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THE ECONOMIC TENDENCIES OF TO-DAY

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By

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CHAPTER I

THE NINETEENTH CENTURY

THE Nineteenth Century is unique in the history of the economic development of the world. The Middle Ages were stagnant, and the three centuries of nascent capitalism produced remarkably little change. Even the little progress that had been made seemed threatened in the eighteenth century.

Before the Industrial Revolution economic civilization was built on an organic basis. Wood was the raw material used from the construction of cities to the bleaching of textiles. The process of consumption was extravagant. When the annual embodiment of the sun's energy in vegetable matter represents the main material available for production a relative economic stability is already implied. When four thousand grown oaks are consumed in the construction of a normal warship, and more than a hectare of forest land in the production of a ton of iron, it implies stability at a very low level. Coal could not be used in the production of iron because the sulphurous fumes mixed with the ore and made it brittle.

The exploitation of the forest resources had not been rational. The woods which covered medieval Europe were disappearing rapidly in the eighteenth century. For the first time in history western Europeans were threatened with losing the material basis of their culture. Whereas the demand for iron was expanding, the production could not be increased. Furnaces were erected in the most inaccessible places where the abundance of wood compensated for the absence of every other advantage.

In the more populous regions, especially around towns and along the coast, legislation was passed against this parasitic industry. The production of iron remained organized on a small handicraft basis, migrating from

county to county as the raw material disappeared before it. Even at the beginning of the nineteenth century the production of iron in England was not more than that of one modern blast furnace.[1]

Inadequate sources of raw material combined with unhygienic conditions of living, an empirical technique and corrupt and inefficient methods of government produced conditions and habits of thought unsuitable for rapid economic expansion. The system of transport, for example, was much the same in the eighteenth century as it had been at the close of the Middle Ages. The size of ships was restricted both by empirical methods of construction and by lack of improved harbour facilities. The first artificial harbour for commercial use was constructed in 1799. Eddystone, the most famous lighthouse of the eighteenth century, reflected the light of twenty-four wax candles through ordinary glass windows. A primitive wooden fire supplied the light of the enormous tower of Corduan. Pirates infested the seas, highwaymen the roads. Even pedlars combined the profitable business of brigandage with a small turnover of wares. The business of banks remained almost exclusively the exchange of the varied currencies of Europe. The staple articles of commerce were still spices, sugar and slaves. Numerous tariff frontiers, national, provincial and urban, hindered the development of trade; political insecurity and an inefficient and unequal system of taxation prevented the accumulation of capital, while religious intolerance systematically oppressed the most enterprising elements of the population.[2]

The population of large parts of western Europe was practically the same in the middle of the eighteenth century as it had been in the first half of the fourteenth. Towns had hardly developed beyond their medieval walls. The town population still presented strongly rural characteristics. Over the largest part of Europe the cul-

[1] Sombart, *Der Moderne Kapitalismus*, II, ii, Ch. 71; Hammond, *The Rise of Modern Industry*, p. 134.

[2] Sombart, op. cit., II, p. 241; Hammond, op. cit., p. 69.

tivated fields presented the same picturesquely inefficient appearance of variously coloured strips which characterized medieval agriculture. Compared with to-day the conditions of living had changed little during the two thousand years that separated the Roman Republic from the French Revolution.

The conditions of life for the mass of the population were deplorable, the hygienic conditions, especially in the towns, abominable. There was no system of main drainage, and ash-pits overflowed, spreading "a layer of abomination" about the streets. Even in capital cities the citizen walked with his nose in his handkerchief. As late as 1852 the smells from the Thames through the windows of the House of Commons forced Parliament to take steps to co-ordinate the drainage of London, which till then had been neglected. In the smaller towns overcrowded burial grounds poisoned the water supply. The smallest failure of crops produced a local famine. The chronic shortage of food which caused the anæmic expression of the medieval madonnas, perpetuated its sickly glamour in the pale faces of the eighteenth-century artisan and peasant.

In all the big cities of Europe the number of deaths annually appreciably exceeded the number of births. Even in healthy years in England the death-rate in the eighteenth century is said to have amounted to 41 per 1,000. In London during the latter half of the seventeenth century the rate was 80, in the eighteenth 50 per 1,000. The average life of the manual worker was only one-third that of the gentleman. A remarkable fertility alone saved the European population from extinction. On the basis of these facts Gregory King seemed justified in maintaining at the end of the seventeenth century that the greatest population that England would ever be able to support would be 22 millions, which figure would be reached about the thirty-fifth century, "in case the world should last so long."[1]

[1] Cf. Sombart, *Die Deutsche Volkswirtschaft im Neunzehnten Jahrhundert*, Ch. 1; Thompson, *Population Problems*, p. 40.

From this stagnation the world was saved by a number of remarkable coincidences. A series of inventions, which had their origin in England, transformed industrial technique. The French Revolution removed many of the defects of government and gave free scope to the energy of the *bourgeoisie*. English industry and French ideas gave to the nineteenth century its peculiar character. Applied to hygiene, the new technique improved sanitary conditions which supplied the basis for a rapid expansion of population. Applied to transport, it enabled the opening up of vast undeveloped continents. Together these factors ushered in a period of cumulative change during which all the material resources of Western economic civilization increased progressively.

The introduction of machines in the textile industry freed the mass of mankind from an immense amount of drudgery. Coke and steam power liberated industry from the limits of organic nature. The world was no longer confined to the annual income of sun's energy embodied in animal and vegetable life; it could exploit the resources of energy that had been accumulated in mineral resources over millions of years. The world could now live on its capital.[1]

The centre of gravity of economic life shifted from agriculture to mechanical and inorganic production. The Black Country, which Nature seemed everywhere to have "damned to perpetual sterility," became the new centre of industry. Coal and iron became the symbol of nineteenth-century civilization as wood has been of all previous centuries. Coal causes the peculiar dirty atmosphere associated with all industrial towns. On the other hand, in the form of gas, dyes, explosives, antiseptics and perfumes it is the source of colour, light and numerous other amenities of civilized life.

Throughout the nineteenth century improvements in agricultural technique and transport more than offset the growth of population. With the increase in wealth that this implies there has been a transfer of resources from

[1] Sombart, *Der Moderne Kapitalismus*, I, ix, p. 122.

satisfying the inelastic needs of subsistence to satisfying the more elastic needs of relative luxury and leisure. Over vast stretches of Europe and America agriculture remained depressed. Large numbers of peasants migrated to the towns and supplied the labour force necessary for industrial development. Whereas at the beginning of the century three-quarters of the western European population still lived on the land and only a quarter in towns, at the end of the century the position had been exactly reversed.

New methods of transport changed the nature of industry and of commerce. For the first time in history the area over which bulky commodities could be economically transported greatly increased. As late as 1830 the Westphalian iron industry could not develop because it was ten miles removed from the coalfields.[1] The railway brought continental countries into the economic orbit; the steamship changed a local into a world economy. The results were revolutionary. In the eighteenth century Guadeloupe had rivalled Canada as a colonial possession, and Jamaica was probably considered more valuable than the American States. The healthy interiors of tropical continents were worthless. Now Germany and America became industrial countries, and American wheat helped to feed the industrial population of Europe. The cost of transport of foodstuffs became "a negligible quantity." An English workman can pay for the cost of transport of the American wheat which his family consumes in a year with the wages of a day.[2]

The face of Europe changed. In the eighteenth century there was little territorial differentiation in industry, nationally or internationally. The various industries were spread fairly evenly over the country, either because they were domestic or in order to have easy access to power and to raw material. Even in the metal

[1] Knowles, *Industrial and Commercial Revolutions in Great Britain During the Nineteenth Century*, p. 188.

