made worse because the process of accelerating economies in production costs was perforce proceeding in industry and agriculture simultaneously, while the provision of new employments tended to lag behind. Besides, in the absence of advertisement and transport facilities little could be done to accelerate the purchases of the consumers who remained in employment. In view of the general distress, these latter were slow to appreciate that the prevailing low prices offered them unrivalled opportunities of enhancing their standard of living to a level never before attained. These factors served to maintain the condition of over-production for an exceptionally long period.

Thus the same forces responsible for over-acceleration of population growth brought over-acceleration in the field of production also. In both cases once the forces of compound interest had been liberated great misery and suffering had to be endured before the pressure of "congestion" was sufficient to restore equilibrium.

Gilbert Slater has aptly summarised how this equilibrium was achieved in the sphere of production :

In England during the thirty years after Waterloo, the advance in the standard of life among workers in the more highly-organised industries first partly counterbalanced the deterioration among those in which the old methods persisted unchanged, and then, as the numerical proportions altered, more than compensated for it. The experience of Lancashire is often cited as providing that the advent of machinery creates a new demand for more labour than it displaces. But the new demand for labour in Lancashire was caused mainly by the great export trade in machine-produced goods, and the displacement of labour took place in every country in which Lancashire cloth superseded the product of native looms.

Suddenly, towards the close of the 'forties, a change occurred. Congestion gave place to renewed growth. The explanation of this next transition from contraction to renewed expansion is that during the years concerned, the internal structure of our economic system underwent a complete reorganisation. The change in this particular case, however, did not involve a complete breakdown of the existing structure, but its supersession and absorption by one capable of an even greater degree of subdivision. Just as a balanced system had seemed within measurable distance of attainment, the railway and the steamship suddenly blossomed from the seeds of inventions sown many years before, releasing vast new possibilities of expansion. The opening-up of a whole series of new avenues of consumption previously closed to producers, which it would take production many years to fill, permitted a relaxation of the restrictions which had been directed increasingly against the further extension of mass-production methods in manufacture. It made possible the establishment of Free Trade—another indispensable element in the prosperity of the new era. The last item in this story of revolutionary change was a flood of new gold and silver—to arrive shortly afterwards.

This flood was to ease the pangs of the rebirth by watering down the debts of the old structure in preparation for the new international system which was now coming to life ; and it was to facilitate the transfer of men and materials from many basic occupations and centres in the Old World (where the possibilities of carrying industrial subdivision a stage further were becoming exhausted) to areas where, relatively speaking, opportunities were infinite. Unfortunately, in doing all this the new money was also to unleash once again the forces of population and production growth and lay the foundations for another era of " congestion " and human suffering.

I have pointed out that the rate of increase in population continuously diminished from 18.1 (1811-21)—the highest figure ever recorded—to 11.9 (1851-61), a falling-off in the rate of increase growth averaging nearly 10 per cent, a decade, bringing the rate back to that of the closing decades of the eighteenth century. Round about 1850, however, there came a sudden change. Instead of continuing its decline the rate of growth took an upward turn (shown most clearly by the " births "). The percentage rates of increase in the next fifty years were :

1851-61	.	.	.	.	.	.	.	11.9
1861-71	.	.	.	.	.	.	.	13.2
1871-81	.	.	.	.	.	.	.	14.4
1881-91	.	.	.	.	.	.	.	11.6
1891-1901	.	.	.	.	.	.	.	12.2
1901-11	.	.	.	.	.	.	.	10.9

There appears to be a close connection between the increase in the rate of population growth during the twenty years from 1861 to 1881, and the relief of congestion due to enlargement of the economic structure brought about by the invention of railways and the introduction of steam navigation. Udney Yule, writing of this period in 1906, laid special stress on the fact that there was a distinct turning-point, not only in the birth-rate but also

in the marriage-rate, in many countries of Europe, not to be accounted for except on economic grounds. He said : "I feel myself almost compelled to the belief that the course of prices, either directly by its influence on consuming power and on profits, indirectly by its effects on trade, or more indirectly (if it be possible) as an index to the course of some other variable, has been through the past century, the factor of most outstanding importance in the rate of reproduction of the race." He noted, however, one important exception. The fall in the fertility coefficient was greater for the decade 1891-1901 than for any previous decade, and this by no means corresponded with the course of prices. "There must then," he observed, "certainly have been some other cause or causes at work to effect this depression, and these are probably the same as have effected the corresponding virtual depression of the marriage-rate during the same period." The "congestion" theory which I explain elsewhere in this volume, I submit, fits the case.

I would like to raise the question [Yule proceeded] whether a contributory cause may not conceivably be the rapidly increasing pressure on the labour market, brought about in part by the high birth-rate immediately preceding 1876, and in part by the great fall in the death-rate, which has enormously increased the supply of adults provided by a given birth-rate. Taking the labouring population as consisting mainly of males between, say, 20 and 55 years of age, I find that their numbers increased by 10 per cent, between 1851 and 1861, by 12 per cent, between 1861 and 1871, by 14 per cent, in each of the following decades, and by no less than 19 per cent, during the ten years, 1891-1901. This is a very large and quite abnormal increase, not produced by any present demands for labour, but in part by the "demand" of 1863-73, and in part by a cause which has nothing to do with trade or employment—the fall in the death-rate. I do not see how such a rapid and uncalled-for rise in the supply of labour could well fail to disturb the market for it, emphasise the problem of unemployment at

every recurring trade depression and tend to lower both marriage- and birth-rates amongst the wage-earning classes.

He was of opinion that if this were, at least, a partial cause so far as these classes were concerned, the next ten or fifteen years would see some relief, for the rate of increase of adults would be rapidly lowered as the recent values of the birth-rate began to take effect (provided always the death-rates did not fall *pari passu*, as is hardly possible).

The evidence for the whole period from 1850 to 1910 confirms the impression not only that the birth-rate varies with trade cycle movements, but that as the turning-point of the birth-rate in 1876 and the occurrence of maximal intercensal increases after periods of high prices strongly suggest, a similar interdependence exists with long-term trade movements. In short, the birth-rate obeys the law of supply and demand. Brisk trade causes a rise in the birth-rate in exactly the same way as increased demand for any commodity causes sooner or later an increase in supply. But the waiting period is even longer than for agricultural investment overseas. Herein lies the pitfall. The increase in demand is only met by a delivery of the commodity some twenty years later. By that time the "commodity" may not be required! Just as the long time taken by a new agricultural area to come into bearing causes long-period fluctuations in agricultural prices which are extremely difficult to avoid, so the time taken for an increased demand for labour to become effective causes long-period fluctuations in population which are highly undesirable. For if a population be, say, above the optimum, the supply of labour being in excess, the birth-rate will be depressed and will stay depressed until the reduction begins to have some effect on the labour market. But as this effect will not be measurable for fifteen or twenty years the labour supply may not be adjusted to the

demand for, say, thirty years. The birth-rate may by that time have risen again to normal, but the labour supply will continue to fall because of the low birth-rate formerly obtaining. The birth-rate will therefore rise above normal and continue above normal so long as the labour supply is in defect ; and so matters will go on, the population swinging about the optimum value for a period of perhaps fifty to one hundred years, the birth-rate following suit. This will tend to produce corresponding alternations of long period in the labour market, superimposed on the short cycle of trade, probably even more difficult to deal with and possibly not subject to control. One may hope that growing " congestion " coupled with the gradual dissemination of birth control knowledge may save our future generations from this dilemma in its worst form.

So far we have confined our examination to the evolution of Britain's internal structure and population. But with the advent of the steamship, that structure ceased to be purely national and became in a sense international. While directly that enlargement may have done little to alter the ultimate course of evolution at home, it played an important part indirectly both in relieving " congestion " and in postponing the inevitable slowing-down in the rate of population growth and material prosperity in the United Kingdom.

Nevertheless, that enlargement was to bring its own Nemesis. It was to introduce the world to a new—and not yet properly appreciated—phenomenon—" industrial " over-production and congestion.

III

GROWTH OF PRODUCTION

To obtain a measure of the growth of production similar to that which we possess in the case of population

is not possible. An idea of its general magnitude, however, can be gained from the estimate made by Sir Josiah Stamp for the year 1913, "that the ordinary person of to-day is four times as well off in real commodities as the person in the corresponding stage in the scale in the beginning of the nineteenth. The bulk of this advance was secured in the first part of the century."¹

Taking the figures for our population at the two dates as 9,000,000 and 32,000,000 respectively, this means that between 1800 and 1900 production grew in the ratio of 9,000,000 to 128,000,000, that is by over 1,400 per cent. !

A basic influence behind the gigantic transformation in the surface of the world during the second half of the nineteenth century was the search by Great Britain and certain other countries for *continuous* cheap supplies of agricultural produce and raw materials. This task absorbed such a substantial part of Britain's free savings of money and goods that on the outbreak of war in 1914 a considerable part of her monetary and commercial activity was devoted to financing the growth, collection, transportation and distribution of food, textiles and other raw materials—the produce of the countries which she had assisted to open up. Had the supplies of new gold stopped at the point where Great Britain's food and raw material requirements were met, all might have been well. Unfortunately, each in turn of the new countries opened up took advantage of the excess of new money to embark hastily on a voyage to the promised land of Industrialisation. In every case this ambition, aided both by emigration from Europe and the natural growth of local population, gradually led to the absorption of the local food supply by the local inhabitants, thus compelling the Mother Country either to turn elsewhere for new supplies or submit to her growth in prosperity being checked—and possibly even converted into decline—by

¹ *Wealth and Taxable Capacity.*

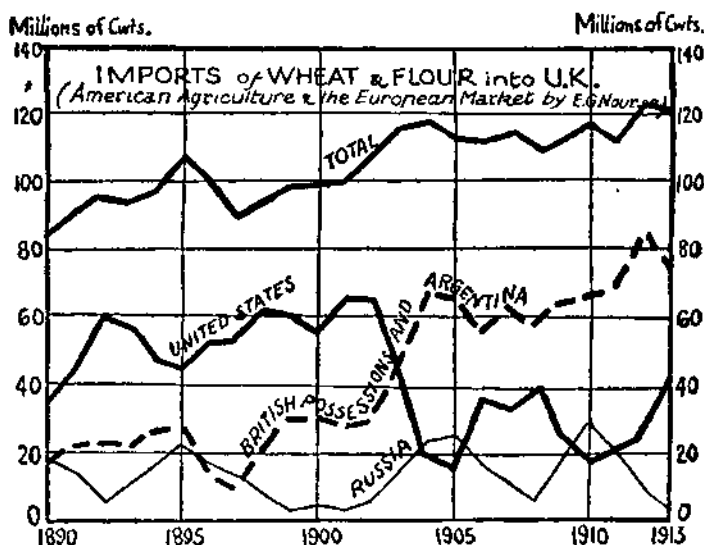
a rise in her cost of living. The extent to which Great Britain was able to divorce herself from her natural limitations of domestic food supply was admirably demonstrated in a paper read before the Royal Statistical Society by Mr. Hooker in 1909. Speaking of cereals, Mr. Hooker said :

At the beginning of the 'seventies a good English harvest still meant cheapness ; ten years later a good English harvest had nothing to do with the prices, for by that time the trade had become an international one. For yet another ten years it was found that there were still large areas capable of producing corn supply cheaply, and, thanks to the improved facilities of transport, areas from which it could be placed on the market without any difficulty. And so prices continued to fall. By the middle of the 'nineties prices had reached their lowest point; no further areas that could produce corn with equal cheapness were within reach of commerce, or, rather, such new areas were not large enough to affect the total supply or more than satisfy the increasing demand. And so the past ten years have seen relative stability of corn prices ; the world's supply and demand are probably not far removed from equilibrium. How long this will continue depends upon the disturbance of the balance. If the development of new areas such as those in Argentina, West Canada, and elsewhere, proceeds at a greater rate than the exhaustion of old—such as Europe and the United States—then corn prices will fall; if the reverse be the case, they should rise.

The development of new areas referred to by Mr. Hooker produced its expected effect on yields. In the matter of prices it may be pointed out that in 1908, the latest year which Mr. Hooker had in mind, the index number of wheat, oats, rye, barley and corn was 137 ; it declined to 123 in 1910, rose to 146 in 1912 on account of the bad season, but was down again to 123 in 1913. The effect of the increased production on prices would seem to be visible in a reaction from the rapid advance which characterised the movement from 1897 to 1907. As the report of the Canadian Cost of Living Committee

of 1915 observes, " it has to be remembered that although the newly opened areas have added greatly to the world's supply, yet as they recede further from the great consuming centres, the price of the product on the world's markets is influenced by the greater cost of production, transportation, etc.". Other considerations than supply such as population, changes in food habits, etc., are, of course, involved in the prices of cereals.

The accompanying diagram shows the change-over which occurred in the source of our wheat imports,



CHANGES IN ORIGIN OF U.K. FOOD SUPPLY.

between 1890 and 1913, from the United States to the Argentine and British possessions. A similar change-over is shown by the figures for imports of bacon and beef and other important food supplies. The principal exceptions were cotton and tobacco (which continued at a fairly steady rate of increase during the period) and certain other lines of non-competitive exports such as rice, cotton-seed, oil and cake, and fresh, canned and

dried fruits. These transferences of the geographical location of her food imports enabled Britain to escape the effects of the world tendency for food prices to rise, until about 1903. It is worth mention that the rise in food prices, while bringing difficulties to Great Britain, helped to adjust agriculture and industry in the United States so that by 1914 industry and agriculture in that country were by general consent approximately in a state of equilibrium—to be destroyed later by the Great War.

So much for the agricultural situation. Let us turn to the field of industry.

It may help the reader to a clearer appreciation of the part played by nineteenth-century gold and silver in causing over-acceleration of growth, leading to congestion, in " industrial " production if I confine my summary of events to one only of the many overseas areas opened up with British financial assistance in the period 1850 and 1914. I shall select Canada for three reasons : she was one of the earliest countries to receive loans of British capital ; she was the leading overseas borrower in the immediate pre-war decade ; and she is still suffering from the effects of that over-borrowing to-day.

The initial opening-up of Canada as a source of food and raw materials for Europe may be said to date from the Australian and Californian discoveries of gold in the 'fifties. New gold increased the world's stock by over 30 per cent, between 1848 and 1856. Part of it, stimulated by British foreign investment, flowed to Canada. That development went far beyond the country's physical capacity. A leading cause of the depression which followed was the

slowness and difficulty of adjustment to new conditions brought about by the introduction of railways, extensions of public works, roads, and bridges, shifting of the routes of commerce and alteration of the chief industrial pursuits of important districts. The statement may be made with especial

force of Upper Canada, or Canada West, where the real estate excitement had been higher and the increase of railways greater.¹

In fact, the over-investment had been so extended that it was not till after 1900 that Canada once more became a profitable field for British investment. Events which followed the resumption of British investment saw an almost exact repetition of the development in the earlier period, though the area which provided the economic impulse had naturally shifted. The Report of the Canadian Cost of Living Committee of 1915 makes it clear that the general scheme of economic progress in Canada during the succeeding twelve years hinged on what was popularly known as the "Discovery of the Last Best West" and "in its various manifestations are to be sought perhaps three-fourths of the explanation of the course that has been followed by prices". Under the stimulus of British foreign investment

a spirited immigration policy drew thousands of people to the country, primarily to occupy the new lands. An immense railway and town-building programme was begun, also for the service of the West. The work of locating settlers, providing lumber for their houses, agricultural machinery for their fields, elevators for their crops, drew the entire economic life of Canada out of its accustomed orbit to a greater or lesser degree. The East, in particular, turned to industrialism, the people flocked from farms to the centres of secondary production and distribution, whither also a considerable portion even of the immigrant tide was diverted. In earlier times, before Western wheat-growing had assumed the lead in Canadian agriculture, the smaller Canadian towns and cities were supplied from the adjacent country. Once, however, the above change took place—and while it was taking place—they were compelled to go farther afield for their supplies. New freights and the various other expenses incidental to distribution over a wide area accordingly began to appear as charges in the food bill, at the same time that Canada began to be

¹ Breckenridgc, *The Canadian Banking System*.

drawn upon more and more by world markets as a source of supply. Concurrently the familiar features of an intense speculative boom, especially in land, added their demoralising influence. That several other countries, like the United States, Argentina, Brazil and Australia, witnessed developments similar in kind if not in degree would account for some intensification of effects locally.

Thus the new gold and silver had ceased to bring advantage. Instead of helping to enlarge still further the "international" superstructure erected on Britain's early nineteenth-century national "industrial" structure, it began to strike at the basic foundations of the whole arrangement.

Events in Canada were typical of what was taking place in other parts of the system. In the decade which ended with the outbreak of the Great War, symptoms of the disease which I have termed industrial "congestion" were being exhibited by nearly all the developing countries of the world, whether within the British sphere of influence or not. This is shown perhaps most clearly by the behaviour of their price levels. The countries which made determined efforts to escape the thralldom of "congestion" suffered the greatest price rise; those more inclined to accept the inevitable, and ready to accommodate themselves to it, suffered the least.

The general rise in prices in Canada between 1900 and 1913 was approximately 50 per cent. This was only equalled by Japan, Hungary and the United States. In Germany, Russia, India, Australia and New Zealand, the rise was between 25 and 35 per cent., while in the United Kingdom, France, Holland, Italy and Norway it was between 15 and 20 per cent. only. Foodstuffs afford an even better measure of the relation between prices and the speed of development than "total" indices do, for they are more directly related to the intensity of local development. Rents reveal a similar situation, being up

by 60 per cent, in Canada, 40 per cent, in Australia, and almost stationary in England.

By 1914 a break in the world's international economic structure similar to that which occurred in Britain's national economic structure after the inflation of the Napoleonic era, was already overdue. The War both postponed that break and enlarged the sphere of its influence. The fall began in 1920. But that was not to be the end. The U.S.A. was to intervene to postpone part of it. Flushed with the spoils of war-time profiteering, American finance made up its mind about 1922 to devote its accumulations of the world's gold to checking the fall in prices as it gradually spread throughout the international system. So vast was America's outpouring of money between 1922 and 1929 that she may be said to have for a time sustained almost unaided the whole world price structure on her own shoulders. But that Atlas-like task was soon to prove beyond even her colossal powers of endurance. In 1928 she began to totter. In the autumn of 1929 came the dramatic collapse.

IV

CULMINATION OF GROWTH

It was not to be expected that other countries would view the development of British industry during the early nineteenth century with complacency. The doctrine represented by the slogan " Britain, the Workshop of the World " proclaimed by the first International Exhibition of 1851, carried the ominous corollary " Europe and America, the hewers of wood and drawers of water for the Chosen People ". In opposition to Adam-Smithism, List in Germany advocated for states in temperate latitudes a policy of internal free trade made

effective by energetic railway building, and of tariffs designed to foster the growth of those manufacturing industries which a survey of natural resources indicated as being likely to prosper if they were protected against cheap imports in the early experimental stages. List's idea, indeed, was the basis of the policy adopted by the countries whose industrialisation took place in the second half of the nineteenth century—that is, subsequent to the main British industrial expansion.

While each of the industrial systems concerned had its own peculiar national pattern, the principal items in their economic structure were the same as in our own. Since they developed later and could profit by our mistakes they developed faster, that is all. The United States of America began to work the system after the Civil War in the 'sixties, Germany after the Franco-Prussian War in 1870, and other parts of Europe followed suit. An examination of their population and production curves suggests that nearly all of them have "caught up" Great Britain in the sense that within recent times they have passed the stage of rapid growth and come close to maturity. In the more distant parts of the world only has the course of evolution been slower. There it has ordinarily taken the following form : first, the arrival of regular steamboat services at the principal ports ; next, the building of railways to open up the interior ; then the establishment of power-using factories in those sea-ports and later in other centres of population. Allowing for local variations, of course, this represents the general industrial trend during the second half of the nineteenth century in India, China, South America and the British colonies. Fortunately, many of these overseas countries are still a long way from maturity—and herein lies Britain's main hope for the future. A general slowing-down in the rate of trade growth found all the principal countries—as in the days before the invention of the

railway and steamship—with excess productive capacity, and consequently with goods which could not be disposed of except under conditions of fierce competition and falling prices. To escape from this pressure at home all eyes were turned in search of new markets overseas.

The last three decades of the nineteenth century saw the rise of a movement which appeared in all the leading countries of Europe, known as Modern Imperialism. It was accompanied by a definite reversal of the movement towards free trade which had been showing itself in all the leading countries between 1850 and 1870. The close resemblance of this movement to the mercantilism of the merchant adventures of the seventeenth and eighteenth centuries has been noted by many historians of the period. The resemblance is not superficial : it is due to the operation of precisely the same underlying forces which invariably make their appearance at times of " congestion"¹

The drive behind this Imperialism, as in earlier times, was an attempt to widen the market for goods in order to prevent a fall in the rate of growth of output, and enable the rising standard of living, made possible for a time by the over-acceleration of growth under the pressure of new gold of the 'nineties, to be retained. But the relief from strain which this provided was only temporary and was gained at the expense of over-hastening the industrialisation of countries like U.S.A. and Canada, areas which had previously been primarily agricultural producers. It was merely a matter of time before this over-intensification of competition led to open conflict. As early as 1898 the race between France and Great Britain to secure the link needed to complete

¹ The approach of congestion is made clear in the frontispiece diagram, where the vertical lines of shading represent changes in the rate of population growth. Their tendency to move closer together indicates relief from congestion, while their separation indicates increasing " congestion ".

the rival schemes of Middle Africa and Cape-Cairo nearly brought open rupture. The U.S.A. crisis of 1907, although it outwardly left little mark on Europe, was the last act before the close of this stupendous drama. Thenceforward the only questions were : " When will the war begin ? " and " In what order will the principal protagonist countries become involved ? "

In recalling the events which led up to the tragedy of the Great War it is not my intention to pass judgment or attempt to apportion blame. Indeed, the only moral which I have felt able to draw is that those who venture to blame this or that Government or individual for what has happened are only blaming themselves. Whatever view be taken of the commercial policy pursued by the world throughout the nineteenth century the fact remains that every man, woman and child in the world of to-day has in some measure benefited from the great material wealth which it brought and, on behalf of their parents, must bear some share of responsibility for it. That it was something more than a period of exploitation of the weak and settled peoples of the world by the strong and more aggressive races, as it has sometimes been described, is a conclusion which I do not believe can be challenged by anyone who has taken the trouble to study the facts. Even the most determined opponents of all that the policy stood for have felt impelled to acknowledge that many of the results of the policy were beneficial. Maurice Dobb, an avowed Communist, summarises his review of the history of the period as follows :¹

There is little doubt that the verdict of history will show that this Imperialism has done more to revolutionise the backward economic life of Africa and of Asia and of parts of South America than Liberalism was ever likely to do. To those older civilisations it has been a disruptive force, breaking ideas, habits and institutions alike, while at the same time

¹ *Capitalist Enterprise and Social Progress.*

laying the foundations, in technique, in constructional work and in education, of a more progressive modern age. In the race for spoils there have often been pauses of real creative work ; and whether sincere in his public utterance about it or not, many an empire builder has managed to be a pioneer of civilisation as well.

PART II
THE FUTURE

CHAPTER VIII

THE TRIUMPH OF USURY

Unto a stranger thou mayest lend upon usury ; but unto thy brother thou shalt not lend upon usury ; that the Lord thy God may bless thee in all that thou settest thy hand to do in the land whither thou goest to possess it.

Deuteronomy xxiii.

I

IN 1914 London was the clearing-house for the commercial transactions of the world. The sterling bill on London was the international medium of exchange, since it was to London that the world chiefly owed its debts during the nineteenth century. But London had no special need for gold. Most of the gold that came its way was shipped to countries seeking loans for their businesses and a sound backing for their banking systems, and to the Far East where it was used as treasure. In effect England, having passed through the stage of requiring annually rapidly expanding quantities of additional food and raw materials for her own use, was beginning to adopt as the basis of her commerce the lending of *money*. That money for a time she was content to re-lend, as to have accepted its repayment in *goods* could scarcely have been consistent with the maintenance of a flourishing export trade.¹ For a time also, therefore, the borrowers were able to evade the problem of repayment. The dream of the English Liberals had been of a world committed to the British ideal of Free Trade and (what is sometimes forgotten) unrestricted foreign

¹ See Chapter VI, p. 102.

investment. Clearly, Free Trade was sound policy for a country which enjoyed a virtual monopoly of industrial manufacture, and would continue to be good business policy so long as we were able to maintain that monopoly and were prepared to accept in repayment the food and raw materials which was all the recipient countries were in a position to send. In describing as "barbarism"—as some of us did—the attitude of a country which refused to accept this "ideal" as necessarily representing equally sound policy for itself, we made a sad psychological misjudgment. For here was a direct implication of moral superiority: France, Germany, Italy, the United States and the Dominions were "barbaric"; England was civilised. Had we been able to look at the fact through something more reliable than the spectacles of prejudice we should have seen at once how fallacious and how dangerous the spread of such an implication might be.

The fact of the matter is that England has always sought commodities in exchange for her own simply because she needed them. What seems to be her record of "good" behaviour in regard to gold was the consequence of precisely the same motive which actuated the gold-absorbing nations in their "bad" behaviour—the motive of self-interest. England chose in the 'forties, for reasons of self-interest which can be identified with her eventual eminence as a manufacturing nation, *not* to be self-supporting. Thenceforward, she had to buy the commodities of other nations with her own products, or starve. There was a period of precarious equilibrium during which England amassed prodigious wealth, a period when the rest of the world was dependent upon England for industrial manufactures and England was dependent on the rest of the world for vital primary products. She became the factory of the world, originally through the accidents of war, natural advantage and

discovery, but later by her own deliberate choice because, at the time, manufacturing for export promised and procured profits unprecedented in history. Our extraordinary national capacity for self-deception allows this truth continually to be obscured. So also with the fact that once the moment arrived when peace rather than aggression meant profit to us it was but a step to persuade ourselves that we sought peace for its own sake.

In considering the origin of the qualities of mind which exercised such an extraordinary influence over the England of the late nineteenth and early twentieth centuries, it is to be noted that those founders of the chief social doctrine of the day who preached the romantic though instinctive dream of "the greatest good of the greatest number" did not appear to have acted on that principle in their personal lives. They shifted man's personal responsibility for himself from his own shoulders. In place of the old moral standard they enthroned a humanitarianism which appears in retrospect to have been merely an excuse for absolute indolence. As Professor Irving Babbitt has put it, they accused of tampering with the moral law the Imperialist who allowed himself to be carried away by a lust for domination, but did not seem to realise that the "humanitarian all adrip with brotherhood and profoundly convinced of the loveliness of his soul, was tampering with it also, and in a more dangerous way, for the very reason that it was less obvious".¹ That strange malady of the mind which enabled men to suppose that nineteenth-century material progress could of itself create a peaceful and orderly world controlled by moral law, was yet to plunge the world into catastrophe. It is probable that this mentality owed its birth to the social changes following the rapid flow of country population to the towns between 1850 and

¹ *Rousseau and Romanticism.*

1870 which brought "congestion" in its train in the 'eighties and 'nineties.

The peasant migrated to the town and produced that bastard "pseudo-nomad", the International Liberal. His creed was neither the Liberalism which a re-emergent peasant France gave to the world in the eighteenth century nor the patriarchal Socialism of unified Germany in the nineteenth ; it contained undigested elements of both. It has even now no settled view, religion or social structure. Like the development of natural science with which it has been associated, it has been more concerned with exposing past errors than with constructing a new code of life.

The "new freedom and frankness" which the youth of our age inclines to attribute to the World War, was a product of the same intense mental and emotional unrest which brought the leaders of "International Liberalism" to the fore in its last phase in the 'nineties. That the iconoclasts to which that age gave birth, in overthrowing the established bases of religion, morals and the many other things cherished because they had been sanctified by privilege or traditional usage, should have passed economics by, is no accident, for economics was to become part and parcel of their gospel. Nearly all the leading economists of the past forty years have been by conviction Liberals. It was all very well for Dr. Marshall to point out that "Economics is not a body of concrete truth but an engine for the discovery of concrete truth", but even the learned doctor himself did not scruple to mount the pulpit and declaim in the name of his "science" against the evils of mankind with all the fervour of his Nonconformist conscience.

Herein has lain the great danger of "Liberalism" as a guide to conduct. The "Liberal" mind, carried away by zeal for its cause, is apt to forget that to bring

freedom to the oppressed is not an end but a beginning ; to prefer peace to war may merely be to allow the obsession of fear of physical pain and bodily death to hold in thrall the eternal spiritual verities ; to assume a serf-like adoration of the intellect and become unduly absorbed in its machine-like repetition or elaboration of the pattern of the ideas *given* to it, may be to forget that an insight or vision linking man to the reality behind and beyond the life process is essential to healthy, satisfactory living.

Through natural science Liberalism has striven to impose its own jejune pattern on the infinite variety of the universe. It has ignored that evident uniqueness in all things which defies all effort to reduce them to sameness. It has proclaimed the infallibility of human reason, forgetting the truth revealed long ago by William Blake, that, unless it be the servant and scholar of inspiration, " the mind stands still, unable to do other than repeat the same dull round over again ". It creates nothing. It is a mere measuring, dividing, exploring of that which exists : " the imposition of the ratio upon the infinite ". To this rejection of the real substance of virtue and truth for the shadow in its own mind, may be traced the gradual decay of Liberalism as a living force and the conversion of its callow idealists of yesterday into the querulous " Intellectuals " of to-day. They bruised themselves to death against the bars of experience because they did not realise that they were in life not to form but to be formed.

This arrogant intelligentsia, a prey to the illusion that an intellectual humanitarianism can show mankind the way of salvation more effectively than the precepts of Christianity, spent the decade 1904-14 in deluding the youth of its generation into believing that there could be no world war. Too late it discovered that, in so doing, it had deluded the Central European Powers into believ-

E.C.P. L

ing that England would not fight if they ventured to put to the test the plans for military conquest which they had long been maturing.

They had not perceived that while they were drearily debating their theories, that which had been the life-giving force of "investment" was being transformed into the death-dealing cancer of "usury". And so it came to pass that the idea which might have been the crowning achievement of their thinking was to become the slayer of their dearest hopes. Stripped of the tortuous jargon of economics, what after all is the notion of "stable prices"—that almost solitary new contribution of the Liberal mind to the body of contemporary economic thought—but the gospel of usury: that life in the world of the future must be ordered by a chain of debts; that the joists of its commercial structure must be supported on piles of debt; that its only right to freedom should be freedom to pay its debts? In a world in which growth is declining this can only mean that the community is to be riveted to its economic structure by debts whose hold will become steadily stronger as the opportunities of earning their service grow fewer and fewer.

Let us not, however, adopt any airs of superiority. To understand the events during and immediately succeeding the War we must take a large, and if need be, a generous view. Almost everywhere just before the War began, the "industrial wave" of civilisation was showing signs of having reached the limits of its flow and was beginning to break up into stagnant "pools". France, the traditional home of nationalism, had always been actuated by ideals that were in many ways inimical to our own. Many Frenchmen had for long regarded the scramble for world markets as a disease which threatened to undermine the foundations of society. It was criminal folly, they alleged, for British statesmen to

foster so phenomenal a growth of British population in the nineteenth century as could not possibly be fed from the produce of English soil; fifty years hence this England, deprived of foreign food supply, might be a menace to the world. Disraeli foresaw the dangers of overgrowth as far back as the 'seventies. A sharper edge was given to this criticism of the British system by Germany's efforts to copy her expansionist policy. France, free from the domination of Prankish masters, had relapsed into traditional self-sufficiency, her people living mainly on her own soil and local resources. Her sharing in the partition of Africa had been motivated more by imitational fear than by liking for external advantage. Germany, after 1870, had begun, on the other hand, to organise her industries on national lines, seeking to follow England's example. But she was not prepared to sacrifice her agriculture. Industry and agriculture must be interwoven in a common national plan. Her banking, finance and politics were to be subordinated to and concentrated upon the development of that plan. This change in structure, which brought a large increase in population, soon provided a surplus of manufactures for which markets had to be found. The whole nation became as one great firm with its Government as managing directors.