[2] Sombart, III, i, p. 280; Knowles, Part IV.

industry the workman combined industry with agriculture. With the adaptation of the steam engine to rotary movement this changed. Mechanical power could now be transferred to the towns. The people in London, Manchester and Liverpool, Boulton said went "steam mill mad."[1] Mechanical power and machinery produced the factory. The handicraftsman survived but he had to confine himself to repairs or where adaptation to individual tastes was required. The capitalistic factory system became the characteristic method of economic organization.

The mass of the European population had lived for centuries on the margin of subsistence. The means of existence determined the size of the population. The table of nature, as Malthus said, was laid for only a limited number of guests, and those who came uninvited had to starve.

With the new developments the basis of existence was suddenly enlarged, while improvements in medical knowledge and especially in the technique of hygiene improved the sanitary conditions. The results were phenomenal. Whereas the population of Europe had increased from about 130 millions in 1700 to under 190 millions in 1800, it increased to over 450 millions in 1914. One century produced one and a half times as many human beings as all previous centuries of European life combined. The population of Germany trebled itself, the English speaking peoples of the world increased eightfold during the century. These were the people mainly responsible for the new economic development.

Mass migrations of Europeans set in to America, the British colonies and Siberia. The new freedom of movement obtained by the French Revolution supplied the scope, the new methods of transport the means for a mobility of population hitherto unknown. Professor Willcox has made the following estimates, in millions of persons, of the population of the world:

[1] Hammond, *The Rise of Modern Industry*, p. 126.

	1800	1900	1925
Population of European origin :			
In Europe	187	401	475
Outside Europe	16	100	164
Total	203	501	639
Population of non-European origin	609	994	1107
Total world population	813	1495	1746

The rate of increase, between 1800 and 1925, of the total world population was 115 per cent. But, whereas the rate of increase of non-European peoples was only 82 per cent, that of European stock was 215 per cent.[1] The nineteenth century was a period essentially of European and largely of Germanic expansion.

The rapid growth of population is in itself a stimulus to economic development. Among the *bourgeoisie* large families militate against a leisured class, among the proletariat they supply the human material necessary for the working of the industrial system.

Since the fifteenth century Europe slowly emerged from feudal society with its contempt for economic activity. Individual liberty was displacing mutual obligation and private initiative liberating itself from the bonds of custom.[2] The Renaissance developed a love of beauty and a sense of human values. It especially facilitated the spread of lay education and stimulated the spirit of inquiry. Protestantism removed the abnormally large number of holidays, and contributed to the individualism in thought which is the essence of the capitalistic spirit. Puritanism stressed the necessity of regarding one's work as a serious vocation and sanctified the whole host of bourgeois virtues.

But in a world dependent on a primitive agriculture, with a population haunted by famine and disease, men's minds turned to a sense of dependence on the super-

[1] Professor Walter F. Willcox, in *Recent Economic Changes*, p. 843.

[2] Hammond, op. cit., p. 52.

natural rather than to self-help, to inward reflection rather than to outward effort. The intellectual life and interests of Europe were absorbed in philosophical speculation and in literary pursuits, and were turned away from a life of outward action to a life of contemplation and self-culture.

The opportunities that were now opened to action offered a new outlet for men's initiative. They deflected interest from a life rich in ideals to a life rich in material substance. The transformation was accomplished in most countries without regret and was made deliberately and completely.[1]

Fatalism made way for a naïve optimism, a belief in progress the sole criterion of which is material development, and in the efficacy of individual initiative. The religion of the nineteenth century became the love of power, the power of science over inanimate nature, the worship of size and quantity. Great height in buildings, said Croker, is the cheapest way and one of the most certain of obtaining sublimity.[2] To the *bourgeoisie* money making became an obsession, the criterion of success, of character, of a man's worth.

The workman had to adapt himself to the new industrial system, or starve. He had to give up his "desultory habits of work," curb his "turbulent love of pleasure" and sacrifice himself to the order and regularity which were implicit in the changed order; he had to become a useful factory hand. In the seventeenth century an English judge could exult that more Englishmen were hanged for robbery in one year than Frenchmen in seven, and that "if an Englishman be poor and see another having riches which may be taken from him by night, he will not spare to do so."[3] In the nineteenth century we hear of nothing but favourable comparisons as between English and continental navvies.

[1] Cf. Dawson, *The Evolution of Modern Germany*, p. 2.

[2] Harbron, *Amphion*, p. 25.

[3] Sombart, *Der Moderne Kapitalismus*, I, ii, p. 668.

Such an atmosphere was sympathetic to the development of industrial technique. The application of science to industry changed a purely empirical into a rational procedure. The study of the principles underlying the facts made knowledge more systematic and facilitated improvements on any standard of technique already attained. New inventions were eagerly adopted because they are an important source of profit, and to make profit is the essence of capitalism. The application of each new great invention in turn gave a powerful stimulus to the development of industry. It contributed largely to making industry assume the cyclic movement characteristic of modern economic development.[1]

Whatever industrial developments had taken place in Europe before the nineteenth century were due mainly to the deliberate initiative of bureaucracy.[2] The economic development of the nineteenth century is the more remarkable as it was accomplished without any preconceived plan or determining will, solely through the initiative of individuals seeking independently their own interest. But the anarchy was more apparent than real. For to the State was relegated the important, if negative, function of preventing these interests from assuming a socially harmful content. Harmful, however, was interpretated as harmful to property. The nineteenth century State was a legal, not a welfare State.

The negative attitude of the government towards economic affairs was the outcome of liberal ideas. These ideas had their origin in metaphysical conceptions of the origin and purpose of society. The eighteenth century stressed the right of the individual against the license of autocracy. Against the concept of the divine right of kings was set up the concept of natural rights and a social contract. These natural rights were prior to society, and the State was instituted for their maintenance. The

[1] Robertson, *Banking Policy*, II; Sombart, *Der Moderne Kapitalismus*, III, i, Ch. 7.

[2] Sombart, *Die Deutsche Volkswirtschaft im Neunzehnten Jahrhundert*, p. 64.

object of life and of society is the attainment of happiness. Differences between individual happiness and public welfare were bridged by the belief in economic harmony. The free play of self-interest would bring about a better distribution of a country's resources than any arrangement that could be brought about "artificially". The science of biology came later in the century to demonstrate that it would also bring about the fittest society. The stimulating effects of free competition seemed justified in every sphere of life. A benevolent Providence had ordained that the most natural way should also be the best. The individual is "led by an invisible hand to promote an end which was no part of his intention."[1]

Throughout the first half of the nineteenth century economic legislation had as its primary object to ensure free scope to private initiative. Monopolies and privileges, whether religious, political or economic, were abolished. Only the greatest of all privileges, property, remained untouched. The gild system and serfdom were abolished along with the State church and privileged chambers. Formerly a man was a citizen in so far as he was a member of a corporation. Now he was a citizen first and foremost, and the State was indifferent to his corporate activities. The competition between property and the proletariat was assumed to be free; the *entrepreneur* was free to do as he would, and the workman to do as he could. Competition was considered an efficient substitute for social obligation.

The same attitude was reflected in foreign and colonial policy. Individual liberty was considered as the absence of restraint by a higher authority. State sovereignty was conceived as the repudiation of any higher authority than that of the individual State, or even of allegiance to a super-national organization.[2] In the light of such a policy Cobdenite free trade is as natural as economic imperial-

[1] Adam Smith, *Wealth of Nations* (Cannan's Edition), Vol. i, p. 421.

[2] Tawney, *The Acquisitive Society*, p. 50; Bosanquet, *The Philosophical Theory of the State*, p. 302.

ism. It merely depends on which course is considered to favour the interest of the particular state. Economic interests played a predominant part in colonial expansion. The British Empire, for example, expanded or contracted largely according to whether the Government agreed with Mill that the colonies were merely an expense, an "illusion for the present and a danger for the future," or with Rhodes that her Majesty's flag was the greatest commercial asset in the world.

In whatever form this policy materialized, the exploitation of non-European peoples was carried on consequentially, and often deliberately. The contempt for foreign culture merely took different forms, according to the temperament of the aggressors. It varied from the thrusting of European architecture, laws and fashions on Asiatic towns without the least regard for existing traditions, to the forced sale of opium; from allowing the bones of cotton weavers to " whiten the plains of India " from want of protection, to deliberately exhorting a German expeditionary force to China to " give no quarter." It was, indeed, the century of the abolition of slavery throughout the world, but the liberated slaves got nothing more than a mere formal equality before the law.

Even within the great capitalistic countries the benefits of the nineteenth century came in very unequal measure to the propertied and propertyless classes. The French Revolution, indeed, meant new opportunities opened to talent, but the State did nothing to equalize the facilities to acquire this talent. In England, for example, before the Education Act of 1870, three times the amount of money spent on the education of the people was voted by Parliament for the Queen's stables. Many people thought this condition of ignorance desirable. The bracing effects of competition were largely neutralized by the enervating effects of inheritance on those who received it and the moral degradation of those who did not.

Any form of social legislation was contemptuously referred to as " paternalism ". Fear of foreign competition made the individual governments refrain from

passing legislation to improve the conditions of labour, and international jealousy prevented a common organization. Only by organized force and political action could the workmen obtain their demands. Trade unions and socialist parties made rapid progress before the War. The 25,000 British trade unionists of 1850 had increased to 4 millions in 1914. There were before the War 15 million organized workmen throughout the world.

The growth of labour organization on the one side was accompanied by the concentration of money power on the other. The diffusion of ownership with the growth of joint stock companies towards the end of the century brought no corresponding division of authority. The corporation was a mere reflection of the fiction of the sovereignty of the people in modern democracy. The shareholders, however, are even more ingnorant and indifferent than the electorate. The facility of forming working agreements between nominally independent firms, the issue of obligations, and the power of the great banks concentrate the real power in the hands of a few magnates. Before the War the industry of the Ruhr was under the "control of a dozen men of commanding business genius impervious to all modern notions of political liberalism."[1] Walter Rathenau could maintain that three to four hundred men controlled the whole economic life of Europe and America.[2] A new form of autocracy was appearing, potent signs of the disintegration of the economic liberalism of the nineteenth century.

Together with this concentration of economic power there was a very unequal distribution of incomes and of property. Professor Bowley estimated for Great Britain that in 1910 just over 1 per cent of the population took 30 per cent, and 5.5 per cent took 44 per cent of the national income. King estimated for America in 1915 that the "rich" 2 per cent of the people owned 60 per cent of the wealth. The "middle class" 33 per cent of the

[1] Dawson, *The Evolution of Modern Germany*, p. 122.
[2] Sombart, *Der Moderne Kapitalismus*, III, ii, p. 747.

people owned 35 per cent of the wealth. The "poor" 65 per cent of the people owned 5 per cent of the wealth. "This means in brief that a little less than 2 million people, who would make up a city smaller than Chicago, own 20 per cent more of the nation's wealth than all the other 90 millions."[1] The distribution of incomes was practically the same in all the great capitalistic countries. The process of distribution was reduced by Pareto to a natural law.

The inequality was justified on the grounds that it facilitated the accumulation of capital, and that even with an equal distribution of incomes the average citizen would still be miserably poor. For the United Kingdom, for example, Professor Bowley estimated that before the War, after rates and taxes had been paid and an adequate sum invested in home industries, the "average net income of a family (of four to five persons) would have been £153 from home product, or £162 if income from abroad is included." Such an equal distribution would have little more than sufficed to bring the wages of the average man and woman to the minimum which economists considered reasonable.[2] Those who used these statistics as an argument against an equal distribution implied that such a procedure was the only method of bringing about a greater measure of equality.

Sir Josiah Stamp has estimated that the average Englishman was five times as well off at the end as at the beginning of the nineteenth century. His lot a hundred years ago could not have been an enviable one. For Germany it is maintained that, with the exception of the landed nobility, there were in 1800 hardly 1,000 people in the whole country with an income of £500 or more. The great mass of the working population lived in a condition of chronic destitution. They lacked even absolute necessities.[3]

[1] Marshall, *Industrial Society*, III, 1589–1592.

[2] Bowley, *The Division of the Product of Industry*, p. 49.

[3] Sombart, *Die Deutsche Volkswirtschaft im Neunzehnten Jahrhundert*, pp. 428–430.

Thus the achievement of the nineteenth century was unique. It was attained by the exploitation, often wasteful, of the world's accumulated fuel and mineral resources. What the effects would have been if there had not been such a rapid increase in population it would be impossible to say. For an increase in population is both a liability and a creative asset.

To the nineteenth century material progress seemed the greatest good in the world. The first generations of unsophisticated employers were not yet rendered effeminate by luxury, and their enthusiasm for business was unalloyed by social interests. The small scale on which industry was organized and the absence of monopolies gave great scope to men with ability but slender means. The thrift of the employer, low wages of labour and small taxes led to the rapid accumulation of capital. The unequal division of incomes did not materialize in an equal diversity in economic welfare. This helped to keep down the resentment of the working classes. The rapid economic development seemed to justify the existing order. The love of power, the admiration for organizing activity, of money-making, of quantity and of size, which emanated from the West was, before the War, rapidty winning the world. But in realizing its objective it eclipsed itself. With the general increase in culture such an objective attitude could not last. It merely required a pause in the development, a powerful external stimulus, to turn the toleration of western economic civilization into a general attitude of criticism. This force was supplied by the Great War.

CHAPTER II

POPULATION

IT is very difficult to obtain correct estimates of population except for quite recent times. Neither modesty nor veracity was a quality much admired in antiquity. Herodotus, for example, speaks of the army of Xerxes approaching Greece through the arid regions of Asia Minor as consisting of 5 million men. Tacitus estimates the population of Rome under Claudius at nearly 7 millions. Even much more recently historians have exercised their imagination rather than their discretion in dealing with population questions. This is shown, for example, in the large populations attributed by historians to the Inca and Aztec Empires. In such densely settled countries, however, the invasion of a few hundred men, even though they were Europeans and Spaniards, could hardly have resulted everywhere in widespread famine. Statistical accuracy is a recent development. "To count," said Samuel Johnson, "is a modern practice; the ancient method was to guess; and when numbers are guessed they are always magnified."[1]

Official estimates of population have hardly been more accurate. In 1774, for example, the Chinese Emperor notified his displeasure at the fact that the reported population of the Empire had been remaining practically stable over a considerable period, and directed that in future the returns should be made with more care. Those of 1775, accordingly, showed an increase of about 44 millions, "due merely or mainly to an understanding that the Emperor would be pleased by a larger population."[2] Even to-day it is not certain whether China has the 300 million inhabitants ascribed to her by Pro-

[1] Quoted by Professor W. F. Willcox; *International Migrations*, Vol. II, p. 44.