America followed in the German wake. The vastness of her natural resources and her large undeveloped areas made possible a policy of self-sufficiency. But for the War, that might have remained America's goal, though she, too, was beginning to pour out industrial manufactures in competition with our own. These two countries were also developing their own means of international transport and indulging in "financial" lending. Japan and some of the lesser countries in Europe, together with certain of the South American republics also, were beginning to exhibit incipient signs

of active nationalism. This partly took the form of a tendency to industrialism, but in the main was due to their sense of inferiority as producers of food, raw materials and beverages—over the marketing and sale of which they had little control, for they were largely in the hands of the industrial countries which were able in considerable measure to keep down the prices while charging relatively high prices for the industrial manufactures exported to them. It was also in part a reaction to the accumulation of securities and debts in unprecedented quantities in foreign hands. Behind all these movements lay a diversity of social ideals seeking outward expression in a consciously controlled national life.

That English Liberal thought during the past decade has had to submit to the slow and painful process of being undeceived, and that Liberal "Internationalism" has become suspect in the eyes of mankind, are hardly matters for surprise. The War marked the close of an industrial era so remarkable as to suggest the extreme unlikelihood that such an era can ever come again. It witnessed the development and extension to nearly every quarter of the globe of epoch-making inventions in transport, communications, power and industry. Under the stimulus of gold discoveries these inventions had been applied to the rapid opening up of agricultural resources and raw material in the principal virgin areas of the globe. But even before the War it was becoming obvious that this field of exploration was slowly contracting. The virgin areas near the seaboard had, in the main, been opened up, and the outposts of the commercial army were gradually being compelled to seek for new worlds to conquer in the hinterlands where the rate of penetration was slow and lines of communication were unduly extended and increasingly expensive to maintain. While it was true that there were still many areas of the world

which did not enjoy the benefits of the main industrial inventions, and that much remained to be done to improve their technical application where they were in use, it was not to be anticipated that in the comparatively near future there would be new inventions as revolutionary in their effect on industrial development as their major forerunners had proved to be.

No matter how spectacular future improvements in transport might be from the engineering point of view, they could not possibly hope to reduce "real" transportation costs to the same absolute extent as the railway and the steamship.¹ Those who cherished the hope that further revolutionary inventions might do so forgot that the basic technological structure of most industries has scarcely changed since the "industrial revolution" took place. Technical progress in fact itself obeys an "S" curve law. The greater the technical improvements already effected in a given industry, the smaller the margin left to be covered by succeeding improvements, and the less important each of these improvements tends to become, provided there is no change in the industry's basic technological structure.

It is seldom realised, indeed, how many of the subsequent major inventions have been in effect little more than alternatives for providing and extending the primary inventive services. Developments of the Atlantic liner, the motor-car, the aeroplane, wireless, oil, water-power, and various applications of electricity, are in this sense substitutes for, or additions to, the earlier equipment of the steamship, the railway, the telegraphic cable, and coal. One effect of the peculiar nature of the inventive advance was the creation of conditions likely to be highly sensitive to any slowing-down in the rate of world

¹ "The Mauretania is only about two knots slower than the latest Atlantic record-breaker, and that extra speed has only been produced at a tremendous price" (extract from Speech by Sir Harry McGowan at the Annual Meeting of the Society of Chemical Industries, 1934).

expansion or growth of population. There were increasing signs, too, that the industrialisation of the newer countries overseas which was being fostered by the surfeit of money would begin shortly both to restrict the demand for the products of the old and, by increasing competition, encourage economy in methods of manufacture generally, despite an ample money supply. The tendency to economise money was also being encouraged, moreover, by growing competition between the various alternative processes for providing the same industrial services and commodities which, under pressure of excess of money, had all been tending towards over-expansion. In short, the economic growth promoted by new gold was ceasing to bring advantage ; while progress generally was being urged on at too fast a rate.

The impulse to seek escape from congestion by crystallising into smaller units and separate economic structures which was beginning to make itself felt in the first decade of the twentieth century was materially hastened by the Great War. It is highly probable that the increasing resistance offered by markets to the steadily expanding pressure of the German productive machine helped to unite some components of the German nation, which would not otherwise have been so united, against Germany's competitors in France and in England. One may recall the growing complaints of pre-war German writers that their country was being " encircled " and " shut out ", the ceaseless " dumping " and the rising arrogance of German temper leading to repeated commercial friction with her neighbours. Her burden of foreign debt was also causing her increasing anxiety. " From 1910 to the outbreak of war ", it has been said, " Germany was haunted by fear of bankruptcy."¹ Admiral von Tirpitz, according to Professor Gooch's *History of Modern Europe*, " always stoutly maintained

¹ Fullerton, *Problem of Power*.

that it was competition, not of ships, but of goods, which changed the political face of Europe ". It cannot, at all events, be gainsaid that far from solving the problem of industrial over-production, the War provided *for a time* an area of almost unrestricted freedom for its extension. By a stroke of the pen a more or less unlimited market was provided for much of the world's produce—a market which in many directions was kept unlimited because output was destroyed at a speed which accelerated almost as rapidly as that of production itself. The superimposition of war-time developments on pre-war over-industrialisation meant that the potentialities of the world for over-production, once the War was over, were stupendous—at a time, be it noted, when the populations of the principal industrial countries were beginning to lose their mobility and elasticity of growth. It is pertinent also to observe that over-expansion of the industrial side had been communicated to various departments of agriculture as a result of the increased war-time demands for food.

II

The Great Slump began in the autumn of 1929 with what has been described as " a state of financial tension ". Despite the outpouring by the United States, over the previous decade, of a flood of money unexampled both in quantity and rate of turnover, it was clear as early as 1928 that the *tempo* of world trade was slowing down ; and neither the opening of the consumer sluice-gates by the instalment system, nor the swelling of the headwaters of investment by the greatest stock-market speculation and investment movement ever engineered, was sufficient to maintain the flow of the main stream.

Even to-day, the magnitude of America's monetary contribution to that effort is not fully understood. A leading American financial authority, Dr. Benjamin

Anderson (Jun.), of the Chase National Bank, has stated that from January, 1922, to April, 1928, the loans and investments of the commercial banks of the U.S.A. (excluding savings banks and private banks) increased 14½ billion dollars, while their deposits were increased 13½ billion dollars—that is to say, by an amount considerably larger than the total of British bank deposits of all kinds. The nature of this expansion of credit may perhaps best be appreciated by comparing it with the financing of America's contribution to the War, to which, be it noted, this effort was supplementary. Between April, 1917, and December, 1918, America financed four Liberty Loans, and a great volume of short-term Government "paper". She transferred American industry from a peace-time to a war-time basis when all business was being conducted on a price level that was rising because of artificially induced war-time scarcity. She sent an immense army to France, built herself a mercantile marine, and in various ways played a leading part in winning the War. To accomplish these stupendous tasks bank credit was expanded by just short of six billion dollars in deposits and seven billion in loans and investments. But this expansion of credit was less than *half* that between the beginning of 1922 and April, 1928 ! Since this latter vast outpouring of funds was not accompanied by any sustained rise in the wholesale price level—which, on the contrary, tended to fall—many people imagined that all was well in the U.S.A. They overlooked the effect of the prodigious credit expansions on output and investment at a juncture when the speeding-up of the processes of production, following the rapid extension of power-production technique, enabled a given output to be produced with a smaller volume of working capital and with considerably less cost per unit. Not until 1930 was it realised that American industry had been over-built, over-equipped,

over-staffed, over-produced and, lastly, over-sold. Long before then, however, the problems of marketing the growing output surpluses and providing fresh avenues of employment for workers displaced by machinery had been causing uneasiness. What made it possible for this perilous situation to continue as long as it did was that the additional credit created by the banks was largely being used to bolster up consumption by such direct devices as the instalment system, and indirectly, by the erection of a gigantic structure of "paper" prosperity. Stock market issues, real estate mortgage loans, banking investment in bonds including foreign bonds, and stock and bond collateral loans including loans on foreign securities, all contributed to the illusion that untold wealth was accruing. In other words, by "selling forward" America's future prosperity on a scale beside which previous over-investment booms had been Lilliputian, a false appearance of stability was secured.

Implicit behind the whole of the world's post-war investment and lending policy has lain the assumption that the experience gained during the nineteenth century is still a safe guide. America's example was copied; but events quickly proved how peculiarly ill-timed was the moment chosen. The flood of money which in America produced the most phenomenal boom in the country's history, was not without its effect on Europe—which ever since the War had been subconsciously aware of the influence associated with the culmination of the wave of nineteenth-century industrialisation. Great Britain strove to take heart by pretending that she could move back the clock and re-establish the nineteenth-century phase of her "S" curve. Disregarding prices and the rate of interest, she re-adopted the International Gold Standard. It did not work. The explanation ready at hand was the growth of tariffs on the Continent and elsewhere, due in part to the dislocation of

the War, but fundamentally attributable to that "crystallisation" of the nationalist wave of civilisation which we have been considering.

War debts and reparations were held to be another cause, and a considerable share of responsibility was placed upon the cessation of international lending in the years immediately preceding the culmination of the boom, though nobody seems to have troubled to examine the manner in which post-war loans had been spent, or the reasons (other than the purely financial considerations associated with the American Stock Exchange boom) why that lending ceased. That the lending itself, rather than its cessation, might have been one of the causes of the slump does not appear to have occurred to anyone until long afterwards. Sir Arthur Salter,¹ it is true, writing on the evils of wasteful loan expenditure by Public Authorities abroad since the War, has remarked that such expenditure "will remain a cancer in the whole of the world's financial and political system until it is dealt with", but, as his subsequent writings leave in no doubt, he completely failed to see the wider issue. Above all, no one remarked how large a part of the post-war lending, if we exclude short-term loans and those of medium term of the post-war American type, consisted of loans like those which I have already described as "financial"—in other words, loans which, so far from assisting the post-war industrial system to adjust itself to its proper relation to consumption, actively prevented it from doing so by maintaining both prices and the rate of interest for a considerable period above their "natural" level. The result of this "financial" lending, as well as of the output of surplus money generally, had, like the War, the effect of creating during the boom of 1922-9 the illusion that the economic organism was being provided with a *permanent* enlarge-

¹ *Recovery* (1932).

ment of its territory. At the present time the world is engaged in trying to scale down its productive machine to the magnitude appropriate to the "true" size of its territory ; or alternatively to discover a *real* new territory to take the place of that imaginary one.

An examination of prosperity in 1931, "the last Free Trade year", and 1913¹ yields a very different result from that of a comparison between an earlier period, say, 1895 and 1913. A nation's power of earning the means of living for its inhabitants depends partly on what it can produce out of its soil and seas and sub-soil, and partly on what it can earn by lending to its neighbours. Even before 1931 our own agricultural outputs had fallen well below the pre-war level ; the quantities of fish landed were also less ; but these falls were small in comparison with that in our greatest export industry. The amount of cotton cloth exported in 1931 was only 1,790 million linear yards, compared with 7,075 millions in 1913. This is an extreme case, yet typical. Consider the following figures :

	£ millions.	
	1913.	1931.
Imports of food, drink, and tobacco, less exports	274	397
Imports of raw materials, less re-exports	218	147
Imports of manufactured goods, less re-exports	164	244
Exports of manufactured goods, British produce	411	292
Balance of exports of manufactures available for buying food and raw material	247	48
	Thousands	of Tons
Output of coal	287,400	220,000
" " pig iron	10,260	3,773
" " steel	7,664	5,203
Shipbuilding, commenced	1,868	200
, , launched	1,932	503

Between 1913 and 1931 the population of Great Britain increased by three and a half millions (i.e. people of the active ages, the increase in the numbers of the

¹ Owing to a reclassification of the trade returns in 1920, the figures for 1913 and 1931 are not strictly comparable.

aged being balanced by the decrease in the number of children). . . . The unemployed in 1931 were 21.3 per cent, of all insured persons—about ten times as many as in 1913. Before the War a substantial number of these unemployed persons would have been preparing goods for the *expanding* generation that was to succeed them. That generation does not exist. The significance of these figures is only partially diminished by the fact that 1913 was a year of exceptional prosperity and 1931 a year of financial and commercial crisis all over the world. During the decade ending in 1930 the output of the extractive industries and of manufacture for export generally was declining to below pre-war levels. By virtue of the fact that at first the prices of the manufactured goods exported were more inflated than those of goods imported, foreign trade was for a while carried on with a higher margin of profit. The net national balance of income and expenditure on current account continued, according to Board of Trade estimates, even in 1930 to yield an annual surplus of foreign investments—though smaller than before the War. Thus the total volume of sterling indebtedness due to British creditors increased, while the quantities of their own produce which the debtors had to export to meet each million pounds sterling of interest was multiplied by $2\frac{1}{2}$ between 1920 and 1930.

If it were true, when Napoleon said it, that the English were a nation of shopkeepers, it might have been said with an equal measure of truth that in 1930 we had attained the common shopkeeper's ambition and had become a nation of ladies and gentlemen living on our "means". British overseas investments in 1930 were estimated by Sir Robert Kindersley at £4,226 millions, of which £2,988 millions were represented by Government and corporation stocks and company debentures, and only £1,238 millions were share capital. These

assets are the debts of foreign nations and of the Empire outside the United Kingdom and their extent is approximately the same as in 1913. Some indication of the growth of similar assets—which are also the debts of our own people—is given by the following figures :

	£ millions.	
	1913.	1930.
National Debt, gross liability	706	7,583
Capital of Joint-Stock Companies	2,284	5,484
Loan debt of Local Authorities (Great Britain) . .	629	1,500
Assets of Building Societies	65	371
Due to Depositors in Savings Banks	188	282
Capital of Co-operative Societies	60	213
Assets of Provident Societies	78	237

In some degree these items overlap, so they cannot be added up. But if we select public debts and capital of joint-stock companies and co-operative societies as items in which overlapping would not be great enough to alter the significance of the figures, we find these were increased fourfold, from £3,679 millions in 1913 to £14,780 millions in 1930. And if we subtract from each of these totals the amount of share capital on which nothing need be paid out unless profits are made, we must conclude that the dead-weight of debt-bearing fixed rates of interest has been multiplied at least five-fold and probably six- or seven-fold. The other figures quoted are of interest chiefly as indicating the extent to which wage-earners have lately aspired to a share in the income from invested capital. That the wage-earners have acquired much of the " rentier " outlook was shown by the manner in which they responded to the appeal to vote for the " National Government " in the 1931 election.

Income from investments, however, is not the only resource by which wage-earnings are increasingly supplemented out of debt-charges. Government grants to National Health Insurance totalled £23 millions in

1913-14; £39 millions in 1930-1. The cost to the Treasury of pensions of all sorts was about £10 millions in 1913-14; about £85 millions in 1930-1. In the former year the grants to unemployed insurance were trifling ; in the latter year, together with the accrued debt, they amounted to £71 millions. And with all this, expenditure on Poor Relief has not been reduced but increased, for Great Britain, from £17 millions to £45 millions.

Proceeding on the assumption that the world economic system would maintain its pre-war structure and rate of growth, financiers, bankers and moneylenders, especially in America and France, persisted in their policy of lending money to anyone prepared to promise the interest demanded. Immediately, however, they began to sense that their mortgages might be engaged on future prospects that could never be realised (or, as in the case of France, on prospects with which they were not concerned), they began to demand the full amount due to them in the gold values. These values they drove up and up by absorbing the floating gold supply of the world. " Like Shylock, they insisted on their pound of flesh ; unlike Shylock, they were prepared to have a physician by to staunch the wounds of the wretched debtor—with fresh credits so that he might yield more pounds of flesh later on ! " ¹

But if we look again at the operation of the " S " curve, we shall find that it obtrudes the sobering truth that not only is it impossible for one economic structure to pay the debts of its predecessors, but that—unless, as the economic system as a whole passes from its growing phase to maturity, the burden of interest on past debts is progressively reduced either by paying off, conversion, or a scaling down of interest and term—the total burden of debts will begin to increase faster than production and both may increase faster than the population ! And

¹ Gilbert Slater, *The Growth of Modern England*.

this is certain to happen if, for a time, interest rates have as a result of war money inflation, or some other cause, been maintained at an "unnaturally" high rate. In the U.S.A. it is already tolerably clear that mass production cannot pay the debts of the factory system and leave enough for current needs. As one American thinker has written : " To make a profit, we borrowed ; to pay what we borrowed, we borrowed more ; to make a profit in order to pay off that which we had borrowed twice, we then borrowed all over again." The modern " Malthusian devil " is debt. From now onwards, continuous re-investment at the old rates of interest means that debts will increase faster than profit.

What was the fundamental urge to the machinery production of the past decade ? It was the circumstance that only by reducing prices could the circle of consumers within the existing economic structure be widened. This was difficult : first, because of the war-time inflation of money, wages and costs ; and, second, because of the large accumulation of past debts (debenture charges, including mortgages, bank loans) requiring a profit margin far exceeding the production-consumption relationship. This forced a search for some method by which the relationship could be made to realise the desired profit margin. If the rate of interest and wages had fallen adequately soon after 1920, the requisite profit margin would perhaps have been obtained. This was not, in fact, the case. Power-machinery production provided a way out, for this method becomes almost independent of the rate of interest on money if the plant is working at optimum capacity. The debenture charge is relatively small compared with the corresponding charge on the requisite amount of working capital required to employ human labour in providing the equivalent output under the old factory system. Besides, the plant can be paid for out of self-liquidating loans of medium term,

and so does not involve long-term debt. (The Germans, for example, were able to offer to pay for short-term money 15 per cent, and more.) By these means the production-consumption relationship was for a time made to yield the requisite profit margin. But the improvement was merely temporary. The reasons, again, were not far to seek ; money inflation encouraged mechanisation too strongly ; selling prices were not reduced fast enough, profits for future mechanisation, in Great Britain, at any rate, were absorbed by taxation ; taxes and standing debt charges were increased by Government borrowings for State-aided development at home, as well as by " financial " lending abroad. These kept up the rate of interest and wages and so prevented the long-term commercial investment needed to widen the consuming market. Then, too, it must be remembered that mechanisation is not practicable in every industry, and so undesirable disharmonies were created.

Some forty years ago MacLeod most prophetically wrote :

Credit is the most gigantic species of property in this country and the trade in debts is beyond all comparison the most colossal branch of commerce. The merchants who trade in debts—the bankers—are now the rulers and regulators of commerce ; they almost control the fortunes of states. As there are shops for dealing in bread, in furniture, in clothes, and in every other species of property, so there are shops—some of the most palatial structures of modern times—for the express purpose of dealing in debts, and these shops are called *banks*.

What MacLeod wrote of his own day is still true. We live in what is perhaps less than a 2 per cent, world, but we try to delude ourselves that because of the ubiquity of our machines, its values are those of a 5 per cent, world. That is the Great Money Illusion.

CHAPTER IX

A MIDDLE-CLASS WORLD

Leisure is gone—gone where the spinning wheels are gone, and the pack-horses, and the slow wagons, and the pedlars, who brought bargains to the door on sunny afternoons. Ingenious philosophers tell you, perhaps, that the great work of the steam-engine is to create leisure for mankind. Do not believe them : it only creates a vacuum for eager thoughts to rush in. Even idleness is eager now.

GEORGE ELIOT, *Adam Bede*.

WHAT an extraordinary episode in the economic progress of man that age was which came to an end in August, 1914 ! The greater part of the population, it is true, worked hard and lived at a low standard of comfort, yet were, to all appearances, reasonably contented with their lot. But escape was possible for any man of capacity or character at all exceeding the average, into the middle and upper classes for whom life offered at a low cost and with the least trouble, conveniences, comforts and amenities beyond the compass of the richest and most powerful monarchs of other ages. The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the earth in such quantities as he might see fit, and reasonably expect their early delivery upon his doorstep.¹

Since that day, the number of persons able to enjoy such luxuries and amenities has steadily increased. It is only necessary to visit the dance halls, cinemas, ice rinks, tennis clubs and restaurants which are to be found even in small towns and suburbs to realise the remarkable "levelling-up" in standards of comfort which has taken place in the decade since the foregoing passage was penned. Even the very poorest have shared

¹ *Economic Consequences of the Peace*, J. M. Keynes (1919).
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in the improvement. Charles Booth in his *Life and Labour of the People in London* drew the poverty line at from 18s. to 21s. for a family of ordinary size, and showed that over 30 per cent, of the East Londoners of his day were either on or below that line. Sir H. Llewellyn Smith (chairman of a committee which recently undertook an economic survey of London) and Professor A. L. Bowley, who fix the poverty line for to-day much higher, at 43^s. or 41^s. 7d. net (after deducting insurance), find that instead of 30 per cent., only 10 per cent, are below the line. In effect, the total poor throughout East and South-east London, instead of being between 700,000 and 800,000 as under the Booth ratio, is now calculated to be 250,000. This is indeed an immense reduction. Nevertheless, we were not happy even before the Great Slump. Somehow life had lost flavour ; zest had departed from our activities. Competition both between man and man and between man and his environment was disappearing ; there was no longer a compelling goal to strive at. Despite our luxuries our existence was steadily moving towards a colourless uniformity ; there were no longer any really sharp contrasts. To-day our choice is not between such things as life or death. The kingdom of heaven does not belong to this world ; if it did, life for many people, it seems, would cease to be worth living at all. In the things between which we *are* able to choose, the available alternatives appear to be so nearly alike as to make choice hardly worth while ; we spend our time saving minutes which do not matter. If we have a flicker of interest as to whether an appointment is urgent, there is a telephone booth from which we can " ring up " and find out. Soon we shall be able to " look up " and see what the man at the other end is thinking about. But by that time we shall probably be too bored even to take so small an amount of trouble. Java is now as accessible as Manchester.

Illusion may be shattered by the voices of our friends on the wireless telephone. The prospect of a visit to some strange land overseas no longer brings the old thrill. Cinema, wireless, television, flight, have annihilated distance and bereft the unknown of adventure. At home the vigour and colour of our personal lives have been submerged under a dun sea of middle-class synthetic gentility, while our ancient towns and their institutions have taken on the drab uniformity of suburbia. Even the children of the poor, as the report of Sir H. Llewellyn Smith's committee testifies, seem less interested in life than before their standard of living was raised. Laughter has gone out of our streets, so uneventful and *expected* has everything become. Our outward senses, dulled by the jar and rattle of the modern world, no longer feel the tang of the morning air of life.

The old-time industrial worker who had an incentive to work hard in order that he might "get on" or get married finds that the youngest apprentice just out of his teens gets the same wage and opportunities. Unemployment insurance, health insurance and free education have still further reduced incentive. The machine has done the rest. Though there is still such a thing, at any rate for certain types, as work for work's sake, there are no longer openings for the free-will offering of craftsmanship such as were afforded by the Church in the Middle Ages. Even work done for the State is paid for. The salaried and technical classes are equally dissatisfied. These potential leaders of the industrial army find progress barred by old "die-hards" at the top who, owing to force of circumstances beyond their control, are unable to get on or get out. Thus, increases in responsibility are withheld and promotion delayed or postponed indefinitely. The greater the natural activity of these men's minds, the fiercer their resentment. If there is hope for the future and if a new way of life is

to be born, who can doubt that, except it be forced on us by an alien race, its inspiration and leadership must come from the middle class ? If there should be another revolution this is the class from which its leaders will arise. But this does not mean that the " die-hards " are consciously to blame. The War hit their wealth just when they were on the point of retiring. Medical science has made us all live so long that an increasingly large proportion of capital is in the hands of people over sixty years of age, who naturally show less enterprise than younger people. This causes irritation. At the other end of the scale are the spoon-fed working classes, with nerveless fingers unable to grasp the reins of government when they are proffered, led by men who have no policy fundamentally different from that of the leaders they desire to displace, unless it be founded on the unpractical vapourings of revolutionaries in which they themselves have ceased to believe. Many of these " leaders " long to be superseded, but that way to freedom and salvation also is barred by circumstances as it is with the Generals in the employing armies which were all but routed in the bloodless political conflict. Not even their followers believe any more in anything. With our ever-increasing speed and scramble to win the race of existence we have forgotten what the race is about. To maintain our sensitivity to life we have become like the safe-breaker who sandpapers his fingertips to expose the finer nerve ends so that he may the more delicately " feel " the falling lever of the lock. In our own case we devise advertisements—sky signs and the like—to jar into activity our dulled waking senses by fraying the nerve-endings of our subconscious minds as we day-dream through our boredom.

Why have these things happened ? There are, I think, two answers : the first is to be found in the illusion that " change " means " progress ". Few people

seem to realise that three-quarters of the world's daily activities consist in doing the same things as the world has done from time immemorial, the only difference being that they are done in a different way. Our main preoccupations are still those of food, clothing, transport and housing. Neither the size of man's mind, the range of his physical endurance, nor the quality of his mental and spiritual attributes have changed over the past 10,000 years. To the reflective that knowledge is not inspiring. The unreflective seek to preserve the illusion of *living* by engaging in apparently ceaseless activity. But the limitations of our native qualities and the circumscribed range of possible territorial activities impose a limit on all our movements. Sooner or later we begin to repeat ourselves. Change then becomes little more than the repetition of a cycle. You cannot for ever improve a standard article or structure. Sooner or later a point is reached when further improvement results in destroying the natural utility of the original pattern, either through degeneration or by overloading it with useless and rococo ornament. Science may bring some variety to its pattern, but cannot alter its nature. To increase the speed at which we do the standardised things, we are beginning to find, is but to increase our dissatisfaction. Thus we have the strange spectacle of man goaded into an effort to recover the "savour" of life which his ancestors enjoyed, attempting to resume the very modes of life which his so-called progress has displaced. It is more true to-day than ever it was that modern luxuries are the discarded necessities of the past. To stimulate our staled, pampered bodies we are being given the rough unprepared foods of the soil which our forefathers ate. To stimulate our minds we deliberately undergo artificial privations so that we may reproduce the condition which used to be the common lot. Soon we may see self-inflicted pain and

hardship in imitation of the cruelties of the past—a definite movement of such a kind is even now reported to be in existence. Even the wealthiest business man seeks escape this way. His week-ends are spent in discarding his business motley and taking up the life of the country gentleman of two centuries ago, or in disporting himself on those few stretches of the seashore which have not been invaded by the towns. The horse, which used to be the poor man's helpmate, has become the rich man's mistress. The poor man who, finding that there are few things enjoyed by the rich which have escaped his grasp, or for which he cannot get an equally effective but cheaper substitute, is following the same road ; hiking and camping have become his new pastimes.

The second cause of our boredom may be summed up in the word " congestion ", itself traceable to three main sources : (1) the natural limits to man's needs, (2) the limitations of industrial territory, (3) the condition of population. As for the limits to man's needs, it is customary to assume that workmen who become superfluous in one set of occupations will be absorbed in another. But even before the mass-production age it was doubtful whether this assumption was justified. Scarcely a single new basic commodity has been discovered during the past fifty years which did not either partially displace an existing commodity or act as a means of extending to a larger body of consumers a substitute for an existing one, which, because of its rarity, could not be made available to more than a limited number of persons. It seems to have been overlooked that once a country has provided itself with such basic needs as roads, houses, railways and municipal utilities the demand for these things must diminish except in so far as additions to the population call for an increase.

Much the same is true in the international field. It was not surprising to find that even in the best post-war

years, 1928 and 1929, a group of world industries comprising about one-third of the insured population averaged over 16 per cent, of unemployment per industry concerned, and accounted in gross for the major part of the recorded unemployment. Prominent among these industries were coal-mining, building and public works and textiles, each responsible for about a million insured workers. Next came iron and steel, shipbuilding and marine engineering with about half a million, with shipping, docks and road transport close behind. These excesses in the labour supply are easily explained. In shipbuilding and metals we see the direct consequences of the war-time over-expansion enlarged rather than contracted in the post-war years. The textile trades reflect the consequences of the war-induced self-sufficiency maintained and increased in peace-time by tariff barriers. Coal suffered from all these disadvantages, as well as from the consequences of equally efficient substitutes and technical improvements in efficiency of use. Shipping affords an example of additional expansion of supply when demand was, if anything, contracting, while the docks reflect the reduction in volume of international trade. The unemployment in building, contracting and road transport is the result of the artificial stimulation of these industries at times of high prices immediately following the War, with consequent high wage-rates which encouraged the increasing substitution of labour-saving appliances as the artificial stimulus was relaxed and competition became keener. What is important is that the same industries in nearly all other industrial countries were subject to the same influences that operated in our own, so that it was only where exceptional local circumstances provided a new outlet that conditions were substantially better. In many respects the conditions in bituminous coal, shipbuilding and textiles in the United States of America,

for example, were worse than our own, though since they were less sensitive to world conditions their state was overlooked in the general prosperity. America, moreover, was not so dependent on the industries concerned as was Great Britain.

The continued unemployment in these industries, however, must not be taken as a sign that there was no expansion elsewhere. Despite the absence of tariff protection at home and the gradually rising barriers in markets overseas, Great Britain was able to effect a considerable " shift " of labour from the more depressed industries into the new expanding industries, though the latter were neither important enough in size nor sufficient in number fully to absorb the excess. The investigations of the Royal Commission on Unemployment Insurance, and the industrial surveys conducted for the Board of Trade by local universities in the depressed areas, leave no room for doubt that the redundant labour is likely to persist.

II

Let us consider next the limitations of industrial territory. If we exclude the work done in opening up new countries overseas and providing for the additions to our population, our main preoccupation during the past 150 years has in a sense been with the gradual extension to the poorest members of the population, of the luxuries and amenities enjoyed by the rich. Our progress in this direction may be likened to that of a ladder on which the poor occupied the lowest rungs and the rich the highest, while the intermediary income grades were ranged in proper sequence on the remaining rungs. The *modus operandi* was that of removing in turn the highest rungs and employing their material to widen the middle ones to which the rich descended while the poorer members moved up. Then the rungs which the poor had occupied were destroyed—to make it clear that they

were enjoying a rise in their standard of living. Such a method of progression necessarily tends to increasing congestion the nearer the rich and the poor respectively approach the middle of the ladder where the great middle class is already congregated. Though perhaps not quite so clearly, reflection may suggest that perhaps the poorer units after a reconstruction of that kind will still feel themselves to be at the bottom of the ladder, while those at the top will feel they have been deprived of something which does not appear to have very obviously benefited anyone else. Those in the middle, conscious that they have been called upon on the one hand to share the burden of the rich and on the other to help support the poor without apparently any directly compensating personal gain, will consider themselves the dupes of an ungrateful world. In many directions the manual workers are already better off than many members of the middle class, whose incomes and hours of work have remained unchanged while their standard of living has been steadily encroached upon by ever-mounting standing charges.

It is scarcely realised how many of the advantages enjoyed by the rich have depended on such things as exclusiveness, avoidance of overcrowding, or rarity—on things the value of which disappears as soon as they become available to the many. At the present day a working-class family of good standing can, within the means at its command, obtain nearly all the ordinary luxuries of food, clothing and entertainment enjoyed by the rich. The main, almost the only, difference is that they must be enjoyed under more crowded conditions and with less personal service, and that they must be waited for until time has deprived them of that exclusiveness which they owe to being innovations in fashion or invention or to the fact of their being produced "out of season". Practically the only luxuries which they

cannot enjoy are those in which territorial limitations impose an almost insuperable barrier. For example, such things as garage accommodation and golf-courses are denied to the masses in our great cities, largely because of the physical impossibility of finding the necessary land. The element of congestion in the settling over a period of 150 years or so of a population of over 40,000,000 in an area which some 200 years ago barely provided support for 5,500,000—and affording the 40,000,000 a standard of living which according to Sir Josiah Stamp has increased by over four times during the past century—must in itself be a staggering thing. According to the most reliable evidence,¹ of the five and a half million who comprised the population of England and Wales at the beginning of the eighteenth century, approximately one-third was unable to live honestly without help from public or private charity, while another third was living close to the margin of subsistence. Yet the testimony of British and foreign travellers was that the English manual workman was better fed, better paid and more robust than the working man of Scotland, France or Germany.

But improvement in the standard of living would undoubtedly have been even greater had it not been for the effect of this self-same "congestion" on the machinery of production and distribution. Analysis of the problem of distribution shows that throughout the period in which mechanisation has decreased the costs of production, "congestion" (including the consequential growth in financial charges)² has been steadily increasing the costs of distribution.² Selling prices of whole

¹ Gregory King.