[2] ibid., p. 39.

fessor Willcox or the 450 millions which the International Statistical Institute believes her to have; whether Afghanistan has 6 or 12 million inhabitants; Peru 3 or 6 millions; Bolivia 2 or 3.5 millions; whether the population of the world consists of 1,700 million or of 1,950 million persons. The probability, however, is that it is between these figures.[1]

However inadequate the material, all authorities are agreed as to the relatively slow growth of population over the larger part of the world before the nineteenth century. Throughout the Middle Ages and up to the Industrial Revolution there was, for example, a relative stability in the population of Europe. The population of Germany is said to have remained stable from the middle of the sixteenth to the end of the eighteenth century. In Flanders the stability set in already at the beginning of the sixteenth century. The rural population of Denmark is estimated to have remained the same from the end of the thirteenth to the beginning of the nineteenth century. Rogers maintained that the population of England remained the same from "Domesday" till the end of the sixteenth century. Only at the beginning of the eighteenth century did France again have the same number of persons which she is said to have had in the first half of the fourteenth century.[2] Even if these estimates exaggerate the stability of the conditions prevailing in Europe over this period, they nevertheless show the strong contrast with the century of unprecedented growth which followed.

The rapid development of the population of the western world dates from the second half of the eighteenth century. In the previous century (1650 1750) the population of America had dwindled, while that of Europe had increased at little more than half the estimated rate of Asia. Since 1750, on the contrary, the European rate of growth is estimated to have been more than twice as

[1] R. Kuczynski, in *Population*, by Gini, Nasu, etc., pp. 289–290.

[2] *Handwörterbuch der Staatswissenschaften*, II, pp. 669–681.

great as that of Asia.[1] The population of the United States increased from about 4 millions in 1790 to approximately 76 millions in 1900. It is said that 23 persons lived to see the change.[2] The population of the world is estimated to have increased between 1650 and 1929 as follows (in millions):[3]

	1650	1750	1800
Europe	100	140	187
Annual increase per cent ...		0.34	1.46
North America	7	6.3	15.4
Annual increase per cent ...		0.11	1.80
World	465	660	836
Annual increase per cent ...		0.35	0.47

	1850	1900	1929
Europe	266	401	478
Annual increase per cent ..	1.78	2.07	0.61
North America	39	106	162
Annual increase per cent	1.88	2.02	1.48
World	1098	1551	1820
Annual increase per cent ...	0.55	0.69	0.55

The increase in the population of Europe was due to the fall in the death-rate which accompanied improvements in medicine, in the technique of hygiene, and in the material conditions of the people. Up to 1875 the birth-rate of most European countries, it is true, showed a tendency to increase slightly. In Germany and in England the increase amounted, during the period 1841-1875, to as much as 9 and 10 per cent respectively. But this was due probably to improvements in recording the births. For those countries for which statistics are available over a longer period, such as Sweden, Finland,

[1] W. F. Willcox, *International Migrations*, II, pp. 79-80.

[2] Fairchild, *Proceedings of the World Population Conference*, (1927).

[3] W. F. Willcox, *International Migrations*, II, p. 78.

France and the United States, the fall in the birth-rate is no modern phenomenon.[1]

After 1875 the fall in the birth-rate becomes general and rapid throughout the western world, gaining in momentum up to the Great War. For North-Western Europe (including Finland, Germany, Switzerland, France, and the countries to the north-west of these) the birth-rate fell from

32.8 in 1876–1880 to
24.2 in 1911–1914.

The absolute number of births in this area, however, still increased up to 1901. Then it decreased rapidly until, in 1914, it was smaller than in any of the preceding forty years, and was only slightly greater than in 1870.[2]

Before the War, however, there was still a fairly wide range of difference between the birth-rates of Western European countries, a difference which was, nevertheless, rapidly tending to diminish in the years immediately preceding the War. During the years 1906–1910 Germany led with a birth-rate of 31.6, while France brought up the rear with only 19.9. In 1929 Holland led easily with only 22.8, and England came last with 16.3.

The Great War intensified the process of decline in the birth-rate. The number of births in North-Western Europe was only slightly greater in 1926 than the average over the period 1841–45, although the population of the territory had increased in the meantime by 72 per cent.[3] In Australia and New Zealand the birth-rate was only about one-half in 1928 of what it had been in 1870. In Eastern Europe the decline has been much smaller, and in Asia, Africa (with the exception of the white population of the Union), and most of the countries of South and Central America, there seems to be no tendency at all for the birth-rate to fall.

[1] Yule, *Journal of the Royal Statistical Society* (January, 1925), pp. 25–28; Willcox, op. cit., p. 103.

[2] R. R. Kuczynski, *The Balance of Births and Deaths*, I, pp. 8-9. (Published by the Brookings Institution, 1928).

[3] Kuczynski, *The Balance of Births and Deaths*, I, pp. 9–10.

The death-rate of those Western European countries for which there are statistics fell slowly during the first half of the nineteenth century. During the second half of the century the fall becomes general and rapid. The crude death-rates of Western European countries, with the exception of France and Ireland, are to-day only about one-half of what they were in the middle of the nineteenth century.

So rapid was the fall in the death-rate after the 'seventies that, up to the War, the effective productivity in most Western European countries still increased. Where it did diminish the decrease was small.

	1871–80	1901–10
Netherlands	12.1	15.4
Germany	11.9	14.3
England	14.1	11.8
Sweden	12.2	10.9

Only in France, since 1890, the balance of births over deaths oscillates between positive and negative quantities.[1]

During and after the War, the rate of natural increase fell rapidly. It was only about one-half, or less than one-half, in 1928 of what it had been in the last pre-War year for England, Germany, Scotland, Switzerland, Austria, and the Scandinavian countries. The effective productivity of France keeps on oscillating about the pre-War rate.

But even this much reduced rate of increase for the Western European population gives an exaggerated view of their fertility. Before the War the percentage of women of child-bearing age in this area varied little, and was the same in 1910 as in 1860. The birth-rate was, therefore, a good criterion of the fertility of the people.[2]

[1] 't Hooft, *Het Bevolkingsvraagstuk*, p. 83.

[2] Kuczynski, *The Balance of Births and Deaths*, p. 17.

On account of the rapid fall in the birth-rate since the War, the proportion of the population in the middle group of ages, as compared with children and aged, has rapidly increased. Whereas, for example, the total population of the German Empire within the present boundaries increased by 8 per cent during the period 1910–25, the percentage of married people rose by 22 per cent. The percentage of women between the ages 15–50, which was 25.89 in North-Western Europe in 1910, had increased to 27.84 in 1920. The percentage between the ages 25–35, who are mainly responsible for the future generation, had increased still more rapidly. A fall in the birth-rate per thousand inhabitants therefore implies a still greater fall in the fertility of the average married woman of child-bearing age.[1]

On the other hand, the age-composition of the present population of North-Western Europe favours a low death-rate. The crude death-rate depends on the death-rates at the various ages and on the age-composition of the population. Mortality is relatively high among infants, whereas in North-Western Europe it is almost negligible between the ages of 2–45 years. After the age of 65 the rate of survival becomes very small.

When a population has been increasing rapidly, therefore, and a sudden fall in the birth-rate sets in, the proportion both of infants and of aged will for a time be small. This is the position in practically all countries of the Western world to-day. In North-Western Europe in 1926 people aged over 65 years formed only 7 per cent of the population.[2] The death-rate in these countries will remain low until the present middle-aged people shift to the higher age groups. Then it will become relatively high, unless the death-rates at the various ages in these countries fall considerably. This, however, is not likely to happen.

Up to the War the fall in the death-rate was due very

[1] *Handwörterbuch der Staatswissenschaften*. II. p. 726

[2] Cf Kuczynski, *The Balance of Births and Deaths*. Tables, p. 57.

largely to the reduction of mortality within the different age groups. It was due not to the fact that old people were getting older, but to the fact that more people were getting old. The fall in the death-rate was essentially a fall in infantile mortality.