² "Costs of production, it is true, have been steadily lowered for thirty years or more. Costs of distribution, on the other hand, have certainly been rising, in part because it is becoming more expensive to fulfil the requirements of the Public. . . ." Report of British National Committee of the International Chamber of Commerce quoted by Lord Luke in a letter to *The Times* of October 20, 1933.

ranges of goods have thereby been prevented from falling either as rapidly or as much as they should have done if the consumer was to benefit. This lies at the root of that most baffling of all our modern problems—our apparent inability to expand *beyond a certain point* the consumption of many necessities and luxuries of life which the mechanisation of industry has made it possible to produce not only abundantly but cheaply. This hold-up in distribution has reacted on the flow of production. In their endeavours to escape from the "jam" in their sales, many manufacturers have been led to over-accelerate the rate of displacement of man-power by machinery appropriate to the particular stage of their industrial growth. Thus a vicious circle of falling prices has been set going, leading to unemployment, a contraction in purchasing power, and other disharmonies.

The present standard of living of our population has, of course, its precarious side. An appreciable part of it has depended on receipts from services rendered and loans to overseas countries during the past century and—what is less commonly appreciated—on current work undertaken in connection with current loans for capital development—developments which, in fact, may prove unable to repay even their original outlay. As is well known, our population is far above the figure which could be fed adequately from the produce of our own soil. But this is not all. As far back as 1900 there were, as we have seen, signs of increasing congestion in our industrial areas. An excellent idea of the density of our population may be gathered from the country's agricultural statistics. An approximate calculation made in connection with a suggestion that in future it might be necessary to redistribute a larger part of our population on the land, revealed that on the 1931 population figures for England and Wales there are about three-quarters of an acre of agricultural land per person, or three acres

per family of four persons. For every thousand acres there are sixteen persons over the age of 21 employed in agriculture in England, and six per thousand acres in Wales. To absorb in agriculture the unemployed, who number approximately six times as many as the employed, would necessitate a proportion of ninety-six per thousand acres instead of sixteen. How could the land support such an increased man-power when it finds difficulty in supporting even the present number? Certainly it could not support ninety-six to the thousand acres under existing methods. It has been estimated that to maintain a family of four people there would be required three cattle, four sheep, three pigs, twelve head of poultry and one acre of wheat. It is more than a little doubtful whether three acres of land would be sufficient for that, even under the most modern methods. Apart from utilitarian considerations, one may readily imagine the eventual appearance of the countryside with one person to every three-quarters acre of land, or three acres parcelled out among families of four. It would be a gigantic allotment on the sections of which none but the lawful occupiers would be allowed to walk, so intensively would the whole area be cultivated. The delights of the country and of nature which have inspired the great artists among our people would disappear; here again there would be drab uniformity.

Nor is the prospect for our towns more encouraging. While frequent reference has been made to the discontinuous changes in what has been termed our economic "structure", too little has been made of the changes in the "structure" of our mode of living which these have entailed. By way of illustration let us imagine a band of English settlers arriving in an uncivilised and previously unexploited territory and settling down to the practice of agriculture, employing the local natives as workers. Judging from past experience, the first

stage of development is likely to see the territory divided up into large estates with houses in the centre or some other convenient place. As the population of the area grows the big estates will be broken up into smaller ones, and on each, additional houses will be built. A feature of this stage of development will be the setting aside of an area to be used as a market-place, and this in time will become a village and ultimately a town. As the town grows it will gradually encroach on the countryside. This development will involve a further change in the area, for certain of the big estates will have to be still further subdivided. The final stage will be a condition such as can be seen in any of our own established towns where the area had been divided into a series of narrow streets, leaving a minimum space for roads, railways, drainage, water supply and lighting, and for such amenities as gardens and places for recreation. It will be clear that many of these stages of development will have involved the reorganisation of the structure of the area as a whole, including its communication arrangements ; that many of the changes will have meant a *discontinuous* though not necessarily abrupt alteration in the housing structure of the country, and that each reorganisation will have tended to become more difficult and more expensive to effect than its predecessor. To mention one item only. The cost of clearing sites will have grown progressively dearer. A modern ferro-concrete construction, for example, costs nearly as much to demolish as to erect.

An examination of the situation in some of our large cities will show that we are rapidly approaching, if we have not already reached, a stage when certain reorganisations which may be regarded as essential on economic grounds are impracticable from a social and cost point of view. The situation of certain London railway termini may be cited to illustrate the point. This kind

of congestion has directly limited the extent to which it is possible to provide for the poor at reasonable cost many of the luxuries of the rich. We cannot all have motor-cars, because there is no room for garages. In large towns to house a motor-car is as expensive as to house a family. In housing, the numbers housed per unit of area has reached the point at which the public roads are no longer able to cope even with the transport that exists.¹ Already the limitation of land and consequent competition for it has brought the price of housing accommodation to a point where it is not only beyond the capacity of the poorest members in many areas, but is steadily encroaching on the standard of living which the middle-classes are able to enjoy as a result of the cheapening of commodities through scientific and technical advance. Every corporation in the country is endeavouring to produce a house which can be let at a weekly sum within the means of the working classes. What is it that increases the charge for these houses and so puts them beyond the reach of the people it is desired to re-house ?

It is not the cost of actual building but the additional levies in the form of rates for compulsory social and utility services, cost of land and financial charges. To-day rates on the average add at least a third to the rent of cheaper types of houses, while the cost of land raises their building costs by anything from one-sixth to over one-third. Financial charges for interest on loans, since they reflect the many attempts made in recent years to solve by monetary means what is fundamentally a problem

¹ Professor O. M. W. Sprague, who has acted as Economic Adviser both to the Bank of England and to the United States Treasury, has suggested as a slogan for American Recovery, "One more room for every family in the United States below the income level of two thousand dollars" . . . "An accelerated programme of home-building with better equipment and furnishings" (*Recovery and Common Sense*). Imagine what would happen if an attempt were made to put such a programme into operation in our own congested and city-ridden territory 1

of *physical* congestion, probably impose the heaviest burden of all. The effect on rents of the policy pursued in the post-war period ending in 1929, of "forcing" investment and thereby raising the rate of interest, may be illustrated by a practical example. To-day's rent on a standard working-class house costing to build say £350 (loan repayable in sixty years), with the rate of interest round about 3 per cent., would have to be raised by something like 50 per cent, to cover additional interest charges if the rate of interest were raised to 6 per cent. Actually the rise would be much larger, for it would be quite impossible to raise the rate of interest in this way without raising building costs also. Since 1910 the cost of land has risen from 3 to 20 times, while rates have trebled. This is the major cause of the present deadlock in housing.

The slowing-down of our population growth has so far done nothing to relieve housing congestion ; on the contrary, it has in a sense aggravated it, for owing to the decline in the proportion of children per family the number of houses which has to be provided per unit of population has increased. The census returns reveal that in London the population in 1931 was divided into forty-eight *more* families per thousand than in 1911. Assuming this ratio to hold good for the whole country, it means that even had the population in 1931 been the same as in 1911, viz. 36,000,000, we should have required over 1,700,000 more houses than we did in the latter year. But the population was, of course, considerably larger.

A "sample" private enquiry recently conducted in a London suburb revealed that of an income of £ 500 for an average family, the 2 per cent, abstracted for purposes of national taxation in 1913-14 had increased to 5 per cent, in 1932-3, i.e. it had more than doubled. With local charges and housing costs added, the contributions

were 10 per cent, and 25-35 Per cent. respectively. At the present time, housing accommodation of a normal middle-class type normally purchased by mortgage costs, inclusive of rates, taxes, etc., is between £120 and £170 per annum. Similar accommodation cost about £40 to £60 before the War. And this £120 to £170 is not subject to adjustments to offset any fall in commodity prices ; in fact, since rates or assessments are tending to rise, these charges are likely to grow progressively heavier with the commodity price fall. Education of children on a moderate secondary school basis involves a further £40 per annum (for two children) compared with £20 before the War. Together these charges, totalling £160-£210 per annum, represent between 30 per cent, and 40 per cent, of total income. Here, again, the further trend is likely to be upward rather than downward, for there will be fewer persons over whom to spread overhead charges.

The process by which these increasing burdens have been laid on the middle classes is that of a vicious circle. In it the primary fact is that every effort made by the middle classes to remove congestion from their midst and to improve the potential standard of education of their children by decreasing the size of their families has been more than offset by the increase in the birth-rate among the lower elements of the population. In addition, the black-coated and professional employments have become increasingly congested and therefore relatively less profitable as avenues of employment. In short, the method devised up to the present for adjusting our population as a whole to its environment has been one of making it increasingly difficult for those of its members who possess a sense of responsibility, self-discipline and a love of children, to have any children at all!

At the other end of the scale the wealthier members

of the community, in gradually increasing numbers, have been forced by the factors making for a greater equalisation of income and circumstance to abandon the more expensive housing accommodation traditional to their class and enter into competition with the middle class for the cheaper houses. Mention must also be made of the element of labour cost in building which has made it difficult to build cheaper houses. The solution here would seem to be either reduced wages for the workers or the adoption of some new method of building—though it will be well to remember that this latter possibility, as many of our building laws sharply remind us, is itself complicated by problems of congestion which limit what can be achieved under present town-planning schemes.

There is yet another income class, the members of which have been slowly forced down to the economic level of the working class while their culture and traditions have remained those of the middle class. The condition of these is made strikingly plain in the third volume of 1906 *New Survey of London Life and Labour*. Theirs is the tragedy of the growth of what is called "the dynamical element" in poverty.

The lives of the poor who have always been poor are hard, narrow and even stunted [says the Survey], but they are not necessarily unhappy, for poverty so extreme as to cause actual physical distress is rare. On the other hand, there is little doubt that the process of economic degradation by which those who have known better things sink into poverty and suffer deprivation of comforts which they have hitherto regarded as necessities, is often an acutely painful one.

What words could better describe the situation of those who by progress have been debarred on the one hand from sharing in the steadily increasing number of amenities which are provided gratis for the working

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class, and on the other of all hope of the fuller life of which they had a brief taste during the War ?

III

Let us look now at our third head : " The condition of our population ". At first sight it might appear that the sudden decline in the rate of growth of our population should have helped to relieve congestion in the post-war world, especially as emigration was resumed in 1922, though at barely half the pre-war rate. But comparison of pre-war and post-war migration is uncommonly interesting. It shows that the annual average net outward movement of British subjects from the British Isles to places outside Europe was about 190,000 in the ten years 1904-13, and 110,000 in the years 1921-30. In 1931 the tide turned and began to flow the other way : there was a net inflow of immigrants of 37,000. This inflow, it was estimated by Leak and Friday, would rise to about 50,000 in 1932—a movement, one may hope, that is only temporary. Just as the emigration between 1904 and 1913 failed to relieve congestion in that period, so it failed in the post-war world ; if anything, congestion probably increased. The continuing existence of between 750,000 and 1,000,000 unemployed insured workers is valid evidence on the point. Then, as I have said, despite the apparently endless range of new replacement commodities and inventions, most of our industries are still busied about the same elementary needs of food, clothing, housing and transport. As the production of these has begun to catch up the population growth, there has been increased competition to provide them. What is of more moment to a country like ours—which has depended for the employment of a substantial part of its working population on the building of ships, railways and bridges, and on public utilities for undeveloped countries overseas in order to provide food

and raw materials—the growing relative surplus of commodities has in turn cut down the demand for industrial manufactures and plant.

Another important factor (which has been dealt with at some length by Dr. Snow in a paper entitled *The Limits of Industrial Employment*) is the change in the nature of our population. As Dr. Snow has remarked, the statement frequently made that our population is still increasing at a substantial rate misdescribes the situation : " At the present time the position can best be summarised as a decline in the child population, a stationary population for youths and young people, and an increase in the middle-aged and old people, the last-named increase being greater than the decrease in the number of children." Looking ten years ahead, Dr. Snow estimates that while there would be some increase in the total male population, it would be entirely due to increase in the number of males over sixty. While the change in the emigration situation might slightly modify this forecast, the effect would be to make congestion more rather than less. Mention must also be made of the effect on unemployment of the compulsion to economise money costs of production imposed on British industry by misguided monetary policy, high rates of interest, and increased competition from abroad. Mr. A. R. Burnett-Hurst has noticed on comparing the Ministry of Labour returns for 1927 with those for 1923 that in a group of industries which he investigated, employing about four million males, there had been a decline of 50,000 males, but an increase of 70,000 females. This he ascribed to the necessity which faced British industry after 1921 of reducing costs. It paid to use more machinery and employ more women and girls than to employ the better-paid males. Again, we learn that whereas in a depressed area like South Wales the number of insured men fell between 1923 and 1930 by

7 per cent, and of boys by 4 per cent., the number of women and girls rose by 13 per cent, and 34 per cent, respectively.

It is important, I think, to make it clear that the citing of all this evidence of increasing congestion does not necessarily imply a pessimistic view. The evidence is advanced chiefly in the hope of supporting a conclusion which indeed appears inescapable. We must revise our ideas as to the future. Nothing, at all events, could be more certain than that if we attempt to travel much further with our present economic and financial " luggage " unchanged we shall be heading straight for stagnation. Yet, if we will face facts, stagnation can be postponed for a long time. The first of the facts is that we can no longer make the tacit assumption that " development abroad means that other countries become wealthier, that their demand for goods which Great Britain can easily produce expands, and that they can purchase British produce and manufactures by sending raw materials and other commodities in exchange ".¹ That assumption is ceasing to be true except in regard to a limited number of countries. The number of commodities which we are prepared to take from most countries and they from us steadily diminishes. This is the great problem behind the industrialisation of Japan, China, India and the Far East. Unless we are prepared to take back in exchange the gold and silver which we have sent them during the past 200 years in exchange for our goods, how can they find the means of payment if we attempt to increase our exports to them at all rapidly ? " Triangular " trade cannot take us very far. We *must*, in the second place, make up our minds what sort of future we desire for our own country. Once it is realised that true progress is rather to be found in accommodating as many people as possible on the

¹ *Export of Capital*, C. K. Hobson.

" middle rungs " than in encouraging everybody to go on ascending a never-ending ladder, something may be done to tackle our problems in a rational way. We are not alone in our predicament. Italy, France and Germany have already awakened to the fact that the objective into which they have been moving is a middle-class world. In a sense we have an advantage over them ; we have resources in abeyance which could be brought into play if we resumed some of the occupations we discarded in the hey-day of our foreign investment policy.¹ And we must realise that the capacity to meet past debts from now onwards is destined to decline. If trade is to continue to expand, both at home and abroad, capital must be cheap and the expectation of profit low. If an elastic monetary policy will help us to achieve this, by all means let us have it ; but do not let us attempt to escape from our debts by trying to use them to force up the price level, for a century's experience proves that rates of interest will inevitably follow that level. De-valuation of currency is the only means of evading debt payments by monetary means which will not bring an even greater burden of debts in the future—apart, that is, from a " flight from currency " as it is called. But no country which has tried a dose of the latter medicine seems anxious to repeat it.

It is time we discarded our obsession with the quantity theory of money—a useful instrument of thought, but worse than useless as a guide to practice. To imagine that we can raise prices when we will, and keep them

¹ The following figures, showing the proportionate occupational distribution per thousand of employed, are eloquent :

	Agriculture.	Minerals, Manufacture and Transport.	Other Occupations.
England and Wales (1921)	89	591	320
United States (1920)	298	450	252
France (1921)	392	396	212
Germany (1925).	234	573	193

at what level we will by purely monetary means is to dream dreams. To attempt it in a community in which production is out of control would be insanity. Under conditions of scarcity we may certainly raise prices by increasing the money supply. But we must reap what we sow. The flood of new gold and silver in the 'fifties and 'sixties brought the excess of food and the falling prices of the 'seventies and 'eighties. Similarly, the post-war rush to spend money before our production plant had become adjusted to peace-time conditions brought the disastrous slump of 1920-1 ; and the U.S. inflation of 1923-9 brought our present slump. Those who still cherish the illusion of price-level control by monetary manipulation may well consider some of the figures which illustrate changes in the trend of world production.

In the pre-war period, according to a calculation made by the Institut für Konjunkturforschung,¹ world industrial production as a whole increased annually by 3.8 per cent. Since the War, growth, although in certain individual years it increased considerably faster, has on the average been much less.

If world production had increased from 1913 to the present time at the same rate as it increased before the War, there would have been—at 1928 prices—an amount of goods produced to the value of over £25,000 millions (gold). But in 1933 the value of world industrial production was only £15,000 millions (gold).

The following table prepared by the Institute shows the position in the different departments of industrial activity:—

¹ The German Institute for Business Research, Berlin.

WORLD COMMODITY PRODUCTION.
1928 = 100.

		Agricultural Raw Ma- terials. ¹	Industrial Capital Goods. ²	Agricultural Food- stuffs. ³	Industrial Consumption Goods. ⁴	Consumption Goods, Total. ⁵
1913	...	75	69	85	81	83
1925	...	96	87	95	90	93
1926	...	98	90	94	91	93
1927	...	96	94	96	100	98
1928	.	100	100	100	100	100
1929	.	104	no	100	105	103
1930	.	102	96	100	98	99
1931	...	102	82	99	91	95
1932	...	92	66	100	89	95
1933 ⁶	.	925	79	97 ⁵	95	96

¹ According to data furnished by the League of Nations.

² Textile raw materials, oil seeds, tobacco, etc.

³ Calculated by the I. f. K. ⁴ Grain, meat, groceries.

⁵ Estimated by the I. f. K. ⁶ Preliminary.

IV

It is imperative that we should learn, before it is too late, that in a world in which population growth is declining and ample raw materials are available, money is increasingly powerless to provide an orderly world. We have lamentably failed to distinguish between "usury" and "investment". In such a world the rate demanded by usury tends to increase, while that which investment is able to pay grows less. Since so long as we are "on gold" both use the same money supply, we are in effect engaging in a battle between the law of increasing returns of usury and the law of diminishing returns of investment. Since the War the former has tended to triumph. Usury feeds on itself, forcing rates of interest ever higher and higher. But the usurers are restless; they see the security behind their debts fast disappearing. Small wonder that they dream of forcing back prices to the 1926-9 level, even

though ultimately such a course might bring about the complete collapse of world industry. Possibly they hope before then to have converted their securities into " hoards " of gold. But even should we free ourselves from the shackles of gold and allow the rate of interest for investment to fall to the figure appropriate to our grown-up world, our problem will not necessarily be solved. Just as we found that the supplies of new gold could not become effective for investment until our financial structure had been reorganised, so we may find that our present financial structure requires " refitting " to the new phase of development we are entering.

If our future investment problems, as I believe, are likely to become less and less concerned with " territorial " expansion and more and more with " structural " alteration, we must determine what that future structure is to be. In a congested world, organisation and control must first be exercised on the productive and distributive sides. Whatever may be the results of the current proposals for dealing with London traffic, for instance, it is obvious that we cannot much longer permit the uncontrolled development of competing forms of transport along our limited lines of communication. It is equally obvious that money alone cannot solve our problem. The same consideration applies to the various proposals made for what is called the " rationalising " of distribution. And if cheapness and efficiency are to be our sole criteria, we must restrict the freedom not only of producer and distributor but also of the consuming public. The business of retailing gives direct employment to more people than any other trade. No business so closely touches the life of the people ; over one-half of the national income is concerned with it.

The gigantic figure of £1,750,000,000 passed through it in the year 1930, during which time the attention of politicians

was riveted on the imports and exports of the country which totalled respectively £1,040,000,000 and £570,000,000. There are over 500,000 separate retailing establishments in this country with an average number of three employees per shop, and average takings of £10 to £15 per day—an excess of shops involving "a very burdensome locking-up of idle capital and a locking-up of human energy".¹

Unlocking here can only be achieved by limiting the consumer's choice. Individual tastes, shopping hours and shopping habits must be rationalised. Purchases must be concentrated and bulk purchase of goods produced by machine-power encouraged. The complement, on the distributive side, of the concentration of purchasing power is the multiplication of standard unit shops by a chain of subdivision. On the manufacturing side it connotes standardisation. One specific illustration of what could be done in this direction has been supplied by the International Chamber of Commerce in a recent publication on distributive organisation in Europe and the United States. It gave an account of four years' application of the principle of the new method by a hardware wholesaler who increased his net profits, we are told, by 35 per cent, through reducing the number of his customers by 56 per cent., his sales territory by 28 per cent., the variety of commodities sold by 30 per cent., and his sources of supply by 19 per cent. For the principle to be applied on any wide scale with assurance of success it is essential that the consumer be "regimentalised", many shops closed down, and the basic structure of retailing reorganised.

It would be easy to exaggerate what will be called the difficulty of bringing about such a radical change. But many of our problems of progress are really more difficult. We talk glibly, for instance, of the establishment of a six-hour working day, or less, as if it could be achieved

¹ *Retailing and the Public*, L. Neale.

by a stroke of the pen. Few seem to appreciate what a revolution in our social as well as our industrial habits this would entail. Already, through reduction from twelve to eight hours since the War, we have congested our means of recreation until what used to be regarded as the exclusive luxuries of the rich are now, as the result of their congestion, shunned even by many of the poor. As a result partly of changing habits in another direction, but mainly because of the high cost of housing and the taxation attaching to it—each the result of increasing congestion—we are moving from houses into flats. What shall we do with the houses vacated? Many of those which served their purpose admirably when the occupiers spent twelve hours a day in a factory might be quite unsuitable for life on the basis of a six-hour day, and still more so when the decline in number of children in the middle-class family from an average of four to six to less than two is taken into consideration.

This is the kind of problem with which many of our northern towns are faced in their attempts to arrest the drift of their people southwards. For a country like ours which depends for a large proportion of its food and raw materials on areas outside its home territory and which, despite its tariff and restrictions on immigration, permits the inflow of competing materials and people from countries whose standard of living is below our own, something more than mere domestic reorganisation is required. If we are to increase the leisure of our people we must protect them in certain directions from the full competition of those whose standards of life are lower and whose hours of work are longer, and we must arrange for a more equable distribution of population between the home country and the Empire, to the Empire's interest as well as our own. While we to-day are suffering from the evils of congestion, the

Empire countries overseas are suffering from the problems of scarcity. They are equipped with towns and transport arrangements which were constructed on the assumption that their trade and populations would continue to grow at the pre-war rate, and to this their current debt problems are mainly due. Here again, while a currency depreciation by arbitrary re-valuation might help, currency inflation would be of no avail. How far a redistribution of population might in itself prove a practicable way out is not easy to say. And this brings us back again to the question of future population growth.

If present indications can be relied on, we must anticipate that a resumption of emigration at even the pre-slump rate would produce within a generation a decline in our population of something like 5,000,000—equivalent to the disappearance of the populations of Lancashire, Yorkshire, Cheshire and Nottinghamshire! Such a fall, even if more evenly distributed, would impose intolerable debt burdens on various more heavily rated areas. The case of the abandonment of the Haweswater undertaking by the Manchester Water Works Committee has publicly been cited as an example of a debt incurred upon the anticipation that the area would continue to grow at a certain speed. In consequence, within a year rates were increased from 14^s. 6^d. to 15^s. 6^d. in order to pay interest on the heavy capital sunk in this abandoned undertaking. The reports on the depressed areas issued under the auspices of the Board of Trade suggest that this may be typical of what is about to happen in many other areas, and not alone in regard to water supply. New housing centres have been established with expensive roads, drains, utility services, schools, libraries and shops, which can only justify their existence by attracting population from rival centres, where debt charges due to public and

private capital, irretrievably sunk in providing the same services, are already eating into the standard of living of their inhabitants.

Lastly, there is the circumstance that the shifting age distribution of our population is making matters even worse. It has been estimated that the shrinkage among children up to 15 years may amount to as much as 2,000,000 or nearly 20 per cent., as against the prospect of a steady growth in persons of pensionable ages. In the case of women alone there are likely to be 1,000,000 more above 64 years old in 1960 than there were in 1930. Clearly the problem of providing our people with the optimum standard of living is hedged about with difficulties.

CHAPTER X

THE PARTING OF THE WAYS

Men must endure
 Their going hence, even as their coming hither :
 Ripeness is all.

SHAKESPEARE, *King Lear*, Act V, Sc. II.

I

Is a succession of cycles, then, the sum of progress ? What happens when no more cycles are possible ? Do we stand still or decay ? Standing still has been called stagnation. I think a better word for our present purposes would be " equilibrium ". Stagnation and decay are not necessarily synonymous terms. In this condition of equilibrium, my answer is, energies may be released from the pursuit of material gain and applied to the organisation of that happiness which does not solely depend on material things. Granted that now, in our time, our own country is rapidly approaching or has actually reached such a condition of economic equilibrium, what next ? Can we, the children of our equilibrium, what next ? Can we, the children of our Age, the products and the instruments, conceive what manner of life under a differently ordered system the individual and the community might enjoy ? Can we conceive what life itself might be if rid of fear—of fear of invasion and of poverty, and of all the horrors which have been associated in our history with what we have, I believe, mistakenly called " progress " ?

We cannot but be conscious of the inadequacy of human faculty and the dangerous fallibility of human

nature when confronted with issues so grave as these. A backward glance over so brief a portion of civilised history as the last 150 years—a mere breathing-space in Time—is sobering in the terrific sense of power which it reveals. We can see British vitality bursting into exuberance, filling territory after territory with peoples, towns, railways and machines ; pouring itself abroad through ships, money and inventions, releasing a flood of new commodities, services and means of material enjoyment. We cannot behold unawed the serried ranks of partially and fully industrialised territories that have been added to the world. We look deeper and deeper until our eyes are blinded by the endless range of the torrent of modern energies and the glamour of their gigantic endeavour, while our ears are deafened by the roar and rattle of interminable machines. One pauses—and ponders. Is there more than a very little *real* happiness as a result of it all ? Are the machines pouring out goods which anyone really keenly desires ? If we were *completely adjusted* to our environment, would not our apparent " progress " be as illusory as an increasing number of leading minds deem it to be ?

Well, we are a long way, it seems, either from banishing the fear of war or from being completely adjusted to our changing environment. The old problem was to adjust man to his environment. The new problem is to learn to curb the forces which natural science has provided for adjusting our environment to ourselves. A great major decision of policy is involved. Shall we follow the way of self-sufficiency—such, for instance, as France adopted ? Shall we endeavour in a constricted world to resume development on nineteenth-century lines, realising that our future competitors are the natives of the East, whose standard of living is widely different from our own ? Or shall we seek some way between the two ? Decide we must, and soon.

We have for so long been preoccupied as a nation with money and goods for sheer profit's sake, that we have become blind to the fact that man's fundamental contribution to industrial advance has been more that of releaser or controller of the bounty of nature than that of creative producer. Our nineteenth-century system of international trade exhibited a condition of affairs akin to that in which a cat chases its tail: the faster the economic system was made to spin round to produce goods and accumulate savings for a more comfortable future, the faster that objective itself receded. The mad chase was kept going by investment, by producing more goods of certain kinds than were required, and lending them to people who promised to repay them with interest in goods of some other kind at some future date. Discoveries of new gold supplies added to the pace by intensifying competition, thus causing prices to rise, which encouraged gambling on the future still more. This new gold enabled more or less unlimited loans to be made. The gold when it first appeared acted in effect as a surplus "medium of exchange" on which no rate of interest had to be paid. Later when it reached the banks it became the centre of a new planetary system of revolving credits and loans.

As the nineteenth-century money gyroscope, fed first by the Californian and Australian gold of the 'fifties and second by the South African gold of the 'nineties grew steadily in size, so did the populations in the new areas under its sway.¹ So did the populations of the other countries which copied our example. But in many of them the supply of land and of certain basic natural resources on which the release of nature's bounty depended, failed to keep step. For a time emigration to new unoccupied areas well endowed by nature pro-

¹ I include in these the new countries overseas whose populations continued to grow at a rapid rate long after the pressure of congestion had begun to slow down the population rate of Britain.

vided relief; but sooner or later came the inevitable congestion. The rate of spin of this " international " system first imperceptibly and then perceptibly began to slow down. The process of increasing wealth by gambling on the future ceased to work. In a world in which important areas were becoming congested and the supply of unexploited markets were beginning to contract, it led to increased current competition without adding to the future net total of wealth ; and debtor countries which had counted on the speed of revolution of the economic top being maintained at its previous rate found themselves unable to meet their commitments ahead. The alternatives before them were (1) the carrying of debts which would continue to grow at compound interest while their assets would begin to decline, or (2) repudiation. Before 1914 a general repudiation of debts of this kind was not practicable. Then came war.

II

On the outbreak of war, in the case of the United States, agriculture and industry were in approximate balance, but the balance was completely upset by the new era of growth set in train by the War itself. To one accustomed to modern ideas of " financial " investment it might be supposed that having achieved such a balanced condition a country would concentrate thereafter not on producing more manufactures or agricultural produce, but on improving the conditions under which both its agriculturists and industrialists lived. Save for the War, and possibly also the lack of centralised leadership, a policy of social amelioration might have been followed by the U.S.A., in which event the United States would have been another France but with a far higher plane of material well-being. She would have eschewed territorial expansion and all export

trade beyond that needed to provide her with the few things she was unable to provide for herself, and would have concentrated on organising her internal " structure " in such a manner as to enable the maximum number of her people to attain the optimum practicable standard of living within the limitations imposed by the character of her territory and the quality and extent of her natural resources. Her great " middle class " would have become actuated by quite different ideals from those which characterise it to-day. Investment in anticipation of the future instead of being a major preoccupation would have become relatively unimportant. The rate of interest and the length of terms of loans would have contracted to a level just sufficient to encourage a proportion of the more industrious sections of the population to give up part of their leisure to make provision for the future. And as in a world in which the longest working day might be six hours and the shortest possibly much less, leisure would tend to become a burden rather than a relaxation for the more energetic individuals, the incentive needed would not be large. As among the nations of old, the escape from the drudgery of compulsory work might be expected to release streams of energy previously dormant, in those naturally endowed with a desire to express themselves in constructional work, art or scientific investigation, but who were prevented from doing so by economic necessity.

We in Britain have not yet reached that condition of balance which the United States had attained in 1914. Having so definitely set our hands to the plough of overseas investment and development we cannot look back even if we would. We cannot cease work until we have settled overseas a sufficiently large proportion of our native population to enable us to be self-contained in prime essentials, or we have linked ourselves closely to certain of the less densely populated territories of the

E.C.P.

globe able and willing to continue to supply us with the food and raw materials we need until our population has shrunk to more reasonable proportions. The ultimate reorganisation of our internal economic "structure" must, largely, wait on that decision. But fortunately we can seek to fulfil each of these alternative aims simultaneously without seriously endangering our future; indeed, in some measure the existence of this double objective should be to our ultimate advantage. It should help us to retain that adaptability which governs man's capacity for survival in his tussle with environment. Might it not also be made to contribute to the secure establishment in some practicable form, of a comity of nations that would in the fullest sense be a "British Empire", with its constituent sections so firmly cemented in common purpose that it could and would escape the fate which has overtaken every other empire the world has ever known? That we shall be able to bring and keep under control our rate of population growth is presupposed.

What of our situation in industrial production? We can produce more of almost everything than our population has the purchasing power to consume. An increasing proportion of expenditure is on things which not only serve no useful purpose but should, perhaps, be regarded as morally harmful. They are bought because, in order to make a livelihood or a profit, many are driven to spend their time in devising new ways of exciting the human appetite and senses. An enquiry instituted to discover which of the industries of the United States of America were suffering least from the depression brought the same general answer, though not necessarily in the following order of precedence: (1) candy; (2) cosmetics; (3) sex literature, with its near relation the "movies"; (4) drugs. A study of the articles displayed in the shop windows of our British

towns suggests that we should have little cause for surprise if a similar enquiry in Great Britain produced a similar result. But the fact that such articles *ought* to give preference to more useful things has no bearing on the purely economic point. If, instead of cosmetics and candy, consumers bought more food and clothing it would not affect the situation in the aggregate, since both sets of articles can already be produced in considerable excess of demand. Our ability to invent new goods even in luxury categories is diminishing. The only way to provide industry with new useful work is to reorganise industrial "structure". There are formidable obstacles. The present organisation of our towns and countryside is the result of long preoccupation with investment in preparation for an era of plenty. But now we have actually attained that "future" so eagerly anticipated in past years we find that our towns and countryside are not suited to the enjoyment of an era of plenty. They were organised for a country at work, not for a country at ease. Principal L. P. Jacks, after a recent visit to the United States, recounted this experience :

"Walking in a district of Chicago, where aggressive ugliness both of sights and sounds seemed to have passed the limits of human endurance, I asked my companion, an elderly citizen of that city, 'In Heaven's name, what is it that makes life tolerable to your people in this dreadful place?' His answer was, 'Sex'. 'And what', I asked, 'makes it tolerable *to you*?' His answer was, 'Money V

How, we may ask, is that man to continue to live if—so long as expansion in the number and extent of consumers' wants remains limited because consumers are trapped within the present "structure" of their towns and countryside—it is to become increasingly difficult to make "money" by supplying those "wants"?