With the present death-rates in the various age groups the crude death-rates now prevailing in Western countries cannot last. Thus the death-rate in North-Western Europe was 13 per thousand in 1926. This would mean an average length of life for a stationary population of 77 years. In all the countries included in this area, however, the expectation of life of a new-born child was much shorter. In Germany, in 1924-26, it was estimated at only 57.36 years. This would give a death-rate for a stationary population of 17.4 per thousand. The crude death-rate, however, was 11.9. The corrected death-rate for North-Western Europe for 1926 Kuczynski estimates at 17–18 per thousand.[1] The entry of large numbers of immigrants into a country is another factor affecting the age-composition. A death-rate of 8.5 for New Zealand in 1927–28 would give an average length of life in a stationary population of 118 years.

Only for France was the difference between the crude and corrected death-rates small, because here the number of births had not changed very much since 1880. But then the crude death-rate in France is comparatively high. In 1926 it amounted to 17.5. This is accounted for chiefly by the large percentage of the population over 40, which was 25 as compared with 20 in the rest of North-Western Europe. Yet even for France the corrected death-rate was larger in 1926 than the crude death-rate.[2]

Already during the last few years there is the tendency in Western countries for death-rates to remain stable—the probable preliminary to general rise.[3]

[1] Kuczynski, op cit., 58 60.

[2] Kuczynski, *The Balance of Births and Deaths*, pp. 58 60.

[3] Statistical Year-book of the League of Nations, (1930-31).

	Annual death-rate					
	1921-5	1926	1927	1928	1929	1930
United States ... (registration area)	11.9	12.2	11.4	12.1	11.9	11.3
Sweden	12.1	11.8	12.7	12.0	12.2	11.7
Switzerland ...	12.4	11.7	12.3	12.0	12.4	12.2
United Kingdom	12.4	11.9	12.5	11.9	13.6	11.7

Percentage Age-Distribution in Different Countries.[1]

	−10	10-19	20-29	30-39	40-49	50+	
United States	26.7	21.4	18.2	12.7	9.1	11.8	1880
(registration	21.7	19.0	17.4	15.0	11.5	15.4	1920
area)	19.6	19.2	16.9	7.4	14.0	22.9	1930
France	18.3	17.1	15.8	13.8	12.4	22.5	1881
	13.9	17.7	15.1	14.3	13.8	25.2	1921
Germany	25.1	19.7	15.9	13.0	10.4	15.8	1880
(present	23.4	20.2	16.5	14.0	10.5	15.4	1910
territory)	15.8	20.4	18.3	14.2	12.5	18.8	1925
Japan	24.4	19.7	15.5	13.8	10.1	16.5	1913
	25.4	21.2	15.8	12.0	10.5	15.1	1925
U.S.S.R.	25.6	23.1	17.6	11.9	8.8	13.0	1926

A favourable age-composition, therefore, exaggerates the fertility of a nation and diminishes the mortality. If the effects of the age-composition are eliminated, the fertility of a large part of the Western world is seen to be insufficient to maintain a stable population in the future.

Taking into consideration the age-distribution of females, Dublin and Lotka have estimated, for the registration area of the United States, the birth-rate necessary to maintain a stable white population. For 1928 they find that this would correspond to a birth-rate of 18.4. It, in fact, was 19.7. In 1927 the birth-rate was

[1] Thompson, *Population Problems*, pp. 57–8; Statistical Yearbook of the League of Nations, 1931–32); *Current History* (Feb. 1932), p. 667.

20.6. In 1929 it fell to 18.9. The birth-rate had fallen to practically that level which, taking into consideration the age-distribution, would just suffice to keep the American population stable.[1] To-day the American population probably no longer holds its own.

Kuczynski has estimated that in the countries of North-Western Europe, with the exception of France and Ireland, the total number of children born to each woman in the eighties of last century, who in their turn became parents, averaged three. This would mean a doubling of the population within two generations. In France and Ireland the number was about two. The population there just held its own.

In 1926, on the other hand, in all the larger countries of North-Western Europe, but especially in England and Germany, the number of births was not sufficient to maintain a stable population in the future. The net reproduction rate—that is, the number of girls who would, with the mortality and fertility rates then prevailing, be born to a thousand newly-born females—was only 930. "According to the fertility and mortality in Western and Northern Europe in 1926, 100 mothers give birth to 93 future mothers only. With the fertility of 1926 the population is bound to die out unless the mortality of potential mothers decreases beyond reasonable expectations.' Since then, however, the birth-rate of this area has continued to decline.

In spite, therefore, of a birth-rate for North-Western Europe in 1926 of 19.2, a death-rate of 13, and an excess of births over deaths of over a million, there was a virtual deficit of 7 per cent in the reporduction of the population.[2]

This picture of the fall in fertility in North-Western Europe is exaggerated slightly on account of the large surplus of women. For whereas in 1926 there was an excess of males over females below the age of 20, there were 115 females for every 100 males for the population

[1] *Population*, Gini, Nasu, etc., p. 84.

[2] Kuczynski, *The Balance of Births and Deaths*, pp. 53–55.

as a whole.[1] By far the largest number of births in this area, however, are still conceived in wedlock.

Conditions similar to those of North-Western Europe prevail in Austria, Estonia, Latvia, and the western provinces of Czechoslovakia. Fertility was always low in the present Austrian territory, and before the War the population just held its own. In 1928 the rate of net reproduction was as low as in England. With the fertility and mortality then prevailing there was a genuine yearly decrease in population of 0.8 per cent. Conditions in the Baltic provinces are the same. In Estonia in 1929 even the absolute number of births was below the absolute number of deaths. In Czechoslovakia the population just maintains itself on account of the fertility of the eastern portion of the population, which forms only one-quarter of the total population.

The birth-rate in Italy and Hungary decreased rapidly after the War, and in 1930 was about the same as it had been in North-Western Europe twenty years before. The populations of these countries are still reproducing themselves, but if the rate of net reproduction continues to decline for another decade, as it has been doing since the War, the population will no longer hold its own.

In Spain and Portugal, on the other hand, fertility has fallen little since the War, and the population is still moderately reproducing itself.

Bulgaria is the only country in South-Eastern Europe for which there are adequate statistics. A generation ago it had a higher rate of net reproduction than any other country for which there are statistics. The female population was increasing by 82 per cent within a generation. Fertility has, however, decreased so much since the War that it is now about the same as that of the Scandinavian countries in the second decade of this century. In the other countries of South-Eastern Europe the reduction in fertility seems still to be confined largely to the towns.

[1] See Tables, Kuczynski, op. cit., p. 57.

The populations of Poland, Lithuania, and Russia, are still reproducing themselves with generous surpluses. In Russia the fall in fertility has been neutralized by the fall in mortality, so that the rate of net reproduction is as large as at the end of the nineteenth century. The pre-War tendency towards a growing divergence in the birth-rates of the various provinces disappeared to a large extent after the War owing to the secession of the Baltic and some of the Polish provinces. Fertility has, however, begun to decrease rapidly in the Ukraine, in White Russia, in Moscow and Leningrad. With the rate of of net reproduction existing in 1928 the Russian population was showing an annual genuine increase of 1.8 per cent.[1]

Professor Gini has made rough estimates of the survival rate for those countries for which the data are available. By dividing the number of females recorded as between the ages of 20 and 30 at the last census, by the average annual number of female births during the last five years for which data are available, he gets the proportion of survivors that there should be from present births in order to get the same number of women as recorded in the last census twenty to thirty years hence. By comparing these co-efficients of survival with the latest available life-tables of the respective countries, it can be seen whether a given population is, in fact, reproducing itself.

The data show that, in 1927–28, according to the latest life-tables available, the populations of North-Western and Central Europe, including Latvia, Estonia, and Austria, but excluding Denmark and the Netherlands, were not reproducing themselves. The rest of the world, apparently, was increasing its numbers. Some of the countries showed considerable rates of genuine increase.[2]

[1] Kuczynski, *The Balance of Births and Deaths*, Vol. II (By permission of the Brookings Institution).