It is natural to expect that business men will turn their minds more and more to reorganisation in this direction, but before they can get any scheme effectively in motion in Britain a reorganisation of the financial structure will have to be undertaken and steps put in motion to overcome or placate the vested interests which have grown up under the existing structures, for these interests will fight strenuously to preserve their perquisites. In some cases on the Continent where the same issue has arisen it has been settled only through the displacement of Parliament by a Dictator.

The problems presented by our foreign activities are similar in character to those at home. Any relaxation of our protective policy, under present conditions, means widening the circle of competition among producers without providing much more net ability to buy the products. The task is not to enable countries with a superabundance to exchange with those who lack, but to prevent there being thrown into the world-pot a surfeit of goods which nobody wants. Neither Free Trade nor Protection, nor a compromise between the two, would seem sufficient in itself to indicate a trustworthy line of remedy. The most hopeful road would appear to be that of associating our development as closely as possible with the development of areas, whether in our Dominions and Colonies or outside them, where it is to the common interest to reorganise town and countryside and their associated industries in a manner analogous with that which I have suggested in the case of our internal economy, with a view to widening the amenities of the inhabitants of all the areas included. Differences in standards of living and social customs and usages will make it impracticable to group more than a relatively limited number of areas in this manner, though this would not imply that the group countries would refuse commercial intercourse with all

countries outside the group. Such external intercourse would necessarily, however, be subordinated to and limited by the internal needs of the group countries. Nor need such an arrangement interfere with the work of gradually extending the advantages of industrial civilisation to backward countries such as those of the Far East, where racial, social or religious customs oppose strong barriers to the rapid acceptance of Western ideas.

III

There are abundant signs that the great international adventure of the past three hundred years is approaching its end. British economists during the past two or three generations believed that trade in future would expand by countries specialising in what they could most profitably produce according to the law of comparative costs. They believed that progress had practically no limits. Contemporary statistics make it clear that these beliefs do not square with the facts. It cannot be taken for granted, first, that at any particular point of time human needs are infinite in any practical sense, or, second, that purchasing power in the different countries is relatively flexible and can be increased at will. The economists left out of account the human element in demand and, what is far more important, the limitations imposed upon increase in the basic standards of living of different countries by differences in economic structure and geographical environment. They also forgot that production and consumption cannot be made to grow at the same rate. Time, the factor universally ignored by economists, is all-important. Theoretically, there is every reason why half-starved Eastern countries like India and Japan with their almost unlimited unfilled wants, should share in the vast potential but not fully realised production of Western countries like Great Britain and the United States. Prac-

tically, however, since the basic agricultural structure of the former is more or less fixed, their purchasing power must remain low and their ability to increase that proportion of their supplies which they buy abroad can grow at the best only very slowly. Foreign loans may produce a temporary acceleration, but cannot affect the long-term situation greatly. The solution of the agricultural and employment problems in such countries depends on transferring men from agriculture to industry—in the countries making for themselves goods they have previously been importing. That in certain ranges their demand for imports of manufactured goods is more likely to decline than to increase, means increased competition among the Western countries at present supplying the imports, not an increase in the aggregate demand. In so far as Japan, for example, is compelled to intensify exports of the industrial goods she manufactures to purchase food, she must increase world competition in exports, as all her exports except raw silk are of the same type as those of other industrial exporters. Japan's growing surplus of population would compel her to do this in any case.

The way Great Britain grew wealthy by buying with exports the food she could not raise, must be looked upon as a quite exceptional thing. It cannot be repeated on any considerable scale, for there are few unoccupied areas left. Economic balance and economic devolution, not concentration and geographical specialisation, have been the more usual economic objectives of nations. This has been the only method so far discovered of adjusting population to environment. Great Britain's exception to this rule during the nineteenth century was temporary only. Her environment was being enlarged by the addition of new territories. That era is at an end, and tariff barriers are decreasing rather than increasing her commercial area. Thus she has been

compelled to fall into line with the common practice. Industrial evolution has taken the same course even in countries where development has been confined within the boundary of the national territory.

A survey of American industry undertaken by a committee of experts some years ago, presided over by Mr. Hoover, spoke of a breaking-down of local concentration, "a tendency for industry to shift from city to country". "Manufacturing activity is becoming more equally distributed throughout the country," said the committee ; "the old areas have lost their supremacy and the greatest gains are being made by those states in which manufacturing has not been relatively important." On a less spectacular scale the tendency has been apparent on the continent of Europe, in South America and in the Far East. The present slump will accelerate it, for the countries worst hit have been those which specialised most, e.g. Chile and Brazil. Foreign trade statistics leave no doubt as to the universality of the phenomenon. Increases in tariff barriers have been but the outward sign of the inward "permanent urge to economic devolution". Post-war records show that the total of world production is increasing faster than the total of world commerce, and that aggregate output within individual countries is expanding at a faster rate than their imports. The cargoes borne by 70 per cent, of the world's shipping in 1928 were, according to Mr. G. C. Layton, only 10 per cent, above those of 1913, despite the notable increase in world production. The estimates of the economic and financial section of the League of Nations show a similar gap between commerce and production, and it is well known that not only England's but Europe's share of world trade is smaller now than before the War. There is, of course, no prospect of a complete disappearance of foreign trade ; on the contrary, it should continue to

grow ; but its size and rate of growth will not in future be so great as has sometimes been believed.

The present British industrial system was evolved out of the agricultural society which preceded it and which itself had reached a condition of stagnation. Under the new industrial system it was the town rather than the field which was subdivided. The " strip " street replaced the " strip " field as the outward symbol of the changing landscape. This system in turn is now reaching culmination. Its approaching end is signalled by the gradual centralisation of control into the hands of the few—a group of private combines as in the U.S.A., a socialist system run by a dictator as in Italy, a socialist system led by capitalists as in Germany, or a complete breakdown followed by the reconstruction *ab initio* of a middle-class society under centralised control as in Russia. Development by subdivision ultimately compels the adoption of some such form of discipline for its economic success. Clearly, in a society which uses profit as its index, as the industrial system grows more mature competition will increase and the rate of profit will grow smaller while the number of industrial subdivisions will increase. Progressive centralisation reduces the number of the persons whose aggregate profit has to be maintained at a worth-while level. A co-ordinated and centralised industry not only works on a far lower margin of profit than a small-scale producer, but reduces the number of those who have to be given a share in the resulting *aggregate* of profit. Here the same principle is in operation which makes it necessary to provide a greater incentive to make a poor man save than a rich man. A man will make some effort if he thinks he can obtain £2,000 a year on £40,000 capital, but he would be less likely to strive to save £1 in order that he might benefit by a shilling at the end of the year. As the rate of return falls, the incentive to save

on small amounts grows progressively less. I am, of course, here not referring to saving undertaken to provide against a " rainy day " or for old age, but to investment for the sake of future reward. Small enterprises are affected in a similar way by a fall in margin of profit. Below a certain level of aggregate profit it is not worth while incurring the worry and expending the energy associated with the conduct of an enterprise.

There appears to be no escape from this increasing centralisation of production and the rigidity in organisation which it implies. Even the abolition of profit itself would be ineffective, for the abolition of profit (or its reduction to an irreducible minimum) must in a sense be regarded as a natural and inevitable end-point of development by what is commonly termed the capitalistic system. Is there no way of avoiding this end-point ? The answer of history is unequivocal : there is no way. All we can do is to replace our present economic structure by one which depends less on investment in the future and more on reorganising the manner in which we direct our existing sources of wealth and lives. This is what should be meant when people refer to the need for preparing for an " age of leisure ".

CHAPTER XI

PLANNING THE NEW ERA

The deepest and most fundamental laws of nature can be wiped out and annihilated if the State needs to enlarge and deepen its inner power at the cost of the One, the individual, who is the foundation of the universe. For the universe is made up of individuals, not groups. It exists through the interaction of individuals. And it collapses when the free movement of individuals is limited. Individuals are the atoms of the human race.

B. TRAVEN, *The Death Ship*.

I

I WOULD not like the reader to suppose that I am advocating a new economic system of the kind ordinarily implied when people speak of the substitution of a Socialist state for a Capitalist state. That would be merely substituting one of two possible end-points of the present economic "structure" for the other without affecting the "structure" itself. To regain freedom, the actual "structure" itself will have to be broken down, in the same sense as the mode of existence of the British people was destroyed in the seventeenth and eighteenth centuries by the destruction of the guilds, the seizure of collegiate property, the enactment of the Statute of Frauds which helped to destroy the yeoman farmer, and the institution of "enclosure". The whole of the nation's way of life will have to be transformed.

Both capitalism and socialism involve the centralisation of wealth and the elimination of private property. The principal difference between them in practice is that middle-class psychology would rebel even more

violently against dictatorship by an undisciplined proletariat than it is now beginning to rebel against control by centralised finance. The middle class knows that it is quite absurd to imagine that "the people" wish to be occupied with government. Make it impossible for the machinery of government to be used to procure a redistribution of wealth, class advantage or some other private end, and most of them would much prefer to be relieved of all responsibility for its service—perhaps even to pay for such relief, as was done in the case of military service in feudal times. This is why, even in a completely socialised community, central control would inevitably tend to pass into the hands of a few experts and dictators. Those Socialists, who, like Mr. G. D. H. Cole, pretend that this dictatorship need be a temporary phase only, do not explain how else, in an age when organisation and management are daily becoming more and more matters of applied science, economic order could be maintained in a nation which had handed over the main share of political control to the least educated and least disciplined section of its population—a section which, generally speaking, is property-less and unfamiliar with the difficulties and problems of administration and management.¹ Surely, before attempting to advance to an even more complex state of society, it would be wise first of all to do something to remedy this state of affairs, by decentralising control

¹ The danger of allowing industrial control to be placed in the hands of persons ignorant of business methods and administration was clearly demonstrated in the failure of the experiment in working-class building enterprise known as the National Building Guild Ltd. The Manchester Official Receiver, in his report on the affairs of the Company after its bankruptcy in July, 1924, laid exceptional stress on the part played by lack of experience in management in causing that failure. "There would seem to have been a lack of correlation between cost and contract price; there was no evidence of any method by which, when any good contract was entered into, a fixed determination was made to complete the work within the agreed selling price and thus earn a profit." In other words, the Guild not only failed to observe the cost-principle ordinarily employed in the business world, but did not appreciate that the existence of an adequate measuring rod was essential to the maintenance of any standard of efficiency at all.

to the extent necessary to accustom individuals in that class to a greater measure of economic freedom and to the ownership and control of property. The object of that education would be to provide a basis for building up a new type of society in which willing co-operation would replace the compulsion of authority as the centralising force. According to this view, not a wider extension of public ownership and control, but a new subdivision of ownership and control, involving a new conception of individual liberty, should be the first objective. Since a reasonable amount of real property is necessary for the exercise of individual liberty, this implies some territorial redistribution of population. The principal obstacle to such a redistribution in the Great Britain of to-day is "congestion". For the obvious line of approach to a new structure would be a new arrangement comprising both towns and country in its "strips". But with our present size of population I doubt whether much in this direction is immediately practicable. Our houses unfortunately are not like those of the Japanese, largely composed of paper and wood. The problem of ridding ourselves of the present arrangement of towns is a huge one. Redistribution on an empire basis might work wonders, but we have still to make up our minds whether such an arrangement would be agreeable to our own national temperament, and whether it would harmonise with the ideas of the Dominions. Mere destruction without plan would be suicidal. The destruction of the system of the Middle Ages would have achieved little if there had been no new world overseas to occupy, no new discoveries in farming to accompany the institution of the enclosure method, and no new industrial inventions¹ to follow

¹ I am not forgetting that these inventions might never have been made, had conditions not been propitious. I agree with Professor Ogburn that the occurrence of inventions is probably fairly rigidly determined by the state of the economic structure. A fluid and classless world is more propitious to

the increased output of agriculture. The new freedom of movement which these things provided made all the difference. We could not lightly venture upon a comparable experiment in the over-populated Great Britain of to-day.

Perhaps a period during which to think over these problems will be for our good. Freedom of movement has its disadvantages. Too much freedom of movement has meant too much lack of self-control. To many, our present pleas for international peace and accord seem nothing more than fatigue, fearful and hypocritical, masquerading as toleration—the natural reaction from a surfeit of internationalism and free movement. It does seem to me that moral and spiritual considerations must be taken into account in any fair review of the situation. There are many signs that our national spirit and culture have been steadily deteriorating during the past century. I am not referring primarily to an increasing reliance on State-help in place of self-help. There have been many other things. In our pursuit after individual advantage we have forgotten the welfare of the group. Personality instead of growing stronger, more firmly established, richer in content, has begun to disintegrate. The subconscious is replacing the conscious as the guide to conduct and action ; personality is becoming more and more a pretentious facade concealing emptiness ; individuality is slowly reverting to the primal herd instincts. This is doubtless part of the price which has to be paid for the abolition of the " classes " which acted as the cell walls of the social structure that is in the process of disintegration. A classless world means a structureless world. Our abandonment of external courtesies in speech and behaviour

invention than one in which economic organisation, institutions and technique are highly rigid. It is no mere accident that so many of the leading inventions have been discovered almost simultaneously by two or more different persons in different places.

seem to have deprived our social relationships of that delicacy which makes life run smoother and pleasanter ; our candour has become grossness. The substitution of internationalism for patriotism has helped to destroy that inward virtue of disinterested idealism which gave savour to those great ages nurtured in the special soil of nationalism to which we still look back with pride and regret. Life then, as described by those who knew it, was obviously more beautiful in the ordinary sense, more satisfying to a greater number of human needs and desires, and more completely harmonious, than is the present-day one. The great periods of art have all been periods of great communal effort. Those who decry nationalism forget how essential periods of freedom from interference by outside forces have been to the restoration of the national spirit and character of many races in the past. Each time the personal life of a self-contained people has been destroyed by contact with the outside world, a whole style of life in which the diverse needs and activities of men have been more or less harmoniously correlated has been destroyed. It is disconcerting to be reminded that there have been times when our people possessed a sense of artistic fitness and a horror of striking the wrong note or jarring the rhythm, as instinctive as it was among the ancient Greeks and still is among the natives of Japan—a country just embarking upon an international career in some ways parallel with our own in the nineteenth century.

The history of Japan suggests that perhaps it is not nationalism but internationalism which is the danger to world peace. Had Japan never made contact with Western industrialism she might have been content to develop her native culture along the old lines. It is doubtful, at all events, whether her population would ever have reached its present unwieldy size, and so

rendered it necessary for her to adventure into Manchuria or the world's export markets.¹

It is incontestable, to my mind, that the choice with which the natural march of events is facing the Western world is between discarding the old internationalism or perishing by war. Most of the habitable places of the globe are populated. Even in the U.S.A. the "last Great West" has been exploited; the white people have accomplished their final migration; "there is no new land for them to break, and nowhere to go except into the cold, unfriendly waters of the Pacific Ocean". There are limits even to Japan's Manchurian adventure. Upon what new territory can any other expanding nation hopefully look, except through warlike eyes?

A glance back to those far-distant pioneering days of the early seventeenth century, when the Old World first set foot in the New, helps us to realise how strange a thing the spirit of modern economic internationalism seemed when first it began to move across the face of the world; and also why it was almost inevitable that it should end by submerging us all in a world war. In *Pocahontas*, David Garnett has vividly recaptured for us the first impression made on the peaceful Indian tribes of North America by the first stream of emigrants from Europe in the sixteenth century, drawn by the dream of life in a new country, unhampered by old constraints and limitations, where a man might think and act as he would, and develop as he willed. He does this by making Princess Pocahontas compare the settled life of her father, Powhatan, with the restless existence of her English settler husband, Rolfe, with

his compelling passion to build, to transform the face of nature and to impose as rapidly as possible something entirely alien, and never to be finished, in its place. There was a difference which she never fathomed between the Indian and English

¹ See footnote, page 35.

way of life, and which yet, as time went on, made her feel restless and uncomfortable. It was that while Indian life was fixed, the whole manner of English life was changing. Powhatan was content to live as his forefathers had done, and before the coming of the English would never have thought of changing his way of life. Though he was an emperor ruling over many peoples, he feathered his own arrows and, as a result of this, he was always contented with what he made. But Rolfe could not wear the same clothes, live in the same sort of house, sail the same sort of boat, eat the same sort of food, or eat it in the same way as his forefathers. Everything had to be better and so, in spite of all his work, he could never be satisfied with anything he had made and was always scheming to improve on it and replace it. This change of attitude was the most fundamental difference in civilisation that the white man brought with him into America.

To-day the robustness has gone out of our internationalism. We have lost the energy and mastery over self which ruled men in earlier days, without having acquired the social constraints and enforced discipline of nationalism. A steadily increasing proportion of our society consists of what Joseph Conrad termed "insignificant and incapable individuals, whose existence is rendered possible only through the high organisation of civilised crowds. . . . Their life, the very essence of their characters, their capabilities and their audacities, are only the expression of their belief in the safety of their surroundings." ¹ The nomadic instinct to migrate which their ancestors obeyed has been superseded by the instinct of self-preservation. They have become so tied to their locality and surroundings that however strong the natural impulse to move away may be, it is resisted through fear. In how many parts of the world to-day is there conflict between youth, with its student movements actively supporting nationalism and organising revolution, and age, desperately clinging to the tattered shreds of nineteenth-century internationalism,

¹ *An Outpost of Progress.*

pleading piteously for peace and security ? I will not attempt to forecast the outcome, but in the light of what has happened in the past, one cannot but view the immediate future with grave foreboding. Perhaps, ultimately, escape from the perennial strife between the opposing tendencies of nationalism and internationalism may be achieved by accustoming men in increasing numbers to adopt a way of life based more and more on an artificially man-made environment and a deliberate control of human numbers, making man's happiness less dependent on doing blind obeisance to the forces of nature. Already there are signs that our man-made town life may ultimately succeed in evolving something of the kind. How long will it take ? The completed stage of readjustment may be so far distant that world conditions, and those of our own population in particular, may have altered the whole perspective in the meantime. One can do no more than try to sense the influences likely to predominate in the shaping of our destiny during the next few decades or so. Beyond that it would be imprudent to venture any but the most tentative opinion.

II

I think it reasonable to presume that the present slump, like previous slumps, will be followed by sporadic recovery as soon as that over-anticipation of the future which gave rise to it has been caught up by consumption or scaled down by production. The structure of money debts built up in connection with over-production will have to be tackled, and recovery is likely to be delayed by a refusal to face facts and by attempts to avoid scaling down through the forcing up of prices by monetary means. Should these last efforts be successful, we must prepare for a further large-scale slump a few years hence. We are in a world whose rate of move-

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meat is destined to slow down rapidly—in many places the slowing may be so sudden as to amount to a crystallisation ; and this, to a people accustomed to flashing along the road of so-called progress at vertiginous speed, will for a time seem like calamity. But it will not be viewed in that light for long. When he has properly realised that speeding is not synonymous with living, man will adapt himself to the new life ; the spirit of the countryside cannot be absorbed from the window of an express train, nor the faculty of wonder bring food to the imagination save in quietude. Think of the hundred types of new adventure which the discoveries of science and the ingenuity of man have added to the wayside of life during the last century, past which we hurry with scarcely a glance. To find something new for man to do in each twenty-four hours of the day was the quest of the nineteenth century ; perhaps how to occupy ourselves with one thing for the whole twenty-four hours may be the discovery of the twentieth. Time must lose its immediacy.

To savour in tranquillity the simple pleasures of life need not mean that we must tread the decadent path of the Mediterranean civilisation of old. We live in a harder clime, and our natures have not yet lost the temper acquired by our Northern ancestors. There are, however, many whom a life of peace spent in discovery and contemplation will not suit—people in whom the dynamic forces of life become incarnate. Their traditional occupation—war—has somewhat fallen into disrepute, and to some extent the increasing part played by the machine has helped to take the edge off war as a personal calling. But the fascination of war is a very real and persistent thing : those who feel the urge of it cannot readily resist the temptation to indulge in it should opportunity offer. We shall have to deal not only with soldiers in the military sense, but with all

the " men of action " who are likely to be demobilised from the industrial army in the interregnum of national sufficiency that will probably follow the era of economic strife called " international trade ".

Like Socrates, must we enquire " Shall we go to war at that point, Glaucon ? " What is to be our answer ? Glaucon's reply, which Socrates did not question, was " We shall go to war." Our answer, I think, must be that unless alternative outlets are provided for the war-type we shall run grave dangers of further wars alike in the economic and in the political field. It is above all essential that the task of providing outlets should be undertaken by men who are familiar with action, for they alone are capable of understanding the feelings of individuals for whom life is something changeful, fluid and active—for whom to be stereotyped in any form is death. It is possible that many such will be able to find congenial work in our Dominions and Colonies overseas. But the openings must be made attractive. Other opportunities for employment will perhaps be found in the Far East; for if the industrial civilisation of the West is to pass to the East it must be transmuted.

The imitation of America or Europe, as Mr. Tawney has observed in regard to China, offers no solution of the deeper problems of the three mutually repellent worlds of Moslem, Hindu and Mongol, between which there are greater gaps than exist between any of the races of Europe. These three divisions of Asia which have reached to the West by widely different routes seem to offer opportunities for a new type of " missionary ". Most of their areas are filled to repletion with people whose lives are so different from ours that it is difficult to suggest commodities, apart from such things as the precious metals and treasure, whose output it would pay to expand in order to send them in exchange for European exports. There would appear here to be

an opportunity for revival of the old patriarchal crusading spirit. Why should it not be directed to the re-discovery and re-interpretation of Eastern culture in the light of modern Western discoveries? Unless something of the kind can be arranged—and it would be essential not to confine the activities of such a movement to any one country, and it must not be actuated primarily with the idea of material gain—it is likely that the West will tend to become more exclusive and parochial in its preoccupations and more subdivided in its organisation. It would be a mistake to assume that the advantages of such an arrangement would necessarily be all on one side. If it be true that the "nomadic" West and the "peasant" East are fated in the near future to interchange in some measure their respective roles in world affairs, there may be many things which it will profit the West to learn from the East.

Britain, in any event, cannot be self-sufficing for many years to come—if ever. But a century of unexampled invention and discovery has in no wise minimised her great natural advantages as a centre of international distribution. Indeed, as many foreign producers of specialised manufactures have not been slow to realise, her national asset in this respect is likely to become increasingly valuable in a world in which the planning of distribution is becoming more important than actual production.

Looking still further ahead, I visualise a world in which the idea of international service will be extended to personal and public services also. There is a vast field in which what I may term "International public services" might be undertaken. Thousands of miles of roads are required in central and eastern Europe, while the total need in the case of Asia must amount to many millions. Then there are such things as electric grids, town-planning, industrial lay-outs, and—

in the case of non-industrialised countries—the planning on national lines of complete self-contained industrial and agricultural systems. Through absence of interchangeable commodities, and other reasons, much of the work of the " New Crusaders " may take the form of supplying the planning, personnel and staff only. It is of course possible that in a world in which leisure is likely steadily to encroach on production, and the rate of interest in certain areas may be destined to fall towards zero, assistance in the form of materials could continue for a considerably longer period than may at the moment seem probable.

We cannot be blind to the emergence in our own country and elsewhere of what may ultimately be seen as a new type—men and women in whom perhaps the self-consciousness of town life or close contact with the machine has quenched all sense of human intimacy with nature ; and who seem content to be dazzled by the never-ending variety of the stream of products which the modern machine is able to pour out in such prodigal profusion. Whether we like it or not, we are breeding, or have already bred, a puppet population which has not only lost all sense of responsibility for the work it does, but no longer desires to regain such responsibility. It welcomes the magnificent developments of applied science precisely because in the ordinary workman they require the absolute repression of the sense of responsibility. If suddenly compelled to live in a " new " country these individuals would be like the litter of sledge-dogs born in the south on Captain Scott's first Antarctic expedition. As they had learned to obtain water only by eating snow, they suffered greatly when faced with the task of drinking real water for the first time. They had to be *taught to lap*. Wherever we look, it seems difficult to discern any prospect of rapid change in the conditions of the

Old World in the reasonably near future, unless there should be a universal conflagration powerful enough to split up Europe again into warring groups along the old racial lines or unless some entirely new spirit should emerge to transform " industrial " man's outlook and dominant purpose. This latter possibility provides interesting matter for speculation, and as we live in times of strange happenings, it may be worth while to pause for a moment to consider what form such a transformation might take.

III

To our question : " Is a succession of cycles the sum of progress ? " Nature herself in other spheres has given a more complete answer than we have been able to attempt—an answer which, while it involves acceptance of the master law of growth, provides in some measure also an avenue of escape from its control, sufficient to permit of something which may be termed " continuing progress ". That avenue consists in re-constituting the actual units which have to obey the basic law—by causing them to form group-units in which their original identities as separate individuals become merged and, in effect, disappear. Thenceforward these new groups (unless subjected to some wholly abnormal disruptive force) behave like single indestructible units with a stability as great as that of the original units from which they were formed and, like them, follow a cycle of growth. This process may be described as a renunciation of *personal* freedom of movement in return for the advantage of *group* stability. The nearest parallel is that of the electrons and protons which combine to form the group structures known as atoms, these in their turn uniting to compose molecules from which compounds of gradually increasing complexities are formed, till we reach the proteins—basic

materials in the living structure of our bodies.¹ Beyond the fact that each of these modifications involves a discontinuous change which gives an appearance of a definite act of creation, we do not know how these transformations are brought about.

While it will doubtless appear fanciful to see in our changing human institutions the operation of similar forces to those outlined above, it behoves us to keep an open mind. We are still extraordinarily ignorant about human personality. Its origin and future alike are hidden from us. The inhabitants of modern congested democratic States in particular appear to be victims of the malaise of unsatisfied affinities. Perhaps, as in the case of the atoms, further evolution depends on man's ability to devise ways of linking up individuals into groups more compact and indissoluble than any which have yet been invented : to construct " group " personalities able to displace individual personalities as the operative units, and make " group " survival replace individual survival as the goal of personal fulfilment. If it be true that such a change would involve something in the nature of a discontinuous act of creation, it is clear that man himself will be incapable of forming an anticipatory mental picture of it or to appreciate afterwards how in fact it happened. Meaning is of the intellect ; creation is not ; the change, like certain of the highest forms of human inspiration, will have no meaning for the intellect ; nothing except emotion will be perceived or will, indeed, matter.

¹ It will doubtless be observed that I have so far evaded the responsibility of attempting to give a precise definition of the term " structure " used throughout this book to denominate the various arrangements and frameworks responsible for slowing down growth among individuals and their industries. " Structure " may be defined as the bound or outward circumference of life (or energy in the case of non-living matter). Structure is the form of life. Progress is the conflict between form and life. Without conflict there is no progress. In the case of a community of men " life " will be represented by the sum of the individual activities of its members, while " form " will be the organisation by which these activities are made to fit in with one another for the purpose of giving the community a corporate life.

It may be difficult to see how we can expect an age of rampant individualism like our own to imagine a communal form of life in which individuality has been all but eliminated. It is none the less true that the War taught many of its active participants that such things are not only possible but do actually take place, and that a voluntary renunciation of individual freedom can produce a feeling of exhilaration and release from bondage which is entirely unexpected and very comforting to the individual concerned. This "selflessness" may be akin to that of the birds mentioned in an earlier chapter, their personal instinct for "territory" being eliminated apparently when they become members of the migrant flock.¹ Those who have never experienced this feeling are unable to comprehend its nature; as with the phenomenon of "conversion" in religion it can be known only by those who have been "born again". Some such emotional release seems to have accompanied the creation and birth of the communal movements associated with the names of Lenin, Mussolini and Hitler. Many serious observers of these movements, noting the fanatical emotional outbursts (akin to those witnessed in times of religious revival) which have accompanied them, have been misled into giving a false colouring to the crudities and brutalities incidental to all revolution. What to my mind has been more arresting, is that the leaders of these new movements have spoken with tongues which sound strange to our unconverted ears—or rather they have used the old words with a new meaning.

Consider, for example, the terms in which Mussolini

¹ It is scarcely necessary to remind the reader of the existence in nature of many other forms of corporate organisation, of which the ant and bee communities are perhaps the best known, though not necessarily the most germane to the present argument. We also have the "family" and tribal organisations of the East and various primitive races.

enunciates the Fascist principles.¹ He begins by quoting with approval Ernest Kenan's statement that: "The principle that Society exists solely through the well-being and personal liberty of all the individuals of which it is composed does not appear to be conformable to the plans of nature, in whose workings the race alone seems to be taken into consideration, and the individual sacrificed to it." He lays down as the determined objective to which Fascism is directing human activity, the creation of a conscious state which "has itself a will and personality". All individuals and groups within the Fascist State "are relative, only to be conceived of in relation to the State". . . . "The State is an absolute." Is not this very much like what one would say of the forces which create the complex atom and molecule out of the free-moving multitude of electrons?

"The forms in which States express themselves may change, but the necessity for such forms is eternal," says Mussolini, and to remove all doubt as to the difference between the old system and the new he adds: "Whoever says Liberalism, implies individualism; whoever says Fascism, implies the State." The new corporative organisation of Italy may be viewed as the climax and result of a long process which began with the ancient guilds and corporations. It is built up of a system of open groups which are non-exclusive, inasmuch as the same individual can participate in different groups. Each group subjects him to certain uniform controls, the groups themselves being considered equal under the control of the State. Mussolini makes it quite clear that Fascism is a child not of the intellect but of the imagination. "It was not the nursling of a doctrine worked beforehand" but "was born of the need for action".

¹ The extracts which follow are from the article by Benito Mussolini, "The Political and Social Doctrine of Fascism", in the 14th volume, *Enciclopedia Italiana*. An English translation has recently been made available in the *Political Quarterly*, Vol. 4, No. 3.

Obviously, these new movements are still very much in the experimental stage ; they will make mistakes ; quite possibly they may break down and be followed by a reversion to ancient habits. It is of interest, all the same, to contemplate the possibility of success. What should be the ultimate objective ? It is, I submit, to substitute for the present " classes " of individuals, functional bodies or " organs " which would be as separate and non-competitive as are the heart, lungs, brain and digestive organs in the living body. Like them, they would be formed from a single basic type of individual unit or cell. These separate functional bodies and their component units would be united in ministering to a common purpose—the well-being of the political body or State. While the ultimate control would rest with the individual member, each functional group would elect a group leader. The group leaders would elect a national leader. The national leader would continue in office either, like the head of the Catholic Church for the duration of his life, or, better still, there might be a fixed retiring age. During his term of office the national leader would—within the range of mobility permitted by the national structure and the national laws—virtually be dictator. He would act as the " growing point " of the national organism. Those who see something desperate in this suggestion may be reminded that dictators carrying out such functions are already familiar though unobtrusive figures in the field of international commerce to-day. The Pope also in his own sphere is a dictator of this type. Government " by the people " has always been a misnomer ; leaders there must be ; the only question is : How shall they be selected ? Under the system outlined here the mass would choose its leader ; then the leader would act on his own responsibility. The dictatorship would have a popular foundation ; there would

be no return to dynastic or oligarchic authoritarianism ; the maintenance of fluidity and adaptability of objective in the national life would be the end in view. Only those who deny human nature's ability to change can assert that this inevitably means a reversion to dictatorship of the traditional type.

But in the case of a modern industrial State such a system can remain stable only if the number of individuals comprising both the nation as a whole and its several functional groups is so rigidly controlled and limited as to make anything in the nature of a class struggle not merely impossible but inconceivable. Provided there were no competitive classes, and the subdivision and the communal control of occupations were not allowed to extend beyond the minimum needed to ensure cohesion of the group as a whole, men as individuals would be free to do as they would, just as the electrons in the atoms are free to move as they please within their respective orbits, or the members of a religious community have full liberty to determine their secular lives within the ambit of their rules. It would be a release, not *from* life, but *into* life. The wilful personal self would be submerged into a deeper-than-personal self. The individual need not necessarily be forcibly deprived of his personal freedom ; he can be taught only to *desire* to exercise his free-will in directions which are not inimical to the common purpose.

This would be an experiment unique in the world's economic history—an act of creation. The " territorial " instinct of the individual would disappear to re-emerge as a " group " instinct. At the moment Fascist doctrine has not got much beyond such things as affirming its acceptance of " the immutable, beneficial and fruitful inequality of mankind ", and denying that " class war can be the preponderant force in the transformation of society ". But the Fascist agrees with Socrates as to the ideal to be

aimed at. Mussolini says " the materialist conception of happiness cannot be regarded as a possibility ", for it would " reduce men to the level of animals, caring for one thing only—to be fat and ' well fed '—and would thus degrade humanity to a purely physical existence ".

Many experiments along similar lines are to be expected once it is generally realised that the end-point of our present economic structure has been reached, and that the cake of invested wealth, about which the capitalist and labouring classes the world over have been wrangling for so long, has disappeared in the process of sharing-out which development by subdivision within that structure has entailed. The nineteenth century attempted to achieve international unity by leaping straight from the individual to the international idea. The absence of any control on population growth in the different areas was alone enough to ensure failure. But ability to limit numbers will not of itself save the suggested new system from failure. The classes within the State must, as I have already premised, be transformed to become in the same sense as the constituent parts and organs of the human body, a single corporate unity. No mere cartellisation of individuals will serve ; there must be a complete amalgamation. For each type of national unit there will be a most convenient size, and no large change in that size will be possible unless there is a change of form.

To progress, then, we must as individuals be prepared not only deliberately to control our numbers and regulate their quality, but voluntarily (as opposed to the compulsion of slavery) to abdicate our individual freedom of will to the extent necessary to allow our communal lives to be determined in the manner best calculated to enable class association to prevail over class competition, and national combination to supersede individual freedom. This might ultimately lead to the construction

of a new international society whose units would be bound together by a system of linkage possessing more enduring stability than that which is in process of breaking down. It could include clusters of nations as well as single nations, and Empire groups, without forfeiting its basic stability.

It is possible to sympathise with these new ideas and still keep faith in democracy. But there is real cause for anxiety in the growing number of existing democratic institutions which are degenerating into sheepfolds of formless humanity—herded masses of individuals, each striving to increase his likeness to a thousand others, denying in their lives all belief in the value of the individuality or personality or the idea of the State as a constructive force.

A popular Government, a democracy, is only possible [Dean Inge has observed] so long as there is a fundamental unity among the people of the country, something that they feel to be deeper and more important than legitimate differences of opinion in politics, religion and other things. When once the realisation of fundamental unity and harmony has gone, popular government becomes impossible, and the Nemesis is the loss of liberty, which we see in the majority of European countries at present.

IV

Spiritual re-birth leading to a reconstruction of social and economic systems may be a practicable proposition for some nations in the near future, but Britain cannot yet be of their number. Just as Germany's situation at the cross-roads of the population movement in earlier times postponed the formation of the nineteenth-century German national unit, so also must Britain's situation at the "cross-roads" of the present system of international commercial intercourse preclude her from participating in the new adventure until after most of her neighbours have advanced some considerable distance along the road. Yet within Britain's existing territorial

area there is room, in the meantime, for considerable reconstruction in certain basic features of the social landscape if life is to be made more tolerable. Precisely what form reconstruction will take it is not possible to foresee ; there is more than one alternative. Despite much discussion of what is euphemistically termed " economic planning ", there is little understanding as to what it is that needs planning and even less as to what should be the test of validity or ultimate objective. In agriculture there is growing agreement that a long-term policy for the rehabilitation of British farming depends on a change in the prevailing structure of land tenure. In Denmark, which offers an instructive field for comparison, the structure is that of the family farming system. As to whether it is socially practicable to replace the present dependence of British agriculture on hired labour by a scheme of democratic rural community working, opinions differ. But before this could safely be attempted an even more basic decision must be made. As Sir John Russell¹ has shown, most of the past and present troubles of our agriculture are attributable to our community's muddled conception of what it really wants from the land. There are three distinct ways of treating agriculture in this country : we can organise it to produce food ; we can organise it to employ men ; or we can leave it alone to struggle for itself without interference or assistance. What we cannot do is to try all or more than one of these courses simultaneously with any hope of success ; they are in the main incompatible.

The histories of our large cities show how relentless has been the continuous subdivision of area to make room for more and more streets ; and the under-surface of the streets in turn have had crowded into them more and more pipes to deal with sewage, gas, electricity,

¹ *The Farm and the Nation.*

water, and in some cases even transport, until the congestion is now so great that it is a serious business to disturb that under-surface in order to undertake the reconstruction of our houses. In transport we have buses, trams, motor-cars, jostling with pedestrians on the roads ; there are railways and canals, equally prepared if need be to carry more traffic could they have room to expand their centres of distribution and termini. But there is no room. The problem of reorganisation is stupendous. And meanwhile our merchandise traffic tends to grow but slowly. This is a dangerous condition in a community where the key of the economic watch-spring can at most be given only a few more turns.

Naturally, the new era, whatever form it takes, will not please everybody. There will always be those who will envy the Etruscans who built houses and temples of wood which have not survived. They will say to themselves : "If only our life were like theirs ; then each generation might be free to build what it would without imposing on its successors. Each generation could produce its own structure from its own immediate impulse to self-expression. There would be no everlasting pyramids, temples, churches or great towns. Each generation might, if it so willed, begin civilisation afresh. Thus civilisation need never grow old ; life would always be the great adventure ; only man would need to be disciplined." It may be that these are not, after all, merely idle dreams. But we must take the world as we find it, and our chief concern to-day must be to search for ways not in which dreams might come true but in which this actual present world might be made more liveable before the sands of time shall have run too far for us. I am convinced that such ways can be found and that though they may be hard, they are practicable if we have but the courage to step out upon them boldly.

CHAPTER XII

THE FUTURE OF INVESTMENT

A Prince without a sword,
A Ruler without a throne ;
Israel follows his quest.
In every land a guest,
Of many lands a lord,
In No land King is he.
R. KIPLING.

SOME of the directions in which I believe the world to be moving to-day can be conveniently grouped under the headings : the Future of Investment, the Future of the Standard of Living, the Future of Production, and New Ways of Industrial Control.

What do we mean when we speak of wealth ? Without going into the refinements of economic theory and without endeavouring to provide an all-embracing definition, I suggest that wealth, so far as the individual is concerned, can be said to consist of two broad classes of things :

- (1) Everything a man uses and consumes daily, such as land, houses, food and clothing, and luxuries including entertainment—i.e. his current income.
- (2) The money and other things which he accumulates in order to enable him or his dependants to enjoy the things set out above in the future—i.e. his savings.

But the word " savings " is ambiguous. Originally savings consisted entirely of objects which were durable and could be stored, like " treasure ". The modern world, however, invented a new method of saving known

as "investment". Investment consists in lending a *current* store of savings in return for a promise of someone else's *future* store of savings, plus an addition in the form of interest. Now a very large proportion of our so-called wealth is in the form of promises of this kind, but few people appear to realise the precarious nature of such wealth. Suppose that on a large scale the expected future fails to materialise in the sense of being able to repay the sums lent and the interest thereon—what then? Everyone who gave current goods in exchange for these future promises will lose his "savings". The practical bearing on this question is that if our "S" curve can be relied on, much of the "future" towards which the world's present investment policy is directed may never come to pass. And even if this conclusion is unduly pessimistic it is clear that the possibilities of providing sources of future income in this way must grow progressively less. This gradual drying-up of investment as a source of future income is bound to have a stupendous effect on the course of production in fully developed countries like our own. Before the Great War we were investing overseas sums which had reached the equivalent of nearly half our export trade, and since the War, though the centre of investment has passed from the foreign to the home market, there has been little material abatement in the total invested, if public and semi-public investment be included.

What is to take the place of investment as a means of accumulating wealth? The answer, though it may appear strange, is unarguable. If man is no longer able to accumulate wealth by investing in the future he must find some alternative employment for his savings, or cease to save. Since the latter would involve the elimination of one of the basic instincts of a large section of humanity I presume that an alternative will be found. The only alternative is a reversion to the

hoarding of "treasure". By "treasure" I do not mean simply gold, silver and precious jewels, but anything which owes its value to rarity and the desire for possession which its presence invokes in the beholder. The term embraces all those things which we are accustomed to call beautiful or which make an aesthetic appeal. I should therefore anticipate that the passing of investment will be associated with a marked revival in the personal arts and crafts: not because we shall necessarily grow more artistic—though that may follow—but because the instinct for possession will only be able to find an outlet by concentrating on accumulating what is beautiful and rare.

But what will be happening in the meantime to our money supply? I have already made it abundantly clear that I regard an excess of money as one of the major causes of our present misfortunes. How are we to get rid of that surplus money? And, what is perhaps even more urgent, how are we to prevent it clogging up the machinery of "commercial" investment by acting as the medium for "usury"? A beginning might perhaps be made by deciding to use "paper" currencies as the basis for "commercial" loans, leaving gold to act either as a "hoarding" medium or as backing for international "financial" loans. Exchange clearing would obviate the use of gold for settling foreign "commercial" transactions, while the money employed in domestic dealings need not be interfered with since usury debts would be payable in gold only. The gold currency would, as now, automatically come to be the *international* currency. The various national (or group) "paper" currencies might, if desired, be made interchangeable into the gold currency but not at permanently fixed rates of exchange (i.e. at fixed contents).¹

¹ A rough-and-ready way of achieving the same end might be for each country to have—as at present—one currency only, convertible into gold, but

Under such an arrangement the currencies of undeveloped countries whose rates of growth were still rapid could—apart from the need of keeping a gold reserve to guarantee external holders against a deliberate depreciation of their money—be so loosely and indefinitely linked to the international gold currency as to be almost independent of it. The rates of interest on their respective "paper" loans might differ both from one another and that of gold, though their long-term trends would doubtless progressively move towards a common level. The differences would be similar to those which existed in pre-war days between the returns on their respective long-term Government loans. The basic rule controlling these movements should be that young and expanding communities must have an expanding money supply, and old and contracting populations a contracting—or stagnant—supply.

I appreciate that there might be considerable difficulty in distinguishing between what I have called "financial" and "commercial" loans respectively. But in a practical world nobody expects perfection; as we live, so we learn. In the beginning it might be sufficient to regard as coming within the "financial" class such things as loans to foreign governments and municipalities and loans between their respective banking systems. I am presuming that, in future, "commercial" loans are in any case likely to approximate more and more in character to direct barter transactions, to be contingent on the purchase of the materials and/or the use of the labour of the lender, and that preference will in all cases be given to countries of complementary trade. Since most of the countries that will be borrowing

whose gold value would over a long term be progressively reduced, either by discontinuous jumps or according to a pre-arranged plan. In other words, we should either repeat periodically what the U.S.A. did in April, 1933, and the U.K. in September, 1931, or have an international understanding to do something of the kind in concert in future.

will have passed the optimum point in their " S " curves, these loans should tend to get shorter and shorter in term, and the level of interest lower and lower. Post-war experience in certain South American countries suggests that the coming demand will be for medium-term loans of the instalment type rather than for loans of long term as in pre-war days. Another possible development might be loans repayable in some specific commodity—rare earths, radium, helium, for example.

The only regulation of " paper " moneys necessary under such an arrangement would be the control of the amounts created in the different areas together with some effort to keep rates of exchange reasonably steady between groups of inter-trading countries conducting systems of complementary interchange of goods and investment. The rates of exchange of these countries *vis-a-vis* other, i.e. competitive countries or groups, could fall or rise where they would. If financiers in the former cared to lend to borrowers in the latter countries on a basis of gold, they might be permitted to do so. The value of this gold as measured in prices could rise or fall without injuring " paper " moneys, so that the hoarding propensities of treasure-seekers could be given free rein without disturbing world commerce. In any event, a " paper " currency with a value not fixed permanently in relation either to gold or to any price level would tend to become less attractive to " financial " borrowers and lenders, especially as the rate of interest on it would decline progressively. It would be primarily a medium of exchange. Variations in its value from the short-term commercial point of view would be limited, since the total would be fixed and would remain unaltered except in response to growth in the population. Credit would thus, as under our present system, be the only item with an element of

elasticity—an elasticity which past experience suggests could only be safely extended beyond certain limits by adjusting the commercial financial structure in conformity with changes in the needs of trade and commerce. Thus the price level and rates of interest would tend to become adjusted to the needs of the commercial situation and to vary with them. The system of profit-sharing envisaged in the chapter on New Ways of Industrial Control, by taking care of the abnormal profits made in times of boom, would assist in damping down fluctuations in commercial investment and checking the misuse of profits in usury. In Appendix III will be found an explanation of the manner in which I believe the "commercial" side of our monetary policy, if undisturbed, might work itself out to its predestined end in this way.

Taking a long view, our domestic commercial rates of interest and prices should continue to decline, with a tendency to stabilisation. Ultimately we might even reach a stage when a "stable price level" monetary policy would be justified on grounds of practice as well as of abstract theory. To prepare the way for this change-over from a dynamic to a static system it might be convenient to provide the regulating monetary authority with powers to make temporary issues of non-interest-bearing money. These could be used to provide an additional element of elasticity in times of crisis and exceptional circumstances under the present system, and as an alternative to taxation and interest-bearing loans as a means of providing the capital required for public works and other special projects of national importance under the new.

It is imperative, as I have striven to make clear, to appreciate that, apart from the question of the rate of interest, large-scale investment is not basically a monetary problem at all. It is a problem of organisation. The

main branches of that work of organisation are : (1) to prepare *beforehand* for the manufacture at appropriate prices (i.e. at prices which will conform to the rule that the long-term trend of prices must be downwards) of the materials to be used in the investment project;¹ (2) to provide for the delivery of those materials together with the requisite labour on the site where they are to be used, *at the proper speed* ; (3) to arrange that *when the investment is completed*, the plants supplying the materials used and the labour employed shall either be disbanded or transferred to fresh investment schemes. The larger the scale and period of duration of the investment project and the more "congested" the area in which it is being undertaken the harder will be these problems of organisation. Among the special dangers to be guarded against will be such things as : rises in site values due to competitive bidding ; the extravagant use of sites ; and rises instead of declines in constructional costs in the absence of the normal cost-contracting influences. But the greatest difficulty of all will be to maintain *regularity* of employment. In the absence of the above-mentioned controls even national investment may generate oscillations of the growth-cycle type, whose amplitude will vary not only with the nature of the investment and degree of specialisation required in the materials used, but also with the speed at which the work is carried out. It cannot be assumed, for example, that, had the pioneers in the opening-up of Canada (see Chapter VII) been able to exercise greater control over the rate of gold inflow and foreign investment, they could have wholly prevented the disasters which occurred. The problems of organisation entailed in that vast effort were in any case beyond the capacity

¹ The Report *Slum Clearance and Re-Housing* issued by the Council for Research on Housing Construction, which includes in its membership engineers and manufacturers of modern building material, as well as architects, contains interesting reflections on this problem.

of their age. At the moment, however, the rate of interest should, I venture to think, be our main pre-occupation. I shall not prophesy what that level will be, but I would observe that if between $2\frac{1}{2}$ per cent, and 3 per cent, was the most we could afford to pay in the relatively prosperous days of the late nineteenth century on loans of gilt-edged type, our *domestic* " commercial " rate of interest in years to come may be 2 per cent, or even less on *long-term* loans. With the decline in investment possibilities savings will tend to go more and more into securities of the annuity type, and if the debt burden of these is not to become unduly onerous the rate of interest paid will have to fall as their total rises. It is essential to realise that before the price level can be stabilised successfully it will be necessary to bring the present system of economic development to a close. Even if it be thought desirable to hasten that demise, it is idle to imagine—as is so often done—that a more stable system can be created by monetary action alone. Unless production and population are also stabilised, i.e. their rate of growth controlled and their quantity limited, all endeavours to stabilise the price level are doomed either to fail or to lead to confusion.

Perhaps before that stage is reached the whole system will have been reorganised. In the meantime, just as the Friendly Society Acts in the 'eighties opened the way for a rapid expansion of building in the 'nineties by altering the structure of lending in such a manner as to make it both cheaper and safer to borrow money for building, so we may look for many fresh innovations in loans of a public utility type in the years to come. Loans of a " financial " type based on gold, which I have concluded are likely to have a " treasure " basis and to be used for the settlement of debt balances between competitive trading countries, might also be employed for the payment of such things as indemnities

and fines which international courts might impose. It might eventually be possible to secure agreement at a world conference that in the event of future wars the *paper* currencies of all countries should be regarded as inviolate, and no payments should be demanded by the victor beyond those which the country could repay in gold and silver specie or in any of its native commodities and works which the victorious country was prepared to allow the conquered country to supply in kind. A promise to pay an indemnity beyond this should be null and void, for it would be tantamount to destroying the economic system of the conquered country. It is probable that the less-developed countries of the world will continue to be compelled to hold gold as security for the stability of their currency systems in the early stages of their development. This could be provided out of gold "hoards" or reserves of the older countries. As under the old system, loss of gold would be regarded as an indication that the country concerned was indulging in unsound "financial" borrowing; and since its ordinary transactions would normally be settled largely in the bills of the more mature countries its commitments to the latter could be controlled without unduly disturbing trade.

Meanwhile, the creation at home of long-term fixed interest loans of a gilt-edged type by the State and Local Authorities should be discouraged almost as much as non-productive lending. Industry, which creates the bulk of community savings, also provides or *should* provide the principal avenues for the employment of those savings. In the absence of external claims on such funds the rate of interest tends to fall to its natural level, i.e. to the level of the "S" curve at which savings and investments tend to become equated. Public works undertaken by Governments should be paid for either out of taxation, relatively short-term loans or "special "

low-rate loans. (Eventually, however, temporary issues of non-interest-bearing money of the type already mentioned might be largely used.) Given suitable financial arrangements and capital at really cheap rates there is no reason why semi-public bodies should not be organised on the lines of private enterprise to undertake this work. But possibly we shall cease ultimately to pay interest at all on works of this type, so that questions of their finance will no longer need to be taken into account in operating the money machine.

Perhaps the most serious obstacle to a continuing fall in the rate of interest is our old-fashioned, and somewhat rusty, joint-stock banking engine which still chugs along in its safe old nineteenth-century way regardless of changes in the stream of evolution and the effect of the passage of years. Its periodic outbursts of activity have produced a few more new and stately branches to adorn our street corners ; that is all. Financial credit still continues to be favoured at the expense of commercial credit. We thus find that at a time when the world is crying out for more *trade* British banks are lending money at rates as low as $\frac{1}{4}$ per cent, on short loans to the money market, charging Bill-brokers 1 per cent, at a time when their bills bring them in only $\frac{1}{2}$ per cent., while industry and commerce, except in the case of a favoured few, still pay 5 per cent., despite the fall of the bank rate to 2 per cent. To complete the picture it is only necessary to observe that so high are the banks' operative charges that it is only by acquiring substantial profits through putting their funds into "investments" (i.e. the nation's past debts) that they are able to pay their way even after charging industry these high rates. It is melancholy to reflect that if the capital value and interest charge of the nation's debts were suddenly halved, the banks could only continue to carry on under the present system

by charging traders (for current trade) interest rates of 6 per cent, or possibly higher ! Unless our banking system quickly learns to re-adapt itself it is likely to wake up one day to find that industry has found means of providing its own finance—a beginning has already been made in certain directions¹—leaving the banks no alternative but to revert once again to the traditional occupation of " usury ".

¹ I include the various new types of banking facilities which are now being provided by insurance companies and other similar institutions.

CHAPTER XIII

FUTURE OF THE STANDARD OF LIVING

If every just man that now pines with want
Had but a moderate and beseeing share
Of that which lewdly-pamper'd Luxury
Now heaps upon some few with vast excess,
Nature's full blessings would be well dispent
In unsupcrfluous even proportion,
And she no whit encumber'd with her store.
MILTON, *Comus*.

WHAT are we going to do about the standard of living ? While we were building up our middle-class world we were kept busy providing for the annual increase in our own and in other populations. But now the populations of our own country and the countries which we have been accustomed to supply with commodities are rapidly approaching a standstill. The process of distributing the luxuries and amenities of the richer to the poorer is coming to an end, partly because the physical limitations of our environment make it impossible to carry it much further, and partly through declining ability to produce *new* luxuries. The centre of development has been transferred from goods to services ; and since the latter are governed increasingly by the level of wages the scope of further expansion in this direction also must be limited. One man cannot afford to hire the personal services of another when they both receive approximately the same pay. We are seriously congested on every hand. A new wave of progress must depend, therefore, on the establishment of some

new path of economic development. The aim, if I appreciate present trends aright, will be less that of adding to man's wealth than of taking him a further stage towards freedom from environmental shackles, and it will only be attained by reducing the amount of time man is compelled to spend in providing for his daily necessities. Nor shall we move very far along the new path unless and until we recognise that some of our current social ideas and inhibitions require fundamental overhauling. We shall need to re-define the meanings of leisure and labour, and to alter to some extent our scale of values in the things of life. We shall have to abandon the idea of the nineteenth-century economist that leisure is " economic waste ". It is not true that at all times and in all places the human demand for goods is practically infinite. Possessions have never in any age for long been regarded as more important than life. Mr. Keynes, writing in 1929, predicted that the standard of life in progressive countries one hundred years hence will be between four and eight times as high as it is to-day. I am inclined to think Mr. Keynes will be proved wrong, and I believe that it will be for society's good that he should be.

But quite apart from this it does not seem to me that Mr. Keynes is looking at the problem in the right way. If he were, the argument of this book would certainly lead to a highly pessimistic conclusion, for it suggests that we are nearing a point beyond which it will be impossible to raise appreciably higher the standards of living. But this conclusion will be important only if we decide to retain our present economic framework, that is to say, if we strive to attain a *higher* standard of living instead of seeking a *different* standard of living, i.e. a new way of life. This type of change cannot be translated into money values or expressed in prices. Nor can money of itself do very much to help us achieve

it. The mode of life in a twentieth-century flat cannot be measured against that in an eighteenth-century house, any more than it is possible to equate life in the country with life in a town in terms of money or, to take a more extreme instance, residence in a tropical forest with residence in the Arctic regions. Each of these ways of life has its own natural limitations, individual features and restrictive framework. All have definite limits beyond which it is impossible to add to the general amenities of life by mere additions to the money supply or general purchasing power. These limits have, I submit, almost been reached in the case of our own country. Attempts to evade them merely by creating and spending more money in the hopes of raising—apart from re-distributing—the standard of living can only make confusion worse confounded. This is well exemplified in the present housing situation.

So far from regarding the community in which we live as being poor in material wealth, and from holding that we should strive to raise the quantities of material wealth higher, I take the view that if it were decreed that half the population should reduce its belongings and consumption of food and drink by 10 per cent., the half concerned would be healthier and happier. We do not know how to use properly the things we have. Wastage is enormous. Many a continental peasant family, if domiciled in England, would consider life on the "dole" relative affluence.

The problems that especially concern the lowest stratum of our society will not be solved merely by providing better opportunities for those who compose that stratum. The standard of living of many of them, it is true, can and should be raised. But medical authorities have made it clear that there is an ever-increasing residuum of "undesirables". I am not casting either stones or reflections, but simply stating straightforward

facts which must be taken into the reckoning when we are planning for the future. Social and economic problems are interdependent. The thrifty and provident, at one end of the scale, improve the quality of their environment by limiting their numbers and bestowing care upon their houses. But they are taxed to provide the same amenities which they themselves enjoy for those of lower character at the other end of the scale, many of whom are unfit either to appreciate or make proper use of what is offered them.

One cannot but hope that the still further spreading and equalisation of the burden of taxation may stimulate a wider and more purposeful public investigation of problems of this kind. In place of the nineteenth-century social crusades of the rich among the poor, there may conceivably arise bodies recruited from the working classes, able to conduct impartial investigations into such problems as these and promote publicity campaigns to secure remedial action. By the impulse of their activities a new spirit of social service might be spread sufficiently to induce many individuals to occupy part of their increasing leisure under the changed scheme of things in free-will offerings of work of this and other similar kinds to the State. This is being done by voluntary organisations in Germany and Italy now. At the moment, the Territorial Army, though it cannot strictly be called a social organisation, is perhaps the only fully developed large-scale example of this principle in operation that we can show in Britain. Good work on the right lines, however, is beginning to be done among the unemployed by such emergency organisations as those which have been evolved at Brynmawr, in connection with the Grith Fyrd Camps and elsewhere, but these are only a beginning—almost, indeed, isolated experiments. There is grave danger for the remainder of the population that further attempts to "improve"

the standard of living *along present lines* may lead to a state of decadence not unlike that which preluded the decline and fall of Ancient Rome. The sooner we realise that man's desire for freedom, probably the highest aspiration implanted in him, does not or should not depend on wealth, the better. To discipline our minds, to maintain the intellectual flexibility of youth, to preserve in our people that adaptability for adventurous living which we have learned to associate with the nomadic races—these should be our chief aims ; and these qualities must be nurtured for other purposes than those of war and the acquisition of wealth.

Is this, after all, so remote or impossible an ideal as some of my readers will doubtless think ? History teaches that one of man's commonest failings is to belittle his own actions. Although I am looking possibly fifty years ahead, I believe if we look at the world to-day, we can discern signs of coming changes. One of the most remarkable movements of the last decade has been the world-wide movement, including both men and women within its ranks, which has had as its object the disciplining of the body in matters of food, clothing and exercise. It is claimed that this has gone so far already as to have slowed down the demand for certain luxuries among the rich. While we in this country have tended to lag behind, the movement has been strongly gaining ground in Germany, Russia and Italy. The principle here involved has a wider bearing upon my argument than might at first glance be supposed. " If the average human being knew as much about the feeding of himself and his children as the average farmer knows about that of his stock," said Lord Bledisloe, a former Minister of Agriculture, in a recent speech, " the average standard of human health and physical energy would be at least 33 per cent, higher than it is." Obviously, such an advance in human

physical potentiality and habit would have an important effect on employment and industry. It has been said that the only hope of better and happier living which can be held out to mankind lies in "an enhancement of the industrial virtues and the moral forces", and that "industry, self-denial and temperance are the laws of prosperity for men and States ; without them advance in the arts and wealth means only corruption and decay through luxuries and vice ". If that is true, we must regard the possibilities envisaged by Lord Bledisloe not merely as pious expressions of hope, but as changes fundamentally necessary to our future progress. But while science is teaching us how to make better use of our food, it is also daily teaching us how to augment our supplies of food by producing better animals and making our plants more fruitful, as well as by preventing waste in the storage and transport of them. These things in a society the population of which is no longer increasing and where it is essential that future population-growth should be subject to direct control, must mean drastic reorganisation indeed.

CHAPTER XIV

THE FUTURE OF PRODUCTION

Step aside, step out from the entanglement of the giggling
machine

That sprawls over the earth in iron imbecility

Softly, subtly, secretly, saying nothing.

Step aside, step out of it, it is eating you up.

D. H. LAWRENCE.

PROGRESS in productive capacity made possible by science has had some astonishing results. In the U.S.A. power-production methods have been given such free rein that the replacement of men by machines has exceeded the expansion of industrial employment. Even during the boom years 1924-9, when America's industrial output rose by nearly 30 per cent., the rise in factory employment was only 5 per cent. Here are a few facts covering changes over a longer period. The steel industry produced 11,000,000 metric tons in 1900, requiring about 600,000,000 man-hours of employment ; in 1929 the production of 58,000,000 metric tons required only 770,000,000 man-hours. In 1900 that steel produced was equivalent to 70 man-hours per ton ; in 1929 only 13 man-hours of labour per ton were required. One man with a modern brick-making machine can turn out as many bricks as 700 brickmakers, a flour mill as much as 8,000 hand-millers, and an up-to-date mechanical digger can shift as much as 15,000 men. The largest single modern turbine is said to have a capacity of 300,000 horse-power, or three million times the output of a human being on an eight-hour basis.

But a turbine can run 24 hours a day, so that its total potential output is nine million times that of the man. It has been stated that the output of two of these turbines could exceed the energy output of all the adult workers of the United Kingdom !

The problem of wastage can scarcely be dissociated from that of production. The latter cannot be re-organised properly unless waste and use are properly co-ordinated with need, prices and demand. Great Britain imports on an average more than a million pounds' worth of food per day, besides the amount yielded by home production. It has been suggested that wastage by deterioration before that food is consumed approaches 20 per cent. Think of the possibility of increasing the quantity of food available merely by saving, which this suggestion opens up ! According to Sir Robert Hadfield, the loss of iron and steel by corrosion and wear and tear amounts to huge tonnages, and consequently large sums of money. Carefully prepared statistics show that the total losses of this order involved to the world as a whole must reach, when translated into money values, between £500,000,000 and £700,000,000 each year—figures which approximate to the total of Britain's annual budget. The loss in 1932 alone would have been equivalent to some 67,000,000 tons of iron—nearly four times the combined output of iron and steel in Great Britain in the peak year, 1929, or over half the total steel production of the world in that year. To save even a quarter of that loss (as in the near future we very well may do) would make redundant the equivalent of the whole of the iron and steel industry of Great Britain !

Those like Mr. Keynes who complain of the wastage that occurs when money saved is *not* spent should pause for a moment and contemplate the wastage that does occur when it *is* spent. Think of the hundreds of

millions of pounds' worth of buildings, plant and equipment ruthlessly scrapped annually, not because they are worn out or no longer able to serve their purpose, but because something slightly newer, more up to date or more efficient has been discovered or devised. This discarded capital equipment has still many years of useful life to run for anyone prepared to be content with the second-best, to work under slightly less convenient conditions or to accept slightly less favourable hours of employment and a lower return. In trade with the Far East the nations of the West are beginning to find themselves hoist with their own petard of waste. Their redundant textile machinery and obsolete shipping are already being made the means of depriving them of their traditional markets, and it is only a matter of time before the same thing happens in other directions.¹

Similar considerations apply to the situation in the field of consumption. Millions of yards of clothing materials are discarded annually, not because they have failed to fulfil their function of providing warmth to the human body but because they have lost their smartness, their patterns and colours are no longer fashionable,

¹ It must be remembered that this process of *waste* is essential to progress. Old cell walls and cell structures must be destroyed if the industrial organism is to continue to grow. The more rapid the "scrapping", the quicker the organism can grow: the more mature and elaborate its structure, the greater the proportion of savings that must be expended on "breakdown" services. Should the rate of demand for new construction in any direction slow down, then the rate of "scrapping" must be correspondingly accelerated if production in the related constructional industries is to be maintained. The present plight of the shipbuilding industry illustrates what will happen if new construction is over-accelerated, without any acceleration in wastage, in a capital industry the long-term rate of demand for whose products has passed the optimum point in the "S" curve. British tramp ship owners are to-day suffering acutely from the cutting of freights by foreigners, with substantially lower standards of pay and working conditions, who have bought old ships second-hand from British owners forced by the financial stress of the times to part with them at little more than break-up prices. The problem did not assume important proportions before the War simply because the British Mercantile Marine was growing by leaps and bounds to provide an ever-expanding sea service. The State assistance promised for "replacements" in effect represents the *investment* of savings to accelerate waste. Probably the same might also be said of at least 70 per cent, of the total of new! domestic investment of all kinds in developed countries to-day.

and for many other similar non-economic reasons. If every car owner decided to keep his old car just one year longer, he would probably be scarcely one penny the worse, but it would mean that more than three-quarters of the motor-producing plants of the world would be compelled to close down for a like period.