[2] Gini, *Population*, pp. 81–83.

	Average survival rate necessary to maintain the female population constant.	Actual survival rate at 20-30 years according to the latest life-tables
Germany	1.042	0.844
England and Wales ...	1.032	0.847
France	0.878	0.813
Italy	0.620	0.739
Roumania	0.456	0.640
Argentine	0.489	0.715
Japan	0.454	0.673
U.S.S.R (Europe) ...	0.478	
Egypt	0.386	
British India ...	0.509	0.413

It seems that on the whole the populations of Central, Northern and Western Europe, of the United States, and of Australia, no longer reproduce themselves. Yet these countries were responsible, from 1920–26, for about one-fourth of the increase of the world's population.[1]

The reliability of an estimate of the future population of a community will depend on the correct divination of the future trend of its birth-rate. The variation in the death rates at ages is likely to be small. Various estimates of the future populations of Western European countries and of America have been made. There is, however, the certainty of considerable changes in the numbers of the working populations in these countries in the near future.

The effect of changes in age-composition since the War has hitherto been to increase the proportion of the working to the total population of Western countries. Thus, whereas between 1914 and 1925 the total population within the present area of the German Empire increased by only 2 millions, the number in the working ages (15-65 years) increased by 5 millions. The effect, however, on the population that is gainfully employed of changes in

[1] Kuczynski, *Population*, p. 297.

age-composition, as compared with changes in habit, in the employment of women or in methods of statistical enumeration, varied greatly in the different countries. In Germany the percentage of the population gainfully employed increased as follows:[1]

	Percentage of the male population gainfully employed	Percentage of the female population gainfully employed
1907	61.4	30.5
1925	68.0	35.6

There is the certainty, on the other hand, of a considerable decrease in the near future in the working population of Western countries, unless modified by immigration. There will probably also be a permanent increase in the proportion of the population too old to work.

Professor Bowley has shown that, without migration, a considerable reduction will take place between 1931 and 1941 in the rate of increase of the male and female populations between the ages of 15 to 70 years in the leading industrial countries of the world.[2]

The German Statistical Bureau has made its estimations on the assumption that the birth-rate of 1925 will decrease at a diminishing rate till 1955, when it will be 25 per cent less than in 1925, and that the death-rates in the various age-groups of 1921–23 will continue. On these assumptions the German population will increase to a maximum of 67.5 millions in 1950. Then it will decrease till, in 1975, the population of 1930 has again been reached. On this assumption, however, there will be 5 million fewer people between the working ages of 15–65 in 1975 than in the middle of the century. The number of aged over 65 would have more than doubled

[1] Cf. Statistics for different countries: *Statistisches Jahrbuch* (1930).

[2] A L. Bowley, *Estimates of the Working Population of certain Countries in 1931 and 1941* (League of Nations, 1926).

itself. The number of young under 15 years would have decreased by over one-fifth.[1]

THE FUTURE POPULATION OF THE GERMAN EMPIRE.

Year	Total population. (000's omitted)	Per cent of the total population in the various age groups		
		−15	15–65	65 +
1925	62,313	26.2	68.2	5.6
1955	67,174	21.0	70.0	9.0
1975	63,676	20.7	66.3	13.0

Professor Bowley, basing his estimate on what seems a liberal view of the future birth-rate and on the assumption that there will be no migration, comes to practically the same percentage variation in age-groups during this period for Great Britain. "The evident movement is the replacement of the young by the old. The active members of the population will be supporting the survivors of a former generation in place of a rising generation."[2]

Statesmen view this prospective diminution in the numbers of the working population with relief in view of the unemployment problem. It is an old fallacy that the size of the national dividend and the demand for labour are independent of the numbers of the population.

On account, however, of the prevalent association of size with strength, no country is likely to view a decrease in numbers complacently. Immigration into Western countries will no doubt modify considerably the numbers of the population. Alfred Sauvy, for example, has estimated that the French population of 1921 would, with the birth- and mortality-rates then prevailing, and with no migration, increase to 39.6 millions in 1935. Between 1921 and 1929, however, the annual natural increase of 80,000 was supplemented by a yearly net immigration of about 160,000. Instead, therefore, of a

[1] From *Handwörterbuch der Staatswissenschaften, Ergänzunsband*, p. 121.

[2] Bowley, *Economic Journal* (June, 1924), pp. 189–90.

population of 39.5 millions in 1930 the French population had increased to 41.4 millions.[1]

The decline in the birth-rate of Western countries has been attributed either to environmental conditions alone, or also to biological factors. The universality of the decline seems to favour, the rapidity of the fall to discount, a biological explanation.

All biological theories of the growth of population rest ultimately on the analogy between the growth of organisms and of human communities. For it is the fundamental assumption of biological explanations that the same laws of growth determine the development of all populations of cells or aggregates of cells, the development being an automatic, self-regulating process.

According to Professor Pearl, the same law of growth governs living matter of the most diverse forms, ranging from unicellular yeast cells to multicellular pumpkins, tadpoles, rats, and human beings.[2] These all prescribe in their growth the stretched-out S curve, which Verhulst called the Logistic. Throughout the nineteenth century the logistic curve can be made to fit fairly accurately the growth of populations which varied as much as that of France and the United States, and differed as much in environment as that of Java and of Baltimore City. The logistic therefore takes account of first order variables in population such as immigration.[3]

[1] *Journal de la Société de Statistique de Paris* (December, 1928), p. 326.

[2] A connecting link is thus formed between the law of growth of an individual and that of a population. The growth of a colony of unicellular organisms is analogous to that of the body of a multicellular organism. A human being, for example, may be regarded as a population of cells. Cf. Lotka, *Elements of Physical Biology*, pp. 69–70.

[3] Such catholic characteristics in a law can hardly be considered an asset, as Professor Pearl seems to maintain, unless the immigration is the cause of corresponding decrease in the growth of the original population. This has been maintained, for example, for America. (Cf. Francis A. Walker, "Immigration and Degradation," in Marshall, *Industrial Society*, Vol. III, pp. 1406–8). He, however, attributes the phenomenon to environmental causes. This view, besides, seems to be exaggerated. (Cf. Walter F. Willcox, "Immigration into the United States," *International Migrations*, Vol., II, Ch. ii.

The general law of population can be described as follows:

> "Growth occurs in cycles. Within one and the same cycle, and in a spatially limited area or universe," the population first waxes in its speed of growth and then wanes. The rate of development depends on the absolute size the population has already attained and on "the amount still unused or unexpended in the given universe (or area) of actual and potential resources for the support of growth." [1]

In experiments with the Fruit Fly (*Drosophila*), for example, Pearl finds that "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 death-rate, on the other hand, remains practically unaffected by increasing density as long as the density remains relatively low. But after a certain limit has been passed the death-rate begins to increase rapidly with increasing density up to an asymptotic limit.[2]

The complete logistic curve would characterize the development of a population passing through an initial stage of slow growth, then a phase of rapid increase in the rate of growth, succeeded by a declining rate tending towards a stable limit. In the nineteenth century, owing to the removal of the checks on its expansion, a sudden stimulus was given to the growth of population. It would therefore be remarkable if the major portion of the logistic curve could not be fitted to conditions prevailing at least among Western peoples since the Industrial Revolution, especially when the scales on the ordinates and on the abscissæ do not bear the same relation to each other in the case of all the countries. The same could, however, be done with other curves not of the sigmoid type. Professor Bowley finds, for example,

[1] Pearl, *The Biology of Population Growths*, p. 22.