But it is not merely a question of industrial equipment having acquired a new flexibility and adaptability, or of the potentialities for waste having been progressively enlarged ; the whole basic environment of trade has been changing also. There has been found to be a limit to the number of new goods and services which can be provided ; not necessarily an absolute limit, but one which is restrictive as measured by man's personal needs and desires and the capacity of his environment to enable him to gratify them. This being the case it was inevitable that sooner or later the time must come when trade interchange between many countries must reach the condition, described by a recent writer, " of two sets of nationals, who, starting towards each other with goods to dispose of, meet half-way, and, discovering that they have each brought to the transaction precisely the same goods, might as well turn round and go home ". Although the extent to which international trade has *already* arrived at this stage may be open to debate, it cannot be denied that unless there is a revolution in science or in conditions in the East it must be fully reached during the next two decades. The gaps in the comparative capacities of the different countries for following different pursuits, on which the advantages of pre-war international trade depended, have been gradually closing ; science has eliminated many and is almost daily adding to its conquests. One factor which has been operating to accelerate the closing of these gaps, especially in the food and raw material producing countries, has been the slowing-down which

is under way in the rate of growth of populations of the principal white communities. The demand for food is limited by the capacity of the human stomachs which are to be fed ; a country's requirements in clothing, housing and communications are circumscribed by the numbers of human beings to be catered for. And even though it may be true that limitation in population can in part be overcome by growth in individual incomes, the result is not the same. When a man spends more money he does not eat more in bulk but buys more luxurious types of food ; and the same is true of other items of expenditure. The decline in the growth of demand for important primary products has accelerated the industrialisation of primary producing communities, which have been driven to encourage alternative occupations for their peoples. Naturally enough, exactly the opposite tendency has been at work in the more highly industrialised communities where the reduction in the demand for labour, following the rapid increase in productive efficiency, has encouraged resumption of occupations which had been discarded or relegated to less developed countries (e.g. agriculture in Britain) at an earlier stage of development. The motive in this case also has been to provide employment for displaced labour.

The situation admits of no other conclusion than that the forces of production must henceforth be controlled ; and the first move towards that end must be to find some means of dealing with the redundant capacity and excessive capital development accumulated during the last decade. The vast reserves of productive capacity which exist to-day in basic commodity industries like those of coal, copper, tin, oil, steel, sugar, coffee, and wheat, and the notorious examples of excessive capacity for the production of finished manufactures, show plainly enough how very far we have over-anticipated world

demand. Those who exclaimed dramatically : " Starvation in a world of plenty ; what a paradox ! " and point to the unsatisfied wants of the backward peoples of the Far East, fail to realise that it takes a long time to bring backward native races up to the standard of living of Western nations. Perhaps had there been no war and no mistaken policies of governments in a post-war world, the past eighteen years might have been devoted to providing in the East new channels for goods produced in excess of Western requirements. But for such a development we should have had to build up a system of mutual exchange, and at the moment there do not appear to be any important commodities which our stationary population could take from the East in increasing quantities over a period in exchange for our own.

The belief encouraged by economic theorists that a *general* glut of goods is impossible, arises from failure to take into account the need of complementary interchange of this kind even in a progressive world, and the time factors in the process of trade exchanges. The theorists forget that over-development in *all* industries in a given year is only avoided under our present system by taking steps in preceding years to prepare additional markets for that year's production by an elaborate system of forward investment. If those steps have not been taken, or if—without due warning—they have been taken at a slower pace than usual, over-production is inevitable. This problem of providing investment channels is not simply, as Mr. Keynes appears to suppose, one of seeing that surplus money savings are invested in *something* at all costs, so as not to be lost. Unless they are invested in the proper way it were better that they *were* lost!

A crucial difficulty in the production aspect of the recent crisis has been that side by side with the surplus

capacity of equipment and processes created during and since the War, there has been going on a continuous construction of newer and more efficient types of equipment and processes, the results of scientific discovery and invention. To these have been added a steadily increasing provision of substitutes for, and alternatives to, existing products, and various innovations and economies both in the methods and the general structure of the productive and distributive organisation. In view of these factors together with that of the replacement of human labour by power-driven machinery, it is clear that the simple direct remedy of a straightforward limitation of production will not alone solve our problem. Order cannot be restored—and maintained—merely by limiting the total production of the industries involved. Something must also be done to check uncontrolled extension of capacity to produce, to reduce competitive categories, and to secure *orderly* substitution of more efficient products for less efficient ones. This calls for a drastic limitation of industrial choice ; and, frankly, the suggestion is a disturbing one. But as the issue is already engaged in our mass-production world and is the critical point in our distribution problem, the new era will have to deal with it. Sooner or later it is bound to appear in the field of labour also. Manual work is becoming so leisurely that with a working day of six hours or less a hard worker, unless deliberately prevented from doing so, might seek to do two jobs a day instead of one. Ultimately some grades might begin to collect jobs like nowadays men-at-the-top collect directorships, and in so doing accentuate unemployment. Already the reduction of the working day by a third has had some effects in this direction.

But this is only part of our production problem. Another and equally significant part is the necessity to provide occupation in some way for the growing

amount of leisure which individuals would possess under the new conditions. The new era will have to determine whether a way out must not be found by allotting the provision of certain agreed commodities and services to orthodox industry and mass production, and of others to differently constituted productive agencies, including handicraft. Our ideas as to what constitutes wealth will, of course, need to be recast before the new system can hope to succeed. And our present ideas are very confused.

There is, for example, something frequently confused with material wealth in the sense in which we have been discussing it, but in reality quite separate. I refer to the desire for freedom. Many of those seeking wealth seek it not to gratify a desire for more goods but to obtain a greater measure of personal freedom. Freedom is the most difficult of all things to procure in a congested world. The complaint made against nineteenth-century capitalism by reformers like Karl Marx was primarily that it had abolished individual freedom, "Freedom for the masses was simply freedom to work for a master or to starve."

The difference between the present-day Communist and the Socialist is that the former believes that the limitation of his freedom is due to the system under which he works, while the latter believes it to be due to those who run the system. The Communist, who is nearer the truth, believes that Socialism will merely supplement one form of regimentation and standardisation for another. His dream is that under Communism the ordinary worker will find, to quote Maurice Dobb,¹

more freedom within his reach than he is able to enjoy under capitalism—freedom, as in Russia to-day, to criticise the management of his factory and to have a hand in the way in

¹ "A Defence of Communism." Broadcast debate reported in *The Listener* of March 29th, 1933.

which industry is run ; freedom of workers to publish a paper or to run a theatre as a group and to secure the funds for such a purpose, which in other countries he would never be able to do ; freedom to become a manager or director himself ; opportunity to enjoy the best facilities in the way of sport and recreation and university education—since such things are no longer the monopoly of people with the money to buy. And it is this sort of freedom which matters to nine-tenths of the population.

One does not need to be a Communist to sympathise with the feeling, but the question is : How far is a realisation of this freedom consistent with the efficient production of wealth ? That the point is already becoming a vital issue in the production problem will be made clear by the following example taken from real life. Mr. J. H. Mitchell, who worked for seven years as a coal-miner and is now studying at Glasgow University, in recording his views on the effect of mechanisation on the miner,¹ complains that while machinery is, to a large extent, doing what is expected of it on the production side, it is having a highly adverse effect on the miner regarded as a human agent. In pre-war days the miner toiled with his assistant—usually a young lad—in a " place " of his own, where he was practically his own master. So long as he obeyed the regulations he was not interfered with. In his isolated working place he was a master craftsman, in the same position in many respects as the small tradesman owning his own business. In a modern colliery, on the other hand, all is hurry and bustle. " Prompt on the hour the miner must start to load coal on the conveyer. He must continue to load coal until the conveyer stops for lunch—for a period of 15 minutes exactly, since the 71-hour day came into force—then on again to the end of the shift." The miner has lost his old in-

¹ In the April, 1933, issue of *The Human Factor*, the Journal of the National Institute of Industrial Psychology.

dependence ; he has become a link in a chain of producers, and must conform to the routine of the mine and consider the requirements of his mates rather than his own immediate interests. Since one of the underlying purposes of this system is to maintain and increase the miner's wages and reduce his hours of employment, we may say that the miner is sacrificing his independence and freedom to increase his wealth. Similarly, the machine may be said to have taken the onus of responsibility from the shoulders of the miner and placed it on the executive staff and management, who, in turn, under the present system of cut-throat competition in world markets can only retain their share of wealth by producing at the lowest possible figure. To change the ownership of the system would in no wise affect the result.

Poets and artists like Lunarcharski and Toller, who dazzle their Communist supporters with visions of the machine as " the symbol of the higher and freer life " with its rhythm " the essence of beauty ", evade the real issue. We praise the machine for the freedom from the slavery of toil which it has brought to man, forgetting that in so doing it has deprived him of all responsibility for the work he does, and so of the normal outlet for his creative energies. Man does not live by bread alone. He works not only to live but in order to be able to express himself in action. To relieve him of necessary work, therefore, unless that relief is accompanied by the provision of opportunities for even more worthwhile work, will not satisfy him.¹ The control of a

¹ The well-known artist, Eric Gill, in his pamphlet *Unemployment*, after observing that it is claimed by those who are enamoured of the power of machinery to reduce the necessary labour of the world, that the machinery can be used to do all the necessary work, thus allowing a great increase of leisure, proceeds as follows :

" Now it must be noted that these necessary works (food, clothing, shelter and entertainment) have hitherto been man's chief means to the very thing which he is now expected to gain without doing them, namely culture—the knowledge and love of higher things. Hitherto the vast majority of men have

mass-production plant is not an individual, temperamental achievement, but simply the skilled use of a captured force. It is less personal and a more exacting calling than handicraft; less arduous, but also less gratifying in the lack of close communion between the artist and the medium of his art. In the absence of machinery man, however economically bound, remains a responsible workman. He cannot do otherwise. The two miles of Greek pottery in the British Museum—as beautiful as such work has ever been—was all the work of slaves. The solution of the production problem of the future depends on finding a way of providing the slaves of the modern machine with similar opportunities of self-expression. If none can be found, man may be driven to retrace some of the steps in his economic evolution.

gained such culture as they have gained (and it has often been both great and high) by cultivating the arts of agriculture and gardening; cooking and making drinks; weaving and spinning and dressmaking; pottery, metal working and wood working; building in all its multitude of branches (from chicken-coops to cathedrals); and every kind of dance and song and music and poetry. . . .

"It is obvious that only what is useless will be cultural."

CHAPTER XV

NEW WAYS IN INDUSTRIAL CONTROL

" It's an age of paradox," he said. " We all kick up for freedom, and the only institutions gaining strength are Socialism and the Roman Catholic Church."

JOHN GALSWORTHY, *The White Monkey*.

THE last of my four spheres of reform is that of industrial control. The problem here seems to subdivide itself naturally into two sections, each of which, though complementary, is of vital importance in its bearing on the general subject of reorganisation. No solution that does not consider each in due relation to the other and to the whole can possibly succeed. The one section is that of the external or " commercial " reorganisation of industry ; the other is that of internal or " social " reorganisation. Any and every approach to the question of controlling world production must, it seems to me, be conditioned by the conflict between Nationalism and Internationalism. The history of the world shows quite plainly what we may expect if the one theory of any particular producing country's relations with the rest of the producing world is preferred against the other. I think it fairly certain that in the particular phase of world development we shall next witness, *territorially* Nationalism will prevail. But I believe it will be found practicable to incorporate with that Nationalism some of the advantages of Internationalism. Why should we not be able to superimpose on given *territorial* organisations an *intra-national* organisation somewhat akin, in the best sense, to the feudal system of the Middle Ages ?

What reason could there be against the formulation of a system that would eventually reconcile the attachment of the peasant to the soil with the patriarchal habits of the nomad ?

A beginning could be made by organising the countries of the world into groups, each large enough in area and comprehensive enough in industries and raw material supplies to be an approximately self-sufficing unit. To the nineteenth-century mind, no doubt, it is difficult to appreciate that an aggregation of sharply contrasted areas each with its own set of industries and economic machinery, yet living in amity, may be a more practicable proposition than an elaborately centralised world order in which the failure of one is bound to throw all the rest into confusion. I can visualise no more promising avenue of escape from the present confusion than the way of founding a new world order based on personal attachment of the separate units to native soil and national flag, with all the " rigidity " in economic mould which they demand, yet modified by an agreement providing for such concerted application of the forces of modern power-production methods and finance as would put the normally accepted restrictions of frontiers and customs of people entirely out of action. Clearly, a rigid and separatist territorial Nationalism would not of itself afford salvation. There would be need for some internationally agreed restraint in the case of many materials, in the erection of new factories, and in the opening up of new sources of supply as well as in the enlargement of existing ones in cases where superabundant capacity for production already exists. It is likely, for instance, that certain countries or areas would take mutually acceptable steps to exclude altogether from their territories the produce of foreign plants in cases where domestic capacity is sufficient for domestic needs. All such arrangements would have their special disadvan-

tages and their dangers. Under certain conditions, indeed, they might induce the substitution of the vices of rigidity and inadaptability for the evils of uncontrolled fluidity. But it is difficult to see how the world can avoid sampling arrangements of this kind while it is endeavouring to establish a new structure that can be calculated to restore order out of the present chaos within a reasonable period.

Apart from sentiment, there is no reason why, after a period of experiment, the peoples of the world should not organise themselves into a series of self-sufficing groups or areas, linked together internationally by agreements covering, on the one hand, branches of world industry in which capacity will normally tend to be in excess of demand, and on the other, raw materials of which the world supply is localised. Each group or area would eventually in effect become a vertical cartel, its relations with other groups being those of a member of a horizontal cartel. Having its own economy under control, it would know what it wanted. It would have a schedule of the imports and exports required ; its foreign lending and borrowing policy would be linked up with its national currency policy. All these things would be fitted together ; the present international bickerings in regard to prices, quantities and debts would become a thing of the past. Complete reorganisation along those lines would take time to effect, and in the early stages many tentative essays would be made, but the main direction of settlement could not remain long in doubt. International combines made up of the groups I have suggested would, one may presume, centralise research and hold patents in common and therefore be able to exercise control over the world-wide dissemination of output and productive capacity. In addition, each of the individual national productive units in any territorial group would be working under an

industrial system which would possess considerably more national and international mobility in personnel than any of those operating to-day. The functional grades into which that personnel would probably be organised would be in personal touch with their opposite numbers elsewhere. Members of the higher technical grades would regard themselves more as an international service than as owing special allegiance to any particular national section of their group. Under an industrial society thus organised, whole branches of industry might, when need arose, migrate from one place within the group to another. This would be an organised process, not a haphazard happening as obtains to-day.

It is not for me to forecast what countries the territorial groups might best comprise, though for our own sake it is to be hoped that a British Empire as a unit would form one such group or part of a group. It does not seem possible to produce a liveable world for some 45 millions of persons within the confines of the United Kingdom—even though that number be substantially reduced by a decline in population growth—if there is to be any considerable extension of leisure. The other members of the British economic family, the Dominions and Colonies, should in the course of time be able to provide more room and it should be in their own interests to do so.

Looking still further ahead, I think we must be prepared for something akin to a revolution in the relations between industry and the State. The extent of the influence wielded by the men in charge of certain of our great combines is not yet fully appreciated, nor are the fundamental changes which they are bringing about both in the relations of those directly or indirectly engaged in industry, and as between the organisation of the State and the organisation of industry, properly understood. The agreement recently concluded between

the British Government on behalf of a number of British industries in its recent commercial agreements with foreign countries may be a portent. Of the situation in the United States of America, where this type of control has gone much further than in this country, we read that¹

the rise of the modern Corporation has brought a concentration of economic power which can compete on equal terms with the modern State—economic power versus political power. The State seeks in some aspects to regulate the Corporations, while the Corporation makes every effort to avoid such regulation. Where its own interests are concerned, it even attempts to dominate the State. The future may see the economic organism, now typified by the Corporation, not only on an equal plane with the State, but possibly superseding it as the dominant form of social organisation.

The control which these corporate bodies will exercise over the lives of individuals in the different territories over which they hold sway is likely to grow. Some central authority of the League of Nations type, may for a time supersede the authority of certain local States, but ultimately there must be devolution. As the camel of the desert must give place to the motor-car, archaic social systems must undergo radical change in contact with the modern world. Experience suggests that we shall be wise if we uphold the power of our present State authorities in some directions, at least during the transition stage. The Russian experiment affords specially interesting food for reflection in regard to this point. Freeman, in *The Soviet Worker*, explains how Soviet legal theory looks upon the law

not as a system of norms or a summation of psychological theories, but as the statutory expression of the material conditions of Soviet life. The law expresses the existing system of social relations which arises from specific conditions of pro-

¹ *The Modern Corporation and Private Property*, A. A. Berle and Gardiner C. Means.

duction and exchange. For this reason, whenever a conflict arises between the law and the needs of national economy, in the Soviet Union, preference is given, not to legal, but to economic considerations.

Soviet theoreticians hold that as a planned economy progresses, legal regulations will more and more give way to the purely technical regulation of production and distribution, while disputes between individuals will be left to settlement by their own group. I believe the ideal towards which the Capitalist system is working is very nearly the same, in essence, as that of the Soviet Government, and that it is likely to achieve its objects much more quickly, because it is not destroying the old system before starting to build a better. Our policy is one of co-operative devolution, not of revolution.

When I think about the Russia of to-day I cannot help recalling how wise was Moses, when Jethro, his father-in-law, pointed out to that young and powerful autocrat the impossibility of direct and centralised rule and the necessity for devolution in the tremendous task he had undertaken : " Moses hearkened to the voice of his father-in-law . . . and chose able men out of all Israel, and made them heads over the people, rulers of thousands, rulers of hundreds, rulers of fifties, and rulers of tens, and they judged the people at all seasons ; the hard causes they brought unto Moses, but every small matter they judged themselves." Moses, of course, remained the supreme legislator, and in this sense Russia may be said to have the advantage of Western capitalism, which has no supreme individual head.

Nor do I see any reason why, by the time the real need has arisen, it should not be possible to create an authority analogous with the League of Nations to act, as it were, as a feudal leader. The existing League would be unsuitable for the purpose because it is organised on a *territorial* or national, instead of on a

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functional or extra-national basis. What this new functional basis might be, we may gather from our examination of the changes likely to occur within the internal, or social, organisation of industry.

It is reasonable to suppose that within the next few decades there will be changes in the present relations between capitalist and entrepreneur, between employer and employed, and between producer and consumer, as radical as those which arose in the relationship of landlord and peasant and agriculture and industry, at the time of the adoption of the system of "enclosure" in agriculture and the foundation of the modern capitalist system in the eighteenth century. If a new order embodying such changes is to endure, it must conform to natural human institutions. Just as we inherit our stature, colouring and constitution from our ancestry, without choice, so do the economics of previous periods determine the social and economic system under which we now live. As the Capitalist system was evolved out of the ancient patriarchal system of the nomad, our present system must provide the soil in which the system that is to replace it will grow. During the preliminary phase of ferment and germination judgment is particularly apt to be lacking in true perspective, and planning is liable, in parts, to get temporarily out of focus. The time factor, let me repeat, is of very great importance. The change-over to "enclosure" was spread over a period of something like a hundred years. While there is no reason to believe that our own new system need take so long to construct, more harm than good would result from any attempt to hasten it unduly. *Festina Lente* will prove a sound guide. But provided the goodwill of all concerned can be enlisted, there should be no need to press forward matters too rapidly. The new system will probably start in the more modern types of large-scale combines where not only

are the capitalist, entrepreneur, and consumer already closely linked and relations between employers and employed friendly, but where the ground is prepared for the education of the leaders of the new life. It will be important that we should not move too far before those leaders are ready to give the young structure its proper shape and to ensure the necessary degree of flexibility. Already the leaders of many of the combines I have mentioned, believing with Mussolini that " Capital is not God : it is only a means to an end ", are tending less and less to regard their undertakings as mere profit-earning machines for absentee shareholders, and more and more to behave as the leaders of the armies of industrial advance. Their discipline and organisation are assuming a new form. Evidence of this lies before me as I write in the shape of a document¹ signed by thirty-one leaders of industry, commerce, and finance, who, after pointing out that industrial management has hitherto been regarded as a " purely empirical art ", proceed :

The relatively new art of industrial management will primarily concern itself with the human factor, recognising that anything done by management to improve the working environment, the standard of life, or the efficiency of the *thinking* of the human unit will react to the advantage of the undertaking. . . . The proper interpretation of the term " scientific management " now so frequently used, is that it is essentially the art of generating, utilising, and controlling educational forces within industry and without, so that the human industrial team can continually be equipping itself for performing its task, with a degree of efficiency ever on the upgrade. In translating its principles into action, management must provide itself with an executive team comprised of members who have been fitted into positions of definite responsibility suited to their individual characteristics and personalities. This is one of the most important duties devolving on management. . . . The real leadership in the work of industrial reconstruction is being given to management

¹ " The Management Factor in Industry ", in *The Times*, January 2nd, 1933.

in co-operation with labour and capital. . . . There is a definite tendency towards education for management; towards the recognition of a new profession which will have far-reaching consequences on economic stability and industrial progress. Indeed, in our view, industry will ultimately solve its problems through the creation of an aristocracy of administration. But it will be a selective and trained aristocracy; not an inherited one.

The similarity between the type of organisation foreshadowed in that declaration and the type which developed during the Middle Ages is so striking as to suggest that arrangements might be made not only for the fluid transfer of members of various grades from one firm to another, but even from industry to industry. The old grouping of knights, clergy and working-class commons, may well be replaced by a grouping of directors, technical staffs and working grades. In the absence of class competition and uncontrolled growth in numbers, a highly fluid system of occupational interchange might be operated within each grade without detriment to stability or efficiency ; transfer from one grade to another would naturally depend on character and ability, but there should be no reason why the members of one grade should be jealous of the members of another any more than in the system of to-day the farmer is jealous of, say, the soldier. Privilege and remuneration would be granted according to obligations and duties, in the manner best suited to induce those naturally fitted for the higher grades to undertake the responsibilities of leadership and management entailed. The same rule would be followed with wages and labour conditions. Once standard rates of *money* wages and salaries had been fixed for the various grades and jobs they would (if we exclude the minor adjustments necessary for the maintenance of discipline and the standard of efficiency) tend to remain as unalterable as, for example, the prices of seats in a concert hall. Their purchasing power,

however, would tend slowly but steadily to increase at a rate which would be determined by the rate of improvement in efficiency by new inventions, discoveries and the like ; except in so far as it might be thought desirable from time to time to interrupt the process in order to reorganise the general social structure for the purpose of increasing the *basic standard* of leisure of the community as a whole. That part of the movement of personnel from one industry or occupation to another which under the present system is brought about by highering and lowering wages, might under the new system be achieved by the persuasion of such things as the offer of shorter working hours in particular occupations, pleasanter working conditions, better opportunities for recreation and other similar *non-monetary* inducements. To round off the system a scheme of profit-sharing could be instituted under which employees would be put in the place now occupied by shareholders as claimants to any surplus after a reasonable remuneration for capital. This profit-sharing would both serve to check over-investment in periods of exceptional prosperity, or boom, and assist in promoting the necessary transfer of workers from decaying to expanding occupations in the same way as under the present system that surplus assists the transfer of new capital resources from old to new industries. Out of that profit surplus also might be accumulated the various forms of insurance and pension funds for employees.

Outwardly the new system might not appear very different from the one which it had displaced ; for the difference would be seen not so much in a change in the external—or material—standard of comfort attained as in the greater inward happiness and contentment of the members of the community as a whole. Continuing our analogy, the functions corresponding with those of the temporal and spiritual heads of the system in the Middle

Ages would be divided between the corporate state on the one hand, and the intra-national regulative economic authority on the other. As in earlier times, a further extension along these lines might make practicable the international interchange of members of grades as between country and country, national boundaries being ignored.¹ Those familiar with what is being done in industry to-day will appreciate that this possibility is not so visionary as it might seem.

The new organisation would be compelled to function in a world in which limitation of production was the rule rather than the exception. But while it might be essential to control the quantity and composition of the national aggregates of production, there is no reason why there should not be the maximum of freedom of choice in methods of manufacture, organisation and the varieties of goods produced in making up those aggregates. Here control might take the form, not of restriction, but of a deliberate encouragement of mobility and flexibility ; individual firms and companies would be given the fullest possible liberty of action consistent with the central policy. The guiding principle should be adaptability of objective. For this reason controlling machinery of the holding company type is to be preferred to amalgamation.² Free interchange of directors between holding companies in the different industries should be the

¹ A guild system of some form—preferably intra-national in scope—would seem essential, both to safeguard and adjust the functional and occupation interests and to ensure continuing peace and stability. In any community there must be inequality. We need skilled and unskilled workers, and there must be a few men and women in positions of authority. If everyone were born equal, it would not matter much how the various posts in society were allotted. But we are not born equal. Far from it.

The strict application of the principle of equality of opportunity, needed to ensure that the fullest use is made of natural ability in exploiting productive resources, would be likely—unless great care were taken—to produce a class system far more rigid than that displaced. The man who owes his position to wealth or birth may feel that intrinsically he is better than his fellows, but the man who has risen from the ranks by sheer merit *knows* he is.

² Trade associations could perform these functions for uncombined firms.

rule. The balance of executive control in each holding company, however, should rest with its own executive members. These members might be subject to an age limit in order to maintain a steady inflow of young blood. But there need be no such limitation of age in the case of the members of the board as a whole, provided the old were precluded from obtaining control. The managing director, who would be elected by the board, would have full powers during his tenure of office, subject to the limitation that he must devote the whole of his time to the particular holding company over which he presided. Each member firm of the holding company would stand on its own feet, satisfy its own customers and make a profit. Yet all the advantages of unified organisation and policy, and, if desired, a single contact, would be secured to it through the holding company. These principles of decentralisation and mobility might possibly be extended to the staffs—and even to the craftsmen grades—in the separate works and plants of the member firms themselves. With any such arrangement in being, it is obvious that the old-time capitalist, already relegated to a back seat, except for his temporary appearance during periods of financial boom, would probably become still more detached from direct contact with the active organisation of industry. The function which he performed so efficiently in the nineteenth century is likely in any event to fall still further into desuetude. We may envisage the superimposition of a horizontal or functional organisation upon the present vertical or national and territorial subdivision of the world of industry. This accords with our industrial needs in the international sphere. If certain of our basic industries are not to become "land-locked lakes" arrangements must be made for releasing them from the present cramping restrictions of their home territory. Certain of their

branches and processes must be transferred either in whole or part to the less congested areas overseas. It will be to the interest of those areas also to encourage this movement. In an economic structure which daily grows more rigid and compressed these changes cannot be left to the natural play of economic forces ; the new emigration must be *assisted*. Here is work which could be made as congenial to the new organisation as similar work was to the East Indian and Levantine Companies of old. Schemes like that recently instituted for the repatriation of the Jews in Palestine should provide valuable experimental data.

Looking at our social future as a whole, I would suggest that our objective should be to restore as much freedom as possible to the individual and encourage him to maintain variety in type. The only way to achieve this is by giving man the maximum of free movement. A horizontal functional organisation could be made the means of enabling him to experience every environment. Those who preferred to do so would stay in their native country ; others could be transferred by the central combine to one of its many branches overseas, and thus, a man as he worked might, if he so willed, roam the whole world over, returning to his native land only should he so desire. But I must curb my imagination and leave further speculation to the future to which it properly belongs. I have no wish to violate by undue excursion the main thesis underlying this book, which is : that our present misfortunes are largely the result of attempting to direct and control a future which has been beyond our foreknowledge and therefore beyond our intelligent control. In a mature industrial system with a population approaching stagnation, we have, to gratify our own whims, pledged future generations to debts which are likely to prove beyond their capacity to pay. We have made it more difficult for them to create a liveable

world. We have, in truth, pledged to-morrow's right to live and earn its bread to pay for the enjoyments of to-day. Read this, written in 1832 :¹

Manufacture, aided by the new inventions, went on unabated, with increased activity. The disproportion between the cost of production and the price of the manufactured article gave immense profits. Millions were added to the millions already invested in business. The production of raw material kept pace with the extension of the manufacture. At length the supply far exceeded the demand. The warehouses of the world were filled. Prices suddenly fell to half of what they had been before. Multitudes were ruined. Thousands of families were reduced to beggary. Some manufacturers discharged part of their workers while they retained the rest at reduced wages. Many ceased to struggle with the adverse torrent and discharged all their hands. . . . The distress that ensued may perhaps be imagined. We are not competent to describe it.

What of 2032 ? If the deductions which I have drawn from our experience of the past century are tolerably accurate, the avenues of escape from congestion which were open to us in 1832 have been irrevocably closed. I conclude, therefore, that before we can be secure in the hope that 2032 will see as great an improvement in the well-being of mankind as occurred between 1832 and 1932, it is imperative that we should learn to control our numbers and their output of goods. If we fail in this, we are more likely to move backwards than forwards.

¹ *North American Review*, January 1832.

APPENDIX I

GROWTH CURVES OF U.K. POPULATION AND TRADE

I

To give a simple illustration of the " S " curve at work, one may, perhaps, best refer to the attendance at a concert, the people arriving at the hall representing " births ", the people actually seated being the " total population " whose growth describes the " S " curve. The hall itself is the " territory " over which the population is to be distributed, while the " structures " which slow up growth and cause " congestion "—and help to give the " S " curve its shape—are such things as the sizes and number of the entrances into the concert hall, the placing of the gangways and arrangement of the seating accommodation inside it, and, finally, the general shape and structural configuration in relation to its capacity. The only feature missing from our illustration is " deaths " ; but this is unimportant, since the dead are, in a sense, people who have cancelled their bookings or given up their seats to others. When the doors are first opened the flow of people into the hall will be quite slow. As the time of the concert approaches it will quicken; but it cannot quicken beyond a certain point as it takes time to put people into their seats. The more nearly full the hall, the longer it will take to fit the late-comers in. We should therefore expect to find that after the period of rapid inflow which follows the advent of early comers, the pace at which the arrivals are admitted into the hall will gradually slow down to a minimum. The effect of " congestion " is in both cases the same. Suppose we seat ourselves in the concert hall two hours before the performance starts and count the people as they come in, writing down at the end of each 10 minutes the total number of people seated in the hall. We should get a table something like this :

2.00	hours	before	concert	begins	.	.	.	.	0
1.50	"	"	"	"	.	.	.	.	5
1.40	"	"	"	"	.	.	.	.	20
1.30	"	"	"	"	.	.	.	.	55
1.20	"	"	"	"	.	.	.	.	200
1.10	"	"	"	"	.	.	.	.	465
1.00	"	"	"	"	.	.	.	.	870
0.50	"	"	"	"	.	.	.	.	1,345
0.40	"	"	"	"	.	.	.	.	1,880
0.30	"	"	"	"	.	.	.	.	2,235
0.20	"	"	"	"	.	.	.	.	2,430
0.10	"	"	"	"	.	.	.	.	2,525
0.0			Concert	begins	.	.	.	.	2,560
0.10					.	.	.	.	2,575
0.20					.	.	.	.	2,580

This may be represented graphically, as on Curve I, Chart A. This is a similar curve to that used by Udny Yule to plot the population growths of the United Kingdom, France and the U.S.A.¹ It may be used to depict the growth of an audience in a concert hall just as well as the growth of a population in a territory. The times have been placed along the bottom scale, and the numbers up the left-hand side. It will be seen at once that they fit our population-growth curve very well. If we next plot the speed at which the hall fills up by putting down the number of people entering in, say, each ten minutes, we get our No. II curve. Our table of figures now becomes.

2.00	hours	before	concert	begins	.	.	.	.	0
1.50	"	"	"	"	.	.	.	.	5
1.40	"	"	"	"	.	.	.	.	15
1.30	"	"	"	"	.	.	.	.	35
1.20	"	"	"	"	.	.	.	.	145
1.10	"	"	"	"	.	.	.	.	265
1.00	"	"	"	"	.	.	.	.	405
0.50	"	"	"	"	.	.	.	.	475
0.40	"	"	"	"	.	.	.	.	535
0.30	"	"	"	"	.	.	.	.	555
0.20	"	"	"	"	.	.	.	.	195
0.10	"	"	"	"	.	.	.	.	85
0.0			Concert	begins	.	.	.	.	35
0.10					.	.	.	.	15
0.20					.	.	.	.	5

Thirdly, to get our No. III curve—to show how congestion at certain times makes the people coming in at the different

¹ See paper, *R. Stat. Sec. Journ.*, Vol. LXXXVIII, Pt. I, 1925.

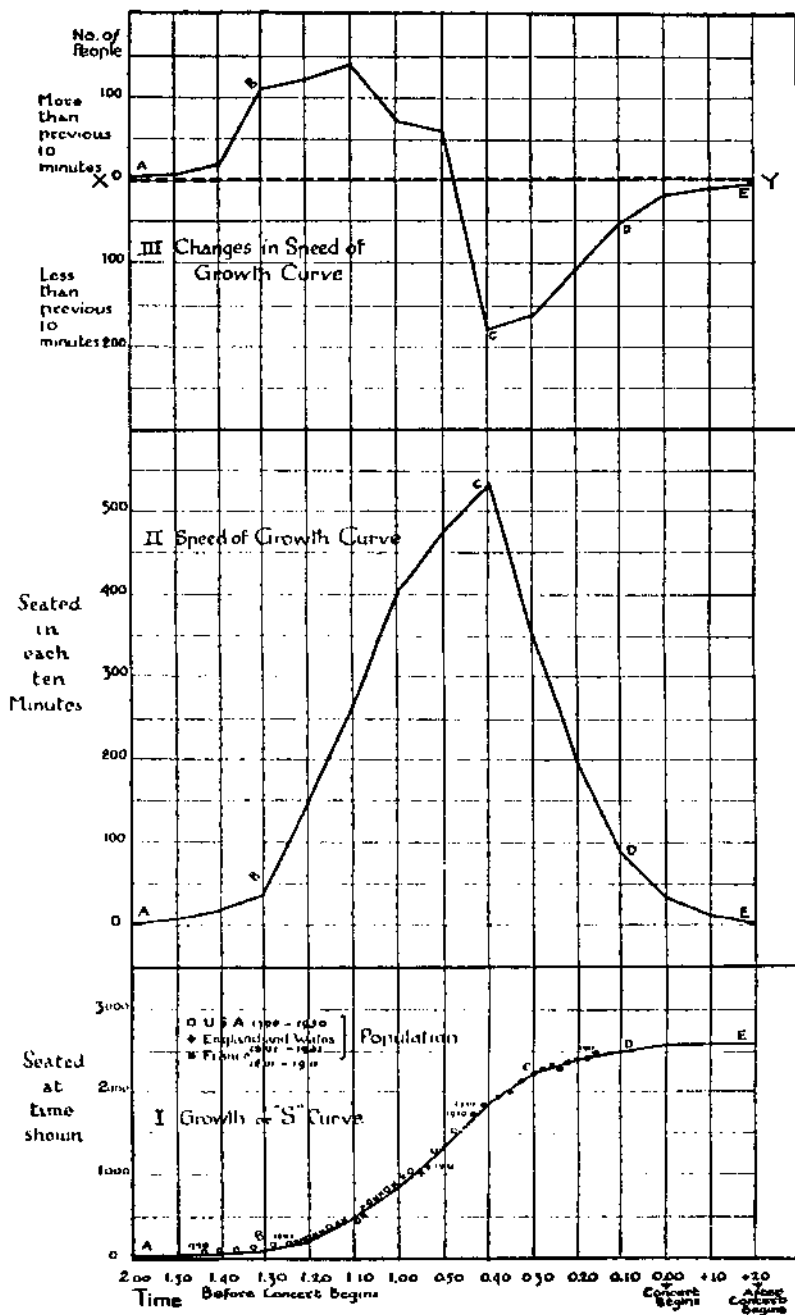


CHART A.—STANDARD GROWTH CHART.

times do so at different speeds—we plot the following figures, which gives the amounts by which the numbers sitting down in each 10 minutes differ from those in the 10 minutes immediately preceding.

	Time.	Number.
Before concert begins	2'00	0
	1'0.50	+ 5
	1'0.40	+ 10
	1'0.30	+ 20
	1'0.20	+ 110
	1'0.10	+ 120
	1'1.00	+ 140
	0.50	+ 70
	0.40	+ 60
	0'30	- 180
	0'20	- 160
	0'10	- 110
Concert begins	0'00	- 50
After con- cert has begun	0'10	- 20
	0'20	- 10
	0.1030	- 5

By making a structural change in the hall (e.g. altering the seating accommodation), it may be possible to squeeze in more people (i.e. start another, though minor, " S " curve); but each progressive change becomes more difficult to make because by reducing the " territory " per individual, we add to the possibility of " congestion ".

As happens in the case of a population like our own, the wealthier patrons are likely first to be conscious of any congestive tendency there may be, for although the boxes which they occupy have far more space than the seats in the rest of the hall, it is largely on account of the comfort of this additional space that many of them have been induced to patronise the concert at all. Any cutting down of this space, either by making the boxes smaller or adding to the seating accommodation in them, immediately creates an impression of overcrowding and causes some of the would-be occupiers to reduce their attendances. Similarly, the richer members of a community are the first to be impelled, by growth in population, to reduce their birth-rate in order to resist the contraction in their accustomed freedom of opportunity and standard of life which that growth sooner or later

entails. This tendency gradually spreads downwards to other sections of the community until it reaches the stratum which consists of persons who, provided they can secure admission in any form to the concert hall in the one case, or are able to procure the basic means of supporting life in the other, will continue to expand their numbers indefinitely, until stopped by law or physical force.

In our own population-growth curve we find examples of internal " structural " changes corresponding to an alteration in the seating accommodation of our concert hall, notably in the period 1840-50 when railway building revolutionised our transport system and made it possible to centralise industries in towns. To include industrial changes among the factors which affect " congestion " it is necessary to extend somewhat the meaning which should be given to the term " territory ". For the town-dweller, freedom to live depends more on such things as money wages and opportunities of employment than on the quantity of space available, though the latter certainly cannot be ignored even in this case. That we are justified in giving " territory " this wider interpretation is clear from the facts. Throughout the nineteenth century periods of expanding money supply and money incomes were (except in certain special cases when the internal " structure " of the country concerned placed insuperable obstacles to growth) invariably periods of expanding birth-rate. The converse was equally true.

The close correlation between price movements and birth-rates in Great Britain during the period are well known. We find that as the rate of increase of population fell from 18.1 per cent, in 1811-21 to 11.9 per cent, in 1851-61, the average price level fell from 156 to 89 ; as the rate of increase rose from 11.9 in 1851-61 to 14.4 in 1871-81, the price index number rose from 89 to 100 ; finally, as the rate of increase fell from 14.4 in 1871-81 to 12.2 in 1891-1901, the index number fell from 100 to 61. This accords with the observation that during the period as a whole the average index number of prices for eleven years preceding each census decade exhibited a very close correspondence with the trend of the percentage increase of population in England and Wales. An exception to the rule that birth-rate changes with prices, occurred, however, in the period 1900-10. The explanation that appears best to fit the facts is that the earlier growth in population caused " congestion " in the working population in the late 'nineties and early nineteen hundreds (see

Chapter VII, page 124). This could only have been prevented if there had been as revolutionary a discovery in the sphere of invention, or as great a structural change in the field of employment as in the earlier periods mentioned. In short, births obey the law of supply and demand.

So far we have concerned ourselves solely with the movements of the " people " both in connection with populations and the attendance at our concert hall. We must take the matter a stage further by examining the laws governing the " *structures* " built both in our concert hall and in the social and economic systems, in the process of endeavouring to avoid congestion of individuals while increasing the numbers that could be fitted into their " territories ".

The position will become clearer if at this stage we abandon our simple analogy of the concert hall with its elementary structure, and substitute the cell structure of a living tissue which, though it has a much more complex structure, seems to obey the same rule as a population.

II

Every living thing starts life as a cell, soon to divide into two, then four, eight, sixteen, and so on. In the living body these chains and groups of cells in turn separate themselves from one another and become specialised : some chains going to form arms, legs and such things as skin and bone and nerve tissues, while others become differentiated as organs to perform various functions such as those of the heart, liver, kidneys, etc. But all these cells and chains of cells remain attached to one another and grow together as a whole, though not all at the same pace ; indeed, growth of one chain may actually inhibit growth in another at certain stages in the growth of the complete organism. In the early periods, the growth in, say, one day is very little more than the growth in the previous day ; towards the middle of development each daily gain in growth is considerably larger than the one before ; on the other hand, when the end of development approaches, the daily increments, though far higher in absolute amount than those in the earlier stages, do not differ materially from one another, so that the curve slackens off until a phase is resumed in which growth rises but slowly. While one " S " curve is in progress something may happen to interrupt it. If it does, as soon as the interrupted organism has accommodated itself to the new conditions it will start another " S " curve.

It has been shown that the growth of an animal in its pre-natal stages, before it has acquired anything which may be called a *structure*, does not obey the plan of the " S " curve. This gives a clue. The " S " curve plan implies the existence of a *structure*, that is to say, that the growing cells or growing individuals must have some more or less definitely established relations to each other and to the environment in which they live—a framework. It is this framework which controls growth, by restricting the freedom of movement of individual cells in the case of living tissues and individual persons in the case of a population. The reason the birth-rate conforms to the " S " curve plan is that in the course of evolution our bodies have sub-consciously learned to adapt themselves to these restrictive influences. The practice of birth-control is merely a conscious appreciation of these subconscious influences. Contraception is not a new phenomenon. It is known to have been practised together with abortion for at least 4,000 years. Research has shown that from the earliest times women have attempted to control their reproductive power. Is it, therefore, asking too much to suppose that our bodies, which have learned to adapt themselves automatically to changes of climate, food, temperature, and other environmental influences, should have acquired some faculty which unconsciously seeks to adjust population to these influences ?

In the simpler cellular organisms which grow by the simple process of cell division, it can be shown that the organism itself exercises some control through its own " waste " products, which, when they reach a certain concentration, automatically slow down growth. This process conforms with the " S " curve. As one might expect, the organism as it grows older and as its structure becomes developed, loses its power of adaptability. Experiments with a fragment from a sixteen-day-old chick's heart, for instance, have shown that it could be made to recover its earlier rapidity of growth if removed from the chick and placed in a laboratory medium where it had ample space to expand. An interesting feature of the demonstration was that it took thirty-six hours before the restrictive influences of the other cells in the chick were removed and the maximum rate of growth was regained. In other words, a number of cell divisions, or " generations " were required for the heart fragment to lose the habit of slow growth previously imposed upon it by its organised environment.

The lessons to be drawn from these experiments are highly relevant to another aspect of the growth problem. Those who have had experience of industrial growth in a new country know how closely it is possible to parallel these tests, performed on simple organisms and pieces of tissue, with actual stages in the development of industry. Why do we envy the housing and factory planning of the newer countries of the world, if not because they were able to develop without the restriction and lumber of the centuries-old organised structure of our own? How easy our transport problem would be could we begin afresh and plan and build our railways and roads to suit our twentieth-century type of industrial growth! It is admitted that the present congestion of our transport and distribution systems is due directly to the increase in the numbers housed per unit of area in our modern towns, which have been gradually built upwards to accommodate more and more persons.

Can we press the analogy even closer and measure the growth of the actual cell divisions and cell "structures" of our economic system? I think possibly we can make a rough beginning. We know that just as the living animal organism grows by cell divisions, which produce chains of cells eventually to become the different organs, tissues and other parts of the body, so a country's industrial system grows by a similar process of subdivision known to economists as "specialisation" and "differentiation". And in the same way as in the living body the resulting "structures", by coming into contact, both affect each other's rates of growth, and, when the system as a whole matures, bring into being a condition of increasing rigidity which slows down the growth of the system as a whole. In the trade organism money performs the functions of the blood-stream in the living body. The "cell walls" of these "structures" are our factories, buildings and industrial plants—all of which are made of much the same basic constructional materials. While even in this relatively restricted field of industrial activity the data available is very sparse, there are some very suggestive facts. The production of pig iron is the best index of the state of the iron and steel trades, the key constructional industries. They themselves vary with the general state of industry in the country. What is more to the point, their fluctuations tend if anything to exaggerate changes in the rate of growth since the individual growths of the separate industries are added together when they reach the constructional trades, for on them falls the onus of providing the

additional plant and equipment for all new structures and plants in the industrial field.

in

In the frontispiece diagram the curve for the annual production of pig iron has been plotted above the birth-rate curve. The manner in which the movements of the two curves synchronise appears too close to be accidental. Had we the data available to construct a *complete* "S" curve for pig iron (i.e. a curve for "total" production less obsolescence) I suspect we should find (if allowance were made for the substitution of steel for iron in the latter part of the period) that it would follow our "total" population curve equally closely. But to construct such an "S" curve for pig iron we should need a "deaths" curve, i.e. a curve showing "obsolescence", and the figures for this are not available. Employing the analogy of our "birth" curve of population, we can make a tentative beginning by using pig iron (i.e. the annual production) as our index of additions to our economic "structure", and proceed to derive from it curves showing *speed of growth* and *changes in the speed of growth* similar to the No. II and No. III curves in the standard growth chart (A) of our concert-hall analogy. This has been done in Chart B on page 276.¹

In addition to pig iron and "total population" I have plotted a curve for "births" to show how closely the movements of the three sets of curves synchronise. This synchronism supports the assumption that changes in our economic "structure" as illustrated by pig-iron production have been closely associated

¹ The method adopted throughout this book of arriving at smooth curves to remove particular and minor oscillations from the statistical data in the graphs has been to fit a straight line or parabola to the data by "the method of least squares"; the assumption being that each series conforms in general to a function

$$y = a + bx + cx^2 + dx^3 + \dots + \dots$$

The success of this method is naturally dependent upon the rapidity of the convergence of the series. When this is rapid, the first few terms of the equation provide an adequate approximation. The representation of trend by a parabola of any order presents a convenient method for interpolating rapidly fluctuating data.

Actually, of course (as can be seen from the charts), growth changes its rate by discontinuous stages or breaks, breaks which usually coincide with "Trade Cycle" depressions, even when they themselves do not actively cause them. These discontinuities or "jumps" in the process of growth are perhaps more clearly seen in the chart for U.S. trade given in Chart E, Appendix II, which provide a series of growth curves for all the more important sections of U.S. productive activity. In the case of the British charts the discontinuities are shown in the dotted curves which accompany the smooth-line curves.

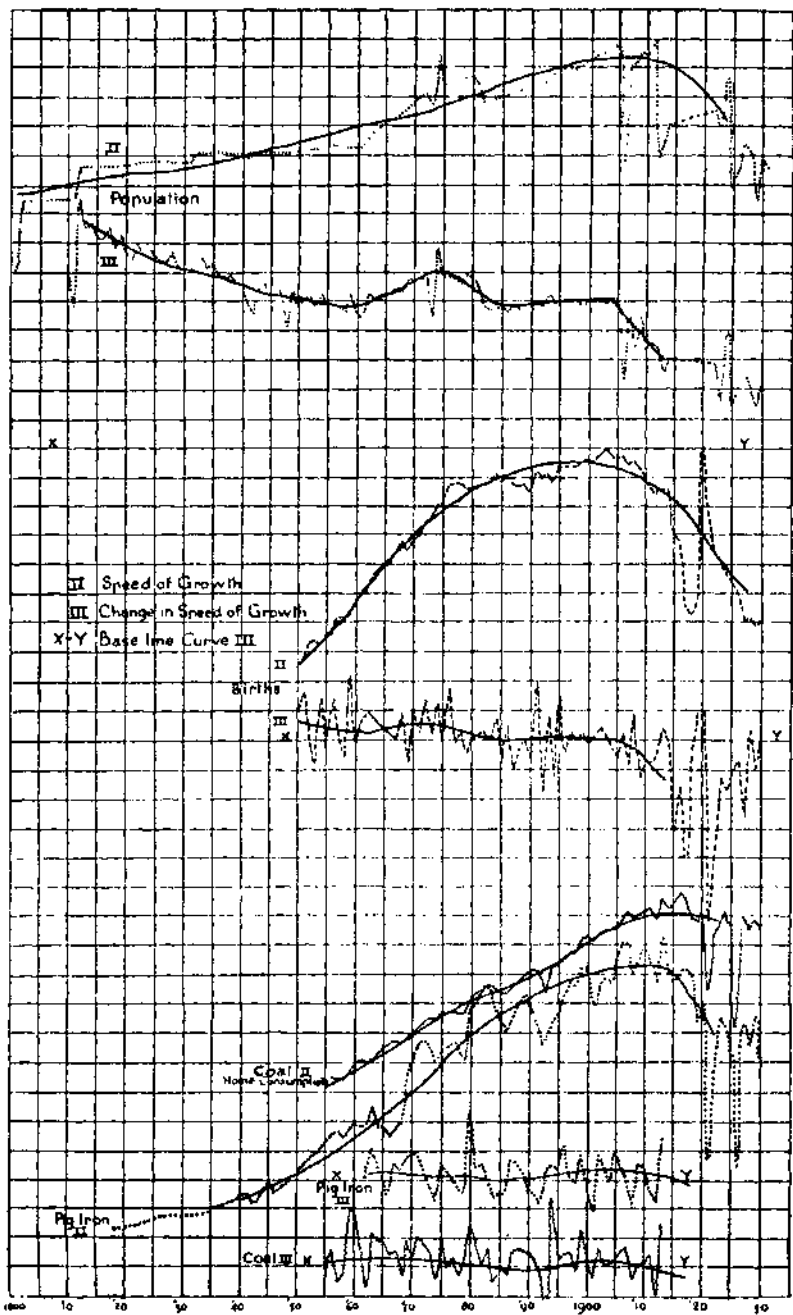


CHART B.—SPEED OF GROWTH CHART FOR GREAT BRITAIN.

with changes in our population growth. Had it been possible to allow for the partial substitution of steel for pig iron during the latter part of the period there is little doubt that the curve would have represented even more accurately the actual timing of changes in the rate of growth of production. The inclusion of the steel figures might alter the date of the actual moment of culmination shown on the pig-iron curve ; that is all (see Steel Curve, Chart D). This deduction is supported by the behaviour of the curve for home consumption of coal, the prime raw material of all basic production before the War ; this is plotted on the chart next to pig iron.

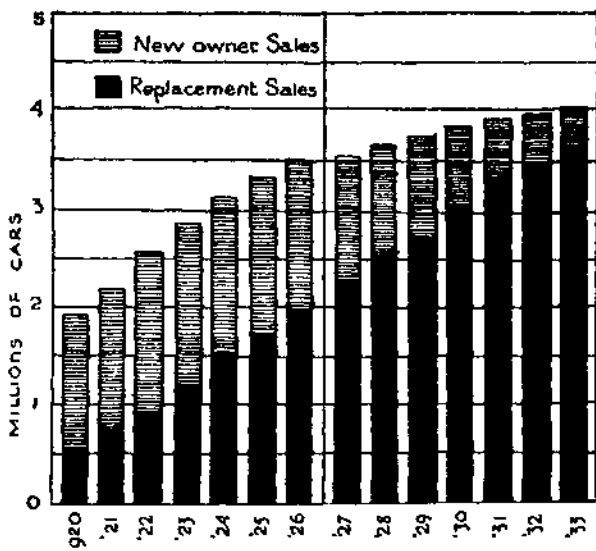
The evidence of a gradual slowing-down in the rate of growth of our industrial system as a whole afforded by these curves for the structural trades is also supported by the trend of output among many standard consumption goods of long standing, some of which will be found in Chart D.

If we could only discover how much of our " gross " construction during the past thirty or forty years had been in the nature of " replacements " ¹ and how much of it actually " net new business ", we should be able to provide a still clearer picture of this slowing up.

The basic teaching of the " S " curve rule is that, as we increase the *total* of output, its *speed of growth* declines. The active operation of this principle in our own industrial system is generally ignored because ordinarily " gross " figures are used for Trade measurement. A striking illustration of it, however, is given in the statistics of " net " growth which are available for what by common consent was the chief " live " industry of the past decade—the motor-car industry of the U.S.A. The following diagram prepared by the experts of the General Motor Corporation in 1927 gives the orders for new cars and replacements respectively, not only prior to the Great Slump, i.e. 1929, but also estimates of what might have been expected to be the rate of growth in succeeding years had the normal rate of growth not been interrupted by any abnormal factor. The fact that the Great Slump intervened to prevent the actual realisation of those estimates strengthens rather than weakens the implication of the figures, which is that the growth of U.S. motor-car output was

¹ The increasing use of reclaimed " scrap " in the place of crude pig iron for the manufacture of steel must, like " replacement ", be regarded as part of the normal process of growth. In the British steel industry the use of " scrap " has during the past thirty years grown from 40 per cent, to 50 per cent. Ultimately all our requirements might be provided from " scrap ", thus eliminating the need for any pig-iron industry at all 1

beginning to depend increasingly on "replacements" and less and less on "new" orders. Incidentally, this fact is completely concealed in the "gross" figures commonly used by motor manufacturers the world over.



Normal Trend of Domestic Car Sales (*past and future*)
in the U.S.A.

PASSENGER CAR SALES IN U.S.A. (*Business Statistics*, J. L. Snider).

Comparing our growth curves for pig iron and births with the curve for our total population it will be observed that they all exhibit sharp changes in the rate of growth round about 1860, 1885 and 1900 respectively. Each of these changes in speed was (as shown in Chart I facing the title-page) preceded or succeeded by a period of "congestion". The history of these years is readily available to confirm this. The only other thing which calls for brief mention here is the part played by new gold discoveries. The injections of new gold in the nineteenth century were primarily responsible for both the rises in prices and acceleration in the birth-rate which occurred, notably between 1850 and 1870. But they had equally far-reaching consequences in the economic field. They encouraged producers and investors to over-estimate the growing capacity of the market, and these over-estimates invariably gave rise at a later date to periods of industrial difficulty during which prices and profits fell rapidly and there was extensive unemployment. It will be seen that

pig-iron growth proceeded above the level of that required by the "smooth" growth curve on three occasions :

- (1) between about 1850 and 1870;
- (2) between 1880 and 1886, and
- (3) between 1900 and 1914.

The first of these over-accelerations in growth can be related directly to the U.K. railway boom beginning in the 'forties, which, as a result of the influx of new gold in the 'fifties and the credit structure erected on that gold in the 'sixties, was forced on at too rapid a rate. The second was caused by a similar railway mania in the U.S.A. in the 'seventies and 'eighties—also associated with money inflation based on an excess of gold. The third followed the investment boom stimulated by the South African gold discoveries in the middle 'nineties.

The effect of these sudden and uncontrolled increases in the supply of money was to induce a belief that the rate of growth of normal consumption was being permanently accelerated, with the result that manufacturers and investors were encouraged to concentrate on anticipating *future* production, rather than to continue on the old line of slowly expanding sales at a rate dictated by existing market forecasts and of devising new economical methods of producing more cheaply. An unwary concert-hall owner may be deceived by the success of a popular prima donna who crowds his hall through the magic of her voice, and conclude that there is on the way a permanent increase in the number of music-lovers in his district sufficient to justify the building of a new and larger concert hall. So, British investors, under the magic lure of the inflation caused by new gold discoveries, were induced to enlarge their plants and factories only to find later that there had been no *permanent* equivalent increase in the size of their market.

The circumstance that part of this extra development work was undertaken in connection with investments overseas (which apparently represented a real enlargement of the original "territory") does not invalidate the general criticism. The extent to which this overseas investment occurred can readily be gauged from available data, for the work was mainly concentrated in clearly defined boom periods the courses of which are very clearly mapped out in the pig-iron curve itself as well as in the curves for emigration, foreign investment and exports of iron and steel manufactures (see charts for overseas development in my paper, "Business Forecasting", Royal Statistical Society Vol. XCV, Part I, 1932). Much of this enlargement was in any case to prove impermanent, for in time many of the people who migrated

were gradually to separate from the Mother Country and become self-contained communities treating the branch "concert halls" and industries in their territory as property more or less exclusive to their own people. We can see the process still at work to-day.

In Appendix II will be found growth charts for the U.S.A., one of the earliest of these countries to separate from Britain and pursue an independent course. It may be observed that if the growth cycles of the U.S.A. are superimposed on to those of Great Britain we get a very close approximation to the Curve of British "Business Cycles" as illustrated, for example, by "Mineral prices" in Chart C.

In addition to these major or "growth" cycles there are minor oscillations, roughly averaging 3-4 years in length which, from their close association with crop yields, may perhaps be termed "harvest" fluctuations. They produce their effect on industrial activity partly directly by causing an increase in current consumption and partly indirectly by speeding up the rate of domestic investment. As is to be expected, these minor cycles are more noticeable in the trade statistics of a country like the U.S.A., which is at once a great industrial and a great agricultural country, than in those of a large importer of agricultural produce like the U.K. Nevertheless, their influence pre-war was reflected in the U.K. pig-iron curve. These minor cycles, as one would expect, are liable to become submerged by the major—or industrial growth—cycles, especially when structural changes are under way. In quieter periods they tend to provide the main cyclical influence.

It is significant that if we disregard chronological sequence and group the cycles for the different countries in regard to which information exists in frequency tables, we obtain a distribution of the type found in many biological studies. "The regularity which emerges, consists, not in the preponderance of cycles of any given duration, but in the way in which the cycles of different durations group themselves about their central tendency" (Wesley C. Mitchell, *Business Cycles*, p. 418). This accords well with the principle of the "S" curve expounded in this book. The duration and frequency of trade fluctuations will depend not so much on the character of the economic structure of the system in which they occur as on the stage (i.e. *point of time in evolution*) reached on the "S" curve.

The foregoing would appear to provide in broad outline a sufficient explanation of the nature of that economic will-o'-the-wisp—the trade cycle.

CHART C-BRITISH TRADE CONDITIONS, 1870-1913 AND 1919-30.

EXPLANATORY NOTES.

As is well known, trade development in the past has been neither a regular nor a continuous process, but has taken place by a series of alternate waves of prosperity and waves of depression. The course of these fluctuations is commonly referred to as "Trade-Cycle" movements.

A comparison of the curves in this Chart with those in Chart A shows that the influence of these trade-cycle movements was not confined to British emigration, foreign investment and exports, but was international.

Incidentally, it may be noted that the close correspondence between the movements of mineral prices and those of the other curves lends support to the view that there has been a close connection between the prosperity of our construction trades (the prices of the raw materials of which mainly comprise the mineral index number) and the state of our Foreign Trade and Investment.

The following are the sources from which the statistics for the curves have been taken:—

(A) GOLD HOLDINGS OF THE BANK OF ENGLAND.

The annual average of the weekly statistics issued by the Bank of England post-war curve includes currency notes.

(B) RETURN ON CONSOLS AND RATE ON MONEY.

I. The annual average return on Consols from the Statistical Abstracts of the U.K.
II. The annual average rate on three-months bank bills as calculated by the Economist.

(C) WHOLESALE PRICES.

Mineral Prices, the annual Statist Index Number. All prices (excluding minerals). The annual arithmetical average of the other three groups in the Statist index-numbers, viz.: Total Food, Textiles, and Sundry Materials. (Note that the post-war scale has been lowered.)

(D) INVESTMENTS.

Home—1870-1913: The figures calculated by C. K. Hobson in *Export of Capital*. 1919-25, the figures compiled by the Midland Bank.

Foreign—The foreign issues throughout the period are moved on one half-year in the graph to allow for the interval between flotation and expenditure on construction. 1870-1913, the adjusted statistics as given by C. K. Hobson in *Export of Capital*. 1919-25, the figures compiled by the Midland Bank.

(E) EXPORTS.

Value of British Exports, obtained from the Annual Statement of Trade.
Volume of British Exports, as calculated in the *Economist* on base 1880 = 100.

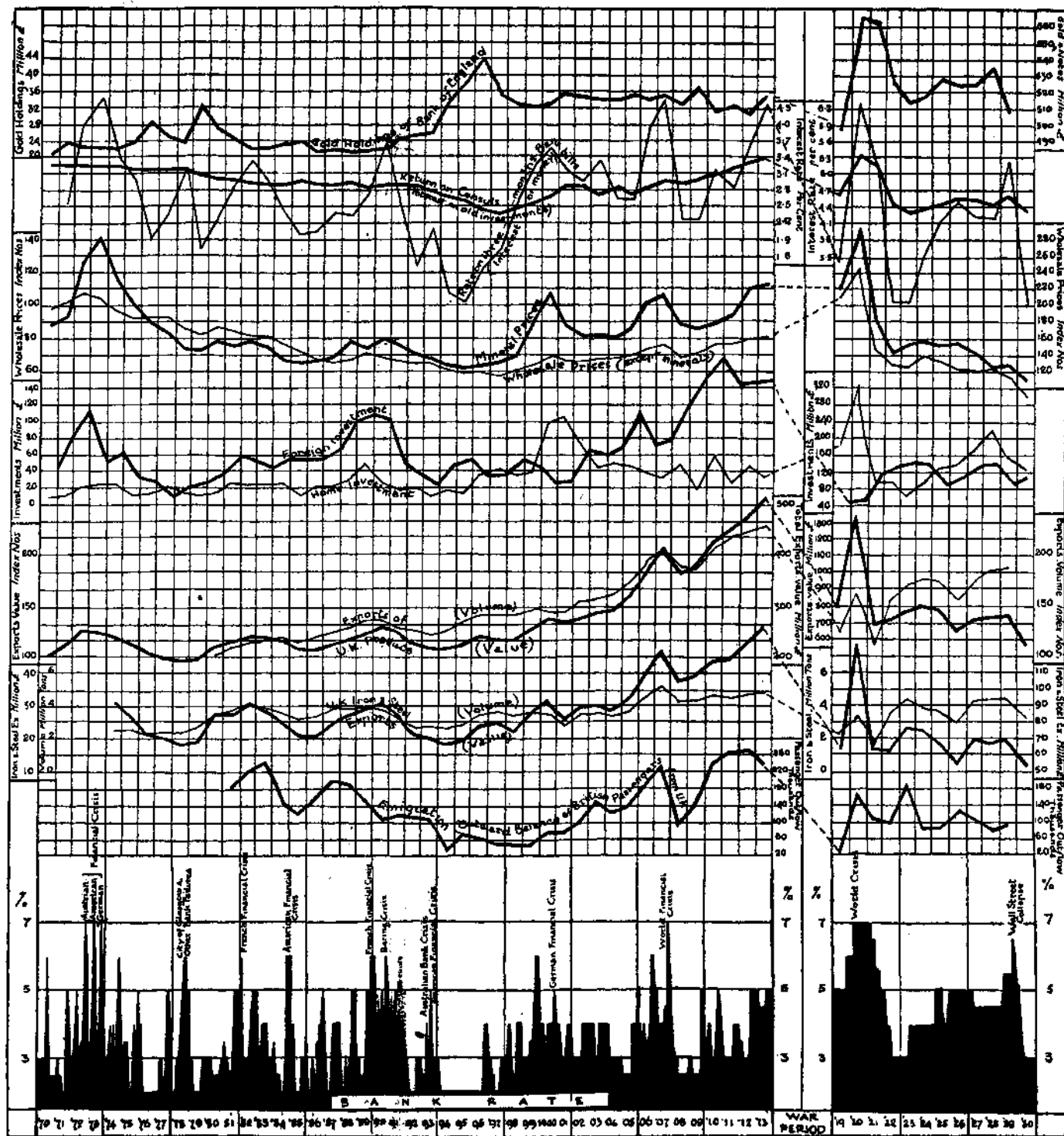
(F) IRON AND STEEL EXPORTS.

Value of Exports extracted from the Annual Statement of Trade.
Volume of Exports in Tons as given in the Annual Statement of Trade.

(G) EMIGRATION.

The annual outward balance of British passengers from U.K., according to the returns published in the United Kingdom Statistical Abstracts.

(H) BANK OF ENGLAND BANK RATE.