[2] ibid, p. 136.

that parabolas fit the various populations of the nineteenth century as well as the logistic, though as a method of presenting population growth it must in the end lead to ridiculous results. Even the logistic curve, when extrapolated back into the eighteenth century gives populations for France and England far below the existing estimates. On the other hand, it gives future populations for many countries which seem far too high. The upper asymptote of the logistic for Germany, for example, corresponds to a population of 116.5 millions to be reached towards the beginning of next century. England will reach a maximum population of 95 millions at the end of this century; the United States, one of 197 millions about the year A.D. 2060.[1]

What is more significant, however, is the fact that the growth of populations of lower species and that of developed communities bear merely a superficial resemblance to each other. In spite of Pearl's assurance that in human populations "the real net correlation between birth-rate and density is of the same character fundamentally as that we have found in experimental populations of flies and hens," there is really no significant relation at all.[2]

It is rather difficult to give an intelligent meaning to the concept of density which will be applicable also to human societies. Pearl himself suggests among other things the amount of agricultural land, improved agricultural methods, and more food. But the date of the fall in the birth-rate in Western countries corresponded exactly with the great increase in all these resources when, from any economically significant meaning of the word, the density of population had been greatly reduced. Thus, whereas the fertility of flies and hens is adversely affected by increased density, that of human societies, or at least of Europeans, is affected adversely by decreasing

[1] Cf. Undy Yule, "The Growth of Population and the Factors which Control it," *Journal of the Royal Statistical Society* (January, 1925), and the subsequent discussion.

[2] Pearl, op. cit., p. 155.

density. The phenomena of differential fertility, especially as they existed before the War, militate still more strongly against the causal relationship between density and decreased fertility.[1] Nor when a purely geographical concept of density is taken is there any similarity between the growth of populations of *Drosophila* and of human beings. For in the case of *Drosophila*, after a certain density has been attained, the mean duration of life decreases steadily as the density of population increases. Among the populations of Western countries, on the other hand, exactly the reverse has hitherto been the case. The stability in population, besides, which prevailed before the Industrial Revolution and the stability which is setting in to-day, are due to different causes. Then it was the effect of a high death-rate, to-day it is due to a declining birth-rate. Apparently similar demographic phenomena are therefore caused by essentially different facts.

Professor Gini's theory of the cyclical rise and fall of

[1] For the phenomenon of differential fertility, however, Professor Pearl has a new and completely different vegetable analogy. "When thrown into a harsh or abnormal environment which threatens but does not immediately lead to the extinction of all individuals, and therefore of the race, it has been observed that some organisms tend to respond by curtailing vegetative processes and organs, and greatly increasing reproductive processes and organs" Tropical jungle flora, for example, is characterized by great profusion of leaves and other vegetable parts, while the Arctic (and desert) flora is noted for the profusion of flowers. "The lean, ill-fed sow and rabbit rear, it has been long known, a greatly more numerous progeny than the same animals when well cared for, and fat. . . . The aristocratic families of a country are continually running out; and it requires frequent creations to keep up the House of Lords; whereas our poorer people seem increasing in more than the arithmetical ratio." (Pearl, *op. cit.*, pp. 164-7).

The influence of overfeeding or starvation on the fecundity of animals is as yet, however, an unproved assumption. In the case of human beings it may be that differences in protein consumption have contributed to differential fertility, but it is not likely to have been a significant contribution. (Cf. Hogben, *Genetic Principles in Medicine and Social Science*, pp. 182-7). And Professor Pearl does not seem to suggest that selection has led to the survival of those types of "sexual athletes" who are able to perpetuate themselves in spite of an unfavourable environment. He, however, admits that unfavourable surroundings may act, at least partially, as a stimulus to psychological influences. (pp 167-171).

populations gives a much wider significance to the biological interpretation of the fall in the birth-rate. The rise of new nations is due apparently to cross-breeding. Many new types are eliminated by selection. Only the few successful attempts survive forming new ethnic unities and starting a new cycle. Cross-breeding may take place between different races. This was the case with the emergence of most of the modern nations after the fall of the Roman Empire, and with most of the modern colonial countries. Or it may take place between the different elements and classes within the same nation hitherto kept apart by differences of culture, by legal prohibitions, or by lack of means of communication. Thus the revival in Japan coincides with the abandonment of caste system "under which the higher castes boasted a different racial origin and presented also special physical characteristics of their own." The same applies to the Italian *risorgimento*. An Italian nation was created after the unification of the country, largely through the closer mingling of the various demographic elements, especially between North and South.

During the first phase of a nation's growth, after the initial stimulus due to cross-breeding, the average genetic power of the population tends to increase. This is explained by the fact that fecundity is hereditary. Various elements in the present generation contribute in very unequal proportions in the bringing about of the future generation. From statistics for various European countries Professor Gini has calculated that one-half of the generation which survives descends from a very small fraction, varying from one-seventh to one-fifteenth, of the generation which is disappearing. The large majority, or three-quarters of the generation which survives, descends from only one-third to one-eighth of the generation which is disappearing.

Assuming that the number of children is a criterion of reproductive power, every successive generation would tend to be constituted with average genetic faculties more highly developed than the previous ones, and tending to

the maximum reproductive power that existed among the individuals of the successive generations. The average reproductive power continues to increase up to a certain point. This culminating period corresponds with the glorious epoch in the history of a nation when its vitality is manifest in every sphere of activity. It excels not only in the demographic field, but in military, political, economic and cultural aspects as well. A large part of the population, to use an American expression, is "energized".

During this initial period, therefore, the influence of heredity is strong enough to neutralize the tendency for the birth-rate to decline on account of the exhaustion of the reproductive powers. Immediately the two factors balance, however, there will be a tendency for psychological exhaustion to set in.

The instinct of reproduction will no longer be strong enough to counteract the psychological forces making for smaller families. Primitive people resort to infanticide. In civilized communities birth control becomes prevalent. The proportion of sterile persons and of childless marriages increases. The proportion of twins decreases. The period between marriage and the birth of the first child is prolonged.

The same course described by nations is run also by individual families. Royal, aristocratic, and intellectual families had in the course of history continually to replenish themselves from the lower social strata. As these families are merely the precursors of the national type, this "demographic metabolism" can continue only until the physiological exhaustion reaches the lower classes as well. Then the nation has either to perish or to draw new blood from outside.

Few nations, indeed, complete the whole life cycle. Primitive peoples, when they decrease in numbers, are usually exterminated or assimilated by their stronger neighbours. Among mere civilized communities the older "decadent" nations are slowly and peacefully displaced by immigrants from their more "virile"

neighbours. The newcomers are usually assimilated culturally, and thus the nation is perpetuated. It was resistance to the entrance of the virile, but culturally inferior, barbarians which caused the collapse of Greece and Rome.[1]

It will not be easy to verify such a theory empirically. The value of exogamy to prevent the transmission of hereditary defects is generally admitted. The influence of intermarriage on fertility, on the other hand, has not been demonstrated.[2] It is difficult to see what influence cross-breeding has exerted on a population such as the French Canadians, for example, who are among the most prolific peoples in the world. English-speaking Americans, on the other hand, who have continuously and up till quite recently been drawn from the most diverse races, are among the least fertile nations of the world. To account for the revivals in Japan and in Italy by cross-breeding shows powers of speculation rather than of historical insight.[3]

[1] Gini, *Population*, and "Inquiries into Differential Reproductivity" (Population Conference, 1927).

[2] Cf. E. Elderton, *On the Marriage of First Cousins*.