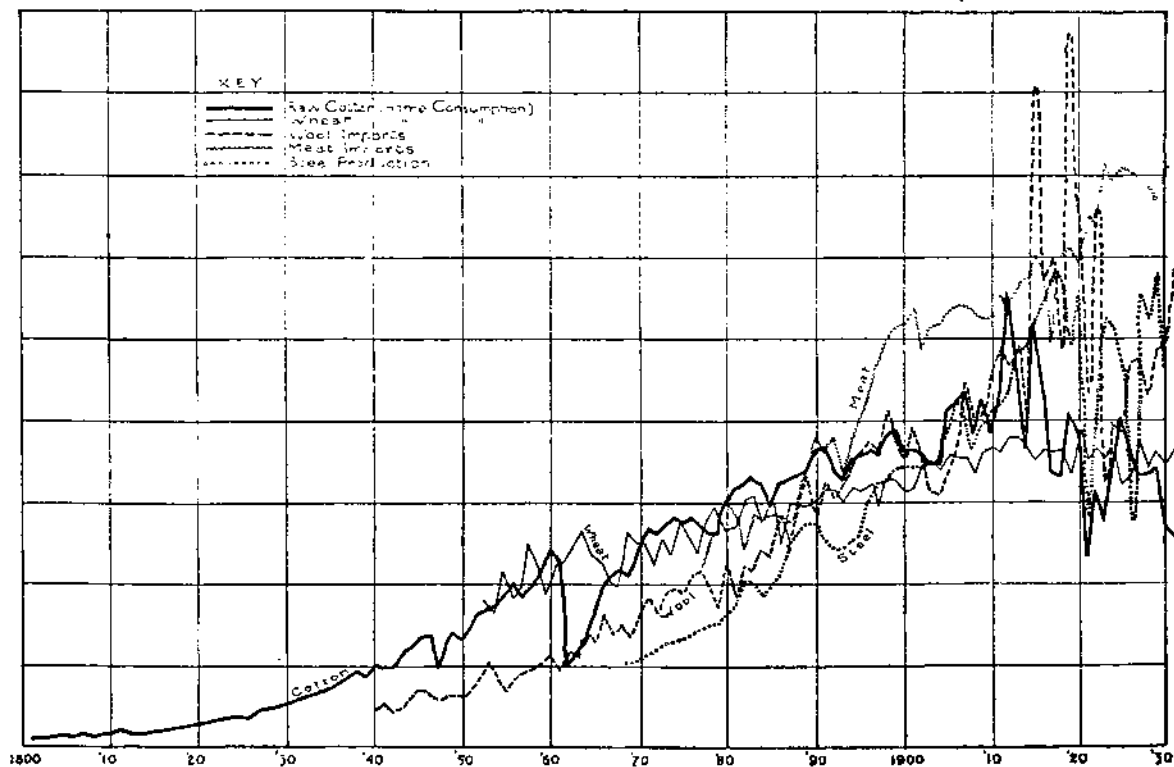


CHART D.—GROWTH IN CONSUMPTION OF STANDARD COMMODITIES IN GREAT BRITAIN, 1800-1930.

APPENDIX II

GROWTH OF POPULATION AND TRADE IN THE U.S.A.

THE industrial growth of the U.S.A. during the past seventy years is epitomised in the Chart E opposite, which Professor Walter Persons, the well-known American economist, has kindly permitted me to reproduce from his book, *Forecasting Business Cycles*. This shows how the rate of growth even in basic American manufacturing and mineral development has been slowing up since the 'seventies. The following figures taken from the chart may be used to illustrate the position.

<i>Minerals.</i>	<i>Manufactures.</i>	<i>Approx. Date.</i>
Fall in rate of growth.	Fall in rate of growth.	
From over 9% to between 8½ and 9%.	From 9% down to 7-6½%.	1883
From 8½-9% down to 7½%.	From 7-69% down to 5½%.	1894
From 7½% down to 7%.	From 5½ to 5%.	1908
From 7% down to 6%.	From 5 to 4½%.	1920
By 1930 it was down to 5½%.	By 1930 it was down to 4%.	

Each of these discontinuities was preceded by a period of stagnation in production (or, more correctly, a period during which output fluctuated round a stationary base line). On each occasion an increase in the *total* of production was associated with a decline in its *rate of growth*. We thus get four periods when there was an abrupt change in the rate of growth, about 1883, 1894, 1908 and 1920—the present slump is the fifth.¹

The trend of the speed-of-growth curves in Chart F indicates that the rapid development of the U.S.A. after the civil war, apart from minor temporary interruptions by the European depressions of the 'seventies and 'eighties, continued right up to

¹ The figures for these periods may usefully be compared with those for the United Kingdom as shown by the pig-iron production curve, the main discontinuities in which occurred in 1874, 1891, 1901 (see Appendix I).

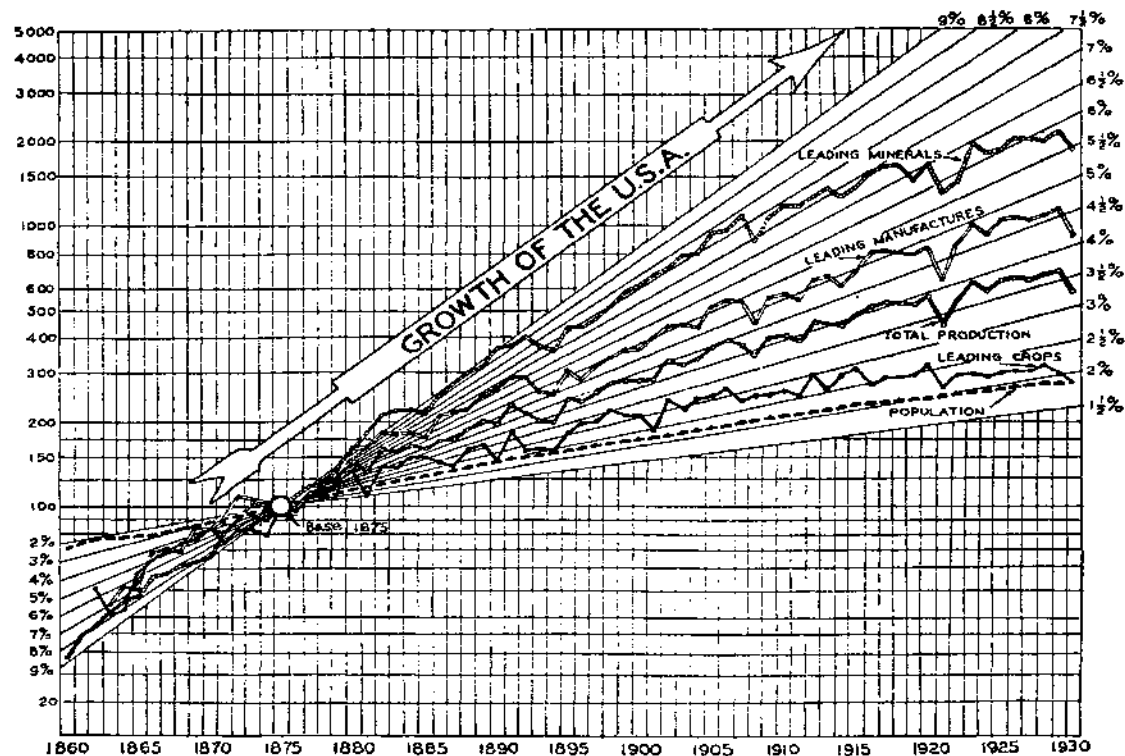


CHART E.—THE GROWTH OF THE U.S.A., 1860-1930.

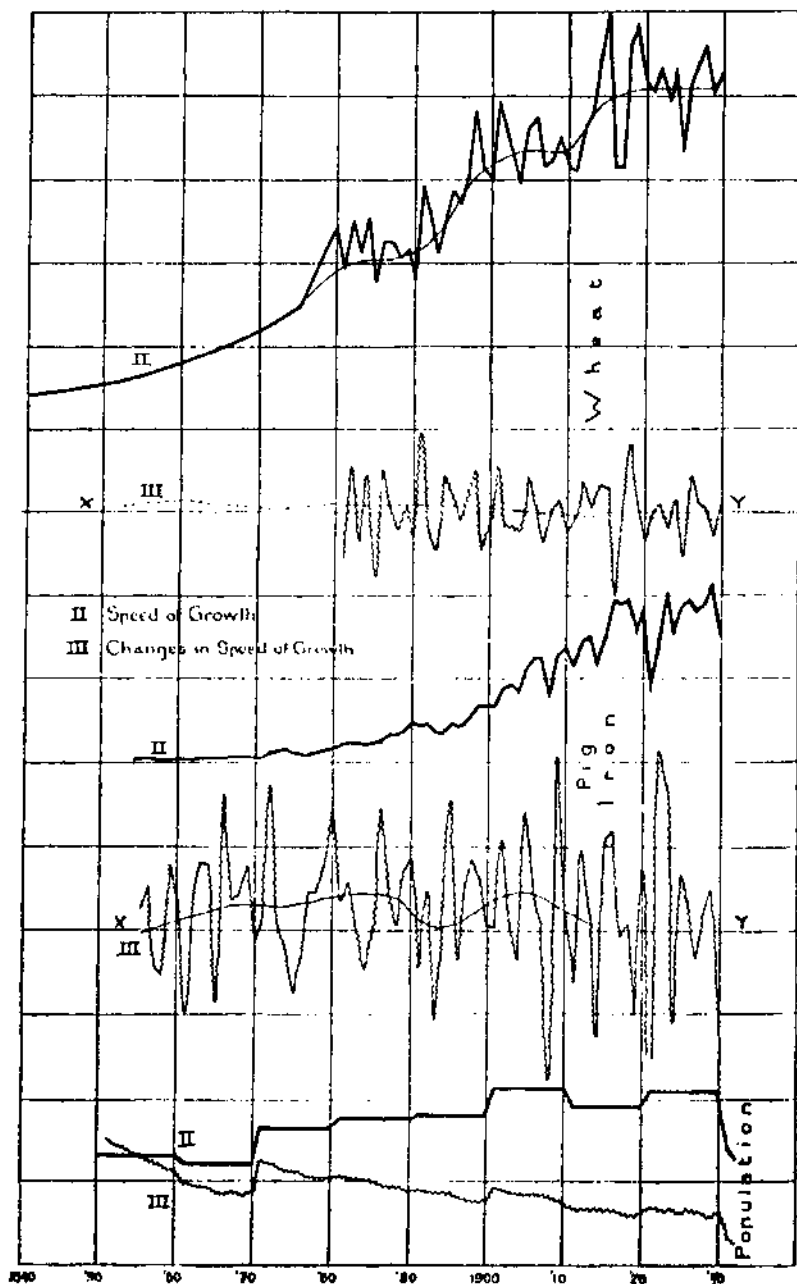


CHART F.—GROWTH CURVES, U.S.A.

the beginning of the 'nineties. The first real American break was that which brought the depression of 1893. The recovery which began after 1896 was at a much reduced speed (about 6 per cent, per annum as compared with about 11 per cent, in 1870 as measured by the rate of growth of pig iron). This movement, moreover, was slow in getting under way before 1900. It was also relatively short-lived, for a second major break occurred in 1907. The War brought recovery and maintained the rate of growth for a time ; a sharp drop in speed followed the slump in 1920. The collapse of 1930 appears to mark the definite culmination of America's major " S " curve. (The development of the U.S.A. since 1870 in three stages is clearly shown on all the curves, especially in that for wheat, which, unlike the same product in Great Britain, has been one of the keystones of trade activity.)

The American data is useful in another respect. It is so prolific that it enables us to check the reliability of applying to the trade of a country as a whole the deductions made from limited material available in the case of Britain. All the available representative indices of U.S. economic activity including such varied items as coal, steel, cotton consumption and railway freights, including the Snyder indices of total industrial production, go to confirm the above deductions.¹

¹ Since writing the above there has come into my hands a copy of Professor Arthur F. Burns' *Production Trends in the United States since 1870*, issued by the National Bureau for Economic Research. This comprehensive piece of painstaking analysis not only provides a wealth of confirmatory data in support of my argument, but places the whole subject on a firmer statistical foundation for future investigators. Professor Burns, after showing that all industries appeared to follow the law of retardation which I have termed the " S " curve, attempts to estimate whether there has been a similar secular trend in the total of U.S. production. The exiguous material only permits of the following indefinite conclusion : " If there has been any decline in the rate of growth in the total physical production of this country, its extent has probably been slight, and it is even mildly probable that the rate of growth may have been increasing somewhat."

APPENDIX III

NOTE ON THE LONG-PERIOD MANAGEMENT OF MONEY

I. Introduction

FOR simplicity's sake, in the following analysis I shall deliberately ignore short-period cyclical fluctuations and also changes due to increases in the population. In regard to the latter, I propose to assume that increases in numbers are accompanied by an equivalent increase in the *basic* supply of money, i.e. the currency ; no more and no less. I should also like it to be understood that I am aware that large-scale wars would make the pursuit of an orderly long-period monetary policy of the type I shall describe, almost impossible.

II. Mr. Keynes' Theory of the Relations of Savings and Investment

Mr. Keynes says that the true criterion of a creation of credit which shall be non-inflationary is the preservation of a balance between the rate of savings and the value of new investment. " Bankers are only entitled to create credit, without laying themselves open to the charge of inflationary tendencies, if the net effect of such credit creation on the value of new investment is not to raise the value of such new investment above the amount of the current savings of the public ; and similarly, they will lay themselves open to the charge of deflationary action *unless they create enough credit to prevent the value of new investment from falling below the amount of current savings* " ¹ (the italics are mine).

But if the long-period forces controlling investment, to which I shall refer below, are to operate properly, it seems essential that there should be *some* excess of savings over investment. It need not be a large excess, but it must be sufficient to ensure

¹ *Treatise on Money*, Vol. II, p. 221.

that over a period, taking industries in the aggregate, profits will tend to fall below the level anticipated at the time the production of the goods in question was set in train, i.e. there must be profit deflation. As Mr. Keynes himself admits, this is a natural deduction from the close correlation which has been found to exist over a period of more than a hundred years between the rate of interest as measured by consols, and the level of prices as measured by the wholesale index-number. But Mr. Keynes, though he describes that relation as "the most completely established empirical fact within the whole field of quantitative economics", and *almost* gives the right explanation of it, proceeds to define investment and its relation to the natural rate of interest in a manner which shows that he rejects experience as a guide to monetary management, and regards the above relation as due to unnecessary "stickiness" in the operation of certain parts of the economic machine. He lays down—in my view incorrectly—that "it is *investment*, i.e. the increased production of material wealth, that can alone in the long run bring down the natural rate of interest". Experience, on the other hand, shows that the rate of interest only falls when investment lags behind saving. Mr. Keynes (*Treatise of Money*-, Vol. II, p. 205) explains this by saying that the banks have in the past shown themselves much more adaptable to changes in the supply of gold, relatively to the demand for it, than is commonly supposed. "They are all natural gold hoarders, and are always keen to increase their stocks of it whenever they find themselves in a position to do so without inconveniencing the business world." This passive role is, I submit, entirely appropriate to the situation, so long as the accumulation of gold is due to natural causes arising out of the circumstances of the business world. The deflation it connotes is an essential feature of the process of orderly economic growth.

///. *Long-period Relations of Savings and Investment*

What is the explanation of the contradiction between Mr. Keynes* theory, and practical experience? Shortly stated, I submit its source lies in the circumstance that Mr. Keynes assumes that economic growth is a horizontal process, whereas actual growth proceeds by a series of discontinuous vertical changes. The reason for these is that to sell a continuously increasing quantity of goods in a modern capitalistic community, goods must be placed on the market at prices which *will be falling*

steadily when measured over the term of years in which progress is to take place. This fall in prices can only be achieved by periodically reorganising the structure of production. Prices must fall because the community for which the goods are being produced is one in which money incomes are ranged on a graduated scale, varying from a few relatively rich at the top to a large number of relatively poor at the bottom, with a series of intermediate income levels between. Since most of these money incomes will in practice change but slowly, the most practical way which has been found of gradually extending the luxuries of the rich and the benefits of new inventions throughout the whole range of incomes is by producing them steadily cheaper and cheaper. This *continuous* fall in prices can only be secured if the production structure is made to develop according to a particular plan. But to make it grow according to that particular plan requires the application of pressure. That pressure has usually been profit deflation, i.e. a decline in profits whenever, in any industry, a point is reached beyond which sales refuse to continue to expand under the existing method of production and the level of prices appropriate to that method. Whenever such a point is reached in a substantial section of the industrial field, investment will tend to decline and savings to be hoarded. The more general this pressure becomes, the more likely the rate of interest is to decline. This is another way of saying that the price of savings will fall. This fall in the price of capital will encourage manufacturers to reorganise the structure of their production system to permit of goods being produced more cheaply than before. Stated in another way, a new unit of money savings becomes the means of causing a *larger* quantity of goods being placed on the market *in a given time*,¹ and at a *lower price level* than a unit in the preceding period.

It is this increase in the "efficiency" of savings which helps to offset the loss incurred by the "hoarding" (during the time the change-over in the production structure is under way) about which Mr. Keynes complains. Incidentally, since it is the entrepreneur's job to find ways of making changes of this kind in the production structure when they are required, and since part of his profits represents payment for doing that work, it is only proper that if he fails to effect a change in structure at the earliest possible moment, he should lose his remuneration. The changes in structure required to enable goods to be produced

¹ See note on "Efficiency of Savings" at the end.

at cheaper prices are usually accomplished by subdividing the processes of production and specialising and differentiating the functions of those subdivisions. This process has been greatly misunderstood. It is not merely a matter of adding to the number of subdivisions or "cells" of the existing production structure, but, as in the case of the growth of plants and animals, it also implies a breaking-down of certain of the internal cell walls of existing subdivisions to make larger cells, to effect economies in the circulating medium. A convenient analogy of this process of enlargement of cell units is a group of high tariff countries uniting to form a *single* customs union in which all internal barriers are abolished, the resultant unit becoming not merely a sum of all the previous separate units but, in effect, a completely new unit in which the industries and occupations will be reorganised and redistributed in such a way as to permit of a higher and more prolific standard of living at a lower cost to the inhabitants as a whole.

Now it is important to realise that the intermediate walls of an ancient structure will not be broken down except there be some form of external compulsion. The formation of a single customs union by a number of adjoining States will not take place until conditions are such that it is clear beyond peradventure to most of the constituent units that they will suffer greater loss by remaining separate than by uniting with their neighbours. What is the nature of that external compulsion? The answer, whether in the case of a customs union, the combination of a number of firms in the same industry into a cartel, or the vertical "consolidation" of processes in a single industry, is loss of profit. Taking industry as an example, unless a loss of profit occurs in the constituent units of an industry sufficient to compel consolidation, there will be no consolidation; the industry will continue to grow indefinitely by the multiplication of the number of its cell units. But this growth by simple multiplication of cells cannot continue indefinitely without adversely affecting prices. Each improvement in the quality of a finished article, each additional stage of specialisation in its production, and each new subdivision in the chain between the point of first assembly of raw materials and the final sale to the ultimate consumer will tend to entail an addition to the quota of money employed, and the repayment of an additional profit. Obviously development along these lines will soon lead to a rise instead of a fall in the selling prices of the goods produced. This rise will prevent

sales from expanding beyond a certain point. The only way of avoiding this impasse is to reorganise periodically the processes of production and distribution in such a way as to ensure that each additional handling of the goods involving the use of money shall be accompanied by a more than equivalent contraction, from the monetary point of view, in the amount of money used in the older handlings. That is to say, the production structure must be made to grow in such a way that, as its vertical chain of production cells lengthens by subdivision, its internal money stream contracts; or, more accurately, perhaps, for each new increase in the length of the money stream there must be an at least equivalent contraction in its width. This is the purpose of the profit deflation which Mr. Keynes deplures. It compels producers periodically to "short-circuit" certain of the operations in the chain of production in order to effect economies in the circulation of money used. This is what is implied by that much-abused term of to-day—rationalisation.

Herein has lain the danger of the fortuitous additions made to the money stream by means of new gold discoveries in the past. They have tended to prevent these vitally necessary contractions in the money stream by offsetting the requisite profit deflation by inflation. In consequence, like the plants in an over-manured garden, world industries have been induced by a surplus of monetary nourishment, to sacrifice strength of constitution to length of stem. The Lancashire cotton industry provides a classic example of an industry which, in the absence of adequate control by the force of profit deflation, was led by a gold inflation to indulge in rank growth by multiplication, to the point of breakdown. From the middle of the 'nineties until the outbreak of the Great War, except for temporary fluctuations, the price of cotton as well as that of capital and constructional goods was rising almost continuously under the stimulus of the South African gold discoveries. This rise was maintained by war-time inflation right up to 1920—a period of nearly twenty-five years in all. The extent to which the cotton trade became over-extended is shown by the circumstance that, even in the rationalised world of to-day, cloth for the standardised markets of India still passes through the following hands; the cotton broker, the spinner, the manufacturer, the calico printer, the packer, the commission merchant, the European importer, the port dealer, the up-country wholesaler, the bazaar retailer, and the pedlar—all taking their profit. According to Mr. L. B. Lee,

Chairman of the Calico Printers Association, cloth in some cases passes through fourteen different classes of trader !

Our National systems of transport and distribution offer other examples of structures which acquired undue rigidity—and became too costly—during the same period. The effect on our financial system is seen in the high rates of interest still charged for commercial loans and in the excessive load of past indebtedness which blocks its main channels.

The recent history of the rubber industry, on the other hand, affords a striking example of what can be done by "consolidation" in a relatively short period of time in an unspecialised industry under the duress of a very rigorous dose of profit deflation (though this must not be taken as a pattern for imitation as to what should be done in normal times). In 1926 at the time of the Stevenson restriction scheme, the profitable selling price of rubber for an average plantation was assumed to be round about 1s. 6d. per pound ; by 1929 that price had dropped to below 1s. This year (1933), on the other hand, one hears of many of the areas in which the above-mentioned plantations are located being able, as a result of a basic reorganisation of the plantation system, to market rubber at a profit at prices round about 3d. per pound. Of course, had there been no previous excessive multiplication of units, such a drastic—and sudden—contraction in the money stream would have been unnecessary.

IV. *Limitations of the Quantity Theory of Money*

Clearly an explanation which assumes in effect that industry advances by making given quantities of money savings produce more goods by a series of discontinuous steps, must in some measure conflict with the quantity theory of money which asserts that over long periods the price level is governed by the supply of money (as modified, of course, by such things as the velocity of circulation, etc.). Accordingly one is led to conclude that in real life the quantity theory is strictly true only over relatively *shortish* periods of time—periods, in fact, during which there are no very far-reaching changes in the general production structure due to "consolidation". These periods will only occur when prices rise and industries are able to grow by multiplying, or adding to, the cells of units of an *unchanged* structure. As soon as the expansion of output accompanied by "consolidation" is resumed, the theory will cease to apply, since the new price and

production structures in which it is to operate will not be related to the old ones which are being displaced by any single continuum.

V. *The Problem of Long-period Money Management*

The problem of long-period money management may be epitomised as the promotion of growth by what I have termed subdivision and consolidation. This does not mean that active steps should necessarily be taken to eliminate growth by straightforward multiplication. Experience suggests that it will be sufficient if we avoid deliberately fostering it by action in the monetary sphere. In particular, nothing must be done to offset the mild profit deflation which will naturally tend to occur at intervals—if matters are left to take their normal course, and the basic money supply be prevented from growing faster than the population. In Mr. Keynes' terminology there must be *some* lag between investment and savings. It is not necessary that there should be an increasing disparity between the two ; all that is required is a difference of pressure sufficient to promote periodic consolidation in the production structure. This profit deflation, however, must not be allowed to get out of hand nor to encroach on spendable income as well as savings. Each dose of deflation, it is true, will cause *some* income deflation, but if the objective of the whole process is not to be defeated, it is imperative that this should not be taken to the point at which it causes an excessive consolidation in the production structure, i.e. to the point at which workers are eliminated from the old structures at a faster rate than they can be absorbed by the new. This is where the rate of interest is able to play such a useful part. By remaining stable so long as the general level of prices remains unchanged, it maintains equilibrium in the *horizontal* development of the industrial system, and by falling when prices fall it makes *vertical* consolidation and subdivision in the various parts keep step.

The broad general objective of monetary policy should be laid down as stability of spendable incomes.¹ Amongst other

¹ Stability in the aggregate of spendable income is not inconsistent with a good deal of internal fluidity in individual incomes. For example, under such a system, additions to basic rates could, as now, be paid to skilled workers, and the flow of workers from dying industries to those being newly born encouraged by increasing the number of skilled workers in the latter *part passu* with their decline in the former. The rates for unskilled workers, however, would, as they did even in the highly fluid period before the War, tend to be uniform over the whole field of industry.

things this means that at times of profit deflation savings should not be allowed to encroach on income. To permit this would be to upset (and consequently disorganise) *current* production and consumption for the benefit of *future* production and consumption. There may be special occasions when this may be desirable, for example, when it is necessary to procure the transfer of sections of the population and their industries from one territorial area to another. But such exceptional cases must be dealt with by emergency measures—if need be, by special repayable temporary issues of non-interest-bearing money, when no gold is available.

Much the same rules must be applied to savings. There must be no wastage of savings beyond the profit deflation needed to compel "consolidation". And even that wastage is only permissible if it is to be compensated for by the increase in "efficiency" of the savings that remain. In other words unless a unit of money savings in future is, when invested, to yield more goods than it would have done had it been invested under the old structure, the wastage will not have been worth while. And it is only when an entrepreneur feels that he can so use savings to reorganise the structure of production as to produce *more* goods *more* cheaply than before, that he should be encouraged to borrow savings for investment.

As the industrial system grows older, not only will there be less and less of community desires which it will be practicable to satisfy within the limitations of inventive power and natural resources of locality, but there will be less desire to invest for *the future*, and so, more savings competing for *current* investment, with the result that the rate of interest will tend to fall lower and lower.

Naturally the supply side of savings will not remain unaffected during these changes. A decline in profits implies a decline in the aggregate of savings available for investment. So we must expect to find that after a community has reached a certain point in its evolution the supply of, as well as the demand for, savings will begin to decline.

This raises two questions. The first is : Will the decline in savings continue until savings disappear altogether, or is there a limiting point beyond which the process cannot go ? The second question is : Will investment continue to lag behind savings once the latter ceases to follow the law of increasing returns, and begin to decrease ?

To answer these two questions we must examine the sources whence savings are mainly derived.

Savers may be roughly divided into three classes :

(1) Those who save in order to provide for their old age, or for the future of their families. The actions of these persons are unlikely to be appreciably affected by a fall in the rate of interest, for since prices are assumed to be falling also, that part of their income which is saved, as well as that part which is being spent, will be increasing in real purchasing power at the same rate.

(2) Those who are encouraged by the offer of a higher rate of interest to save more and spend less, because the present sacrifice of real expenditure seems to them to be made worth while by the prospect of an increase in the future real expenditure. [Under the conditions which we are assuming, viz. falling prices and falling interest rates, this class of saver is unlikely to be important ; he thrives best in periods of rising prices and interest rates, and can accordingly be regarded as covered by (I).]

(3) Those who automatically save the difference between their incomes and the expenditure necessary to maintain a certain standard of living. These are the " rich " members of the community. With the savings of this class must be included part of the undistributed profits of industry as well as part of the profits paid out in dividends. It is on the policy of this class of savers in a community approaching maturity that the answer to our question whether investment can continue to lag behind savings, once the aggregate of savings begins to decline, will primarily depend.

The answer appears to be, first, that so long as the rate of saleable output, taking the industries as a whole, continues to expand, the profits—on which the elastic part of savings mainly depends—will tend to grow according to the law of increasing returns. Once, however, the rate of growth of sales begins to decline, savings will become subject to the law of diminishing returns. I am not, of course, here referring to the temporary decline in the rate of growth of sales which precedes each new subdivision of the production structure, but to the permanent decline which will proceed despite repeated subdivisions. This slowing down means that the reduction of prices (including profit) *per article* made possible by subdivision can no longer be compensated for by a sufficient increase in the rate of growth of *aggregate* sales. If at such a time competition were given free rein, profits might fall almost to zero, i.e. to the point at which

selling prices would only repay actual costs and provide the entrepreneur with a minimum standard of living, leaving no balance for savings (beyond, of course, the amount necessary to provide for his personal needs as an individual included under (I)). While in certain industries subdivision might be allowed to proceed unchecked until this point had been reached, past experience suggests that in most of them the entrepreneurs will long since have begun to refuse to undertake the responsibilities and risks of production under such terms. Combines, cartels and other monopolistic devices will have been devised to control prices, and prevent profits and savings from falling below a certain minimum. Thus we may conclude that there will always be a certain volume of savings above that required to meet the personal needs of the individual members of the community under (i).

The decision whether investment will ever catch up savings will be determined by similar considerations. Even though profits are artificially maintained at a level sufficient to permit of savings being made, it is reasonable to presume that the rate of investment will lag behind, since the rate of growth of investment will, other things being equal, continue to depend on what is happening to current profits, which in the uncontrolled or "free" industries will be falling. The more prices and profits become subject to monopolistic control the more nearly will the value of new investment tend to become equal to the rate of saving. Once this control becomes general, neither the rate of interest, prices, profits nor the rate of investment will any longer be dependent on the operation of *natural* forces. Progress by subdivision under the capitalistic system will be at an end.

NOTE ON THE "EFFICIENCY" OF SAVINGS

How the "efficiency" (i.e. the volume of output released per unit invested) of a country's savings tends to increase progressively as an industrial system passes from birth to maturity may be illustrated by the analogy of an industry such as motor-car manufacture. The evolution of motor-car manufacture from the time of its first invention to the final stage when it is an ordinary mass-produced article in general consumption, may, for convenience of illustration, be supposed to take place in three stages. In its first beginning it will be a luxury article on which interest and profits are earned by selling a few high-priced vehicles to the few rich income recipients able to afford them. The second

stage will be reached when efficiency of manufacture has arrived at the point of marketing what may be termed a " middle class " car. This stage will be attained when, by the substitution of machinery for man-power, a car can be produced within the purchasing orbit of middle-class incomes. The final stage will be the mass-produced car in which the use of machinery will be pushed to its utmost limits in order that the selling price of the finished product can be brought within the purchasing power of the lowest practicable range of incomes. Naturally, even when manufacture has reached stage III, there will still be cars being made in stages I and II, because there will always be improvements which it will not be practicable to incorporate in the cheaper cars until new methods of production have been devised.

To obtain a picture of how the above three-stage evolution will tend to be accompanied by an increase in the " efficiency " of savings, let us assume that £100,000 has been invested in the manufacture of cars of each of the above three types, which we may denominate the £1,000 car, the £500 car and the £100 car respectively, and that the normal return expected by investors in motor-car securities is 10 per cent. The position would be something like the following :

	Capital Outlay.	Cost per Car.	Profit per Car.	No. Sold.	Aggregate Profit.
I.	£100,000	£1,000	£100	100	£10,000
II.	£100,000	£500	£50	200	£10,000
III.	£100,000	£100	£10	1,000	£10,000

It will be noted, first, that in the above table the greater the number of cars produced per unit of invested capital, i.e. savings, the cheaper is the selling price of the finished car. Second, that the profit per car diminishes as the number of cars produced per unit of savings, i.e. capital, increases. This fall in profit per unit is due partly to the force of competition and partly to the compulsion to reduce prices to make a market among the lower incomes. If in any of the above examples the amount of profit *per car* were raised above the relative figure given, then, since the *aggregate* profit on the investment in that particular car would rise (i.e. exceed the 10 per cent. I have assumed as the current standard rate on car investments) investors would concentrate savings on that type of car investment in preference to others,

until the rate of profit had been brought down to the appropriate level.

It will be evident that in any given year there will be a limit to the number of additional cars which can be sold in any one of the above three classes. In the luxury-car class, sales will vary with such things as the growth in numbers of the higher income categories, the proportion of their total who are already provided with cars, etc. In the mass-produced class the rate of sales will in addition depend on the extent to which practice and advertisement have made motoring a popular pastime ; the rate at which the ease of handling cars is being simplified ; the cost and availability of garage accommodation ; the rate at which the roads and road-house accommodation are being provided and, last but not least, on the steps being taken to assist would-be purchasers by the provision of such things as hire-purchase facilities. All these things will affect the time taken by the motor-car industry to reach maturity, i.e. to pass from the first or luxury-class stage to the final or mass-produced stage. This time factor has to be taken into account by producers in making their estimates, in any given year, as to the rate at which it will be safe to invest savings in reorganising their methods of production to reduce prices in order to maintain profits by selling more cars.

It will be observed that it will not be worth while to invest capital in the production of the £500 car mentioned above until sales of approximately 200 cars per annum can be assured. In the case of the mass-produced car in Class III, the number will be 1,000 as against only 100 in Class I. Applying these principles to the industrial system as a whole, it will be clear that progression towards maturity will be associated with a gradual increase in the proportion of industries which have reached the Class III category. This comes to much the same thing as saying that the volume of goods emitted per unit of savings invested will grow steadily larger the more highly developed industrially that system becomes until the limiting-point is reached.

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