[3] At the present stage of development of their science, biologists accept biological explanations of the fall in the birth-rate with the greatest reserve. The spread, for example, of homosexuality among the more cultured classes of civilized communities seems to point to a weakening of genetic instincts, whether the phenomenon be acquired or congenital. On the other hand, it dose not seem to be an explanation of the fall in the birth-rate, or of differential fertility, that marriage has been postponed, either among the population as a whole or among certain sections of it, to an "age when the reproductive impulse is no longer an urge." The average age of spinsters at marriage has, in any case, not increased between 1881–1890 and 1921 in Englalnd, France, Italy, and Sweden, and yet the birth-rate has decreased very much in these countries over this period. (For statistics, see Thompson, *Population Problems*, p. 93). The percentage of unmarried persons in the population of the United States, 15 years old and over, has decreased slightly between 1920 and 1930. (*Current History*, February, 1932, p. 669). Immigrants into Stockholm, Dr. Edin maintains, are usually stronger and less subject to tuberculosis than the native-born. They also marry earlier and in greater numbers, and yet have fewer children. Dr. Edin accounts for the fact that "these more vigorous elements are also more completely guided by reason," and therefore practise more vigorous birth-control. ("Population Conference," p. 207).

Whatever the value of these biological assumptions may be, environmental conditions seem adequate to explain the phenomena. It is significant that the fall in the birth-rate begins in practically all European countries in the year 1876.[1] This is the wonderful centennial year which gave to the world "the telephone, the incandescent light, the typewriter, and the first steel-frame building". It is a year characterized also by a great increase in the consumption of coal, by the increased industrialization and urbanization of Europe. This change has been accompanied by greater wealth, better education, more varied interests, and therefore by an increased rationalization of conduct. The increased power of amusement has been accompanied by still stronger desires to enjoy life. But the greater the value attached by the present generation to their own lives, the less willing are they to serve merely as a means of reproducing future ones. Western culture is laying an ever widening gulf for increasing sections of the community between their social and economic status and their "legitimate" expectations of what their position should be.

The motives naturally vary with the individual. The methods employed to escape having children are often still of the crudest. Among primitive peoples the power of multiplication is kept down by infanticide—"thinning", as it was called in Japan—by abortion and by restriction of intercourse. Infanticide is probably still a common practice in parts of Asia; in Europe it died out with the introduction of Christianity. Abortions, however, are still prevalent in all civilized countries. In Germany to-day the number of criminal abortions is estimated at from 6–800,000 per annum. The latter figures amounts to about two-thirds the number of births. In France it has been maintained

[1] The immediate cause was probably the international depression which commenced in 1874. This would result, normally, in a decline in marriages a year later, and a decrease in births two years later.

that before the War there were more abortions than births.[1]

It is possible that changes of habit in the Western world have reduced considerably the chances of conception. Sodium oleate, for example, has been found to be a toxic to spermatozoa in a concentration of 0.03 per cent. "It is, in fact, nearly twenty times as toxic as quinine sulphate and chinosol, two common spermicides used in the manufacture of pessaries." It is, therefore, probable that the increased cleanliness, which is a characteristic of Western civilization, especially among the upper classes, has contributed to the decline in the birth-rate. "The use of electric light by the bedside, the possibility of having a hot bath at any hour of the day and night, scrupulous washing of the genitalia, enjoined by so many medical men, the bodily fastidiousness which asserts the demand for single beds all these factors taken together may conceivably affect the probability of conception materially."[2] The influence that these facts could have on the birth-rate would depend on the probability of conception, and on the frequency of sexual intercourse. These, however, are unknown.

The probability, however, is that deliberate limitation has been the chief cause of the modern decline in the birth-rate. This decline coincided with improvements in the technique and in the knowledge of contraception. The Bradlaugh–Besant trial of 1877 led to a great increase in the propaganda for birth control, and in the same year both the English and Dutch Neo-Malthusian leagues were organized. The bearing of children became, for an ever increasing section of the public, a voluntary act.

The fall in the birth-rate is the more remarkable as it has been accomplished in the face of the organized opinion of the Church, and very often also of the State. The

[1] Julius Wolf, *Die Neue Sexualmoral und das Geburtenproblem unserer Tage*, p. 72.

[2] Hogben, *Genetic Principles in Medicine and Social Science*, pp. 187–9.

Fascist Grand Council, for example, has proclaimed that the object of womanhood consists in her "natural and fundamental mission of maternity." She is not encouraged to take part in sport or in public life, or in any other function which could detract from a life of a series of pregnancies. Propaganda, however, remains ineffective as long as the imperialist does not transform his nationalist ideal into the concrete form of bearing children for the sake of empire. The attitude of the average man seems to be that he "may be induced by patriotic motives to die for his country, but could hardly be expected to procreate children for her."[1]

The period between marriage and the birth of the first child has been prolonged.[2] The restriction in the size of the family has been especially great after the birth of the first and second child. The fall in the birth-rate is no doubt, to a certain extent, merely the reflexion of the decrease in infantile mortality. Statistics for Germany show that over the period 1901–1925 conjugal fertility has decreased by about one-half. But, whereas the reduction in the case of the first-born has been only about one-quarter, it has been about two-fifths in the case of the second child, about three-fifths in the case of the third child, and three-quarters in the case of the fourth child. There are now practically no higher figures for births.[3] The decline in fertility since the 'seventies has been comparatively small for women under 25 in France and the Scandinavian countries; for women under 20 in Austria. On the other hand, it has been particularly large for women over 30 years.[4] This can be ascribed probably to the voluntary restriction of families to a few children who are born during the first years of marriage. The following are the statistics for France:[5]

[1] Quoted by Pearl, *The Biology of Population Growths*, p. 176.

[2] For statistics, cf. Gini, *Population*, pp. 69-71 and 85.

[3] Harmsen, "Population Conference," p. 197.

[4] Kuczynski, *The Balance of Births and Deaths*, I, pp. 37–39.

[5] *Journal de la Société de Statistique de Paris* (January, 1929), p. 9.

Average number of Births (still-born included) per 1,000 Women in each age-group.

Years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	total
1896–1900	27	123	175	135	91	37	5	90
1901–1905	28	139	170	126	83	35	5	88
1906–1910	28	137	154	118	72	30	3	82
1911–1913	28	135	145	104	69	26	2	77
1920–1924	25	134	155	109	65	25	2	76

The fall in the birth-rate has been greatest among those sections of the community where the influence of the environmental factors has been greatest. The difference in fertility between the different social classes is probably no modern phenomenon. There seems to be evidence, however, that in England during the first half of the nineteenth century there was no marked differential fertility.[1] This is due probably to the scope for advancement offered to the middle classes and the fact that most of its members were *parvenus*.

Before the War there was a marked negative correlation in all Western countries between social position or wealth and the size of the family. Bertillon's table of the conditions existing in various European cities in 1897, even though the specific figures may not be entirely trustworthy, gives a fairly accurate view of the general situation existing before the War:

Annual Births per 1,000 Women, aged 15-50, among Different Economic Classes.

Classes of population	London	Paris	Berlin	Vienna
Very poor	147	108	157	200
Poor	140	95	129	164
Comfortable ...	107	72	114	155
Very comfortable ...	107	65	96	153
Rich	87	53	63	107
Very Rich	63	34	47	71
Average per 1,000 women	109	80	102	153

[1] Carr Saunders, *Population*, p. 109; "Population Conference," pp. 191–8.

Before the War, differences in wealth still corresponded fairly closely with differences in the knowledge of and lack of prejudice against the use of contraceptive methods, as well as with differences in the degree of indifference to the burden of rearing a family. Besides, whereas among the upper classes there were many outlets for mental and nervous energy, among the working-class there were no other outlets but alcohol and the satisfaction of the sexual instincts, and these two methods of diversion were probably closely related. The effect that these differences in practice could have on the birth-rate would again depend on the probability of conception.

Differences in the size of the families of the various occupational classes is another aspect of this form of differential fertility. The number of children varies inversely with the general level of culture in the profession of the father. In the registration area of the United States in 1920, for example, the number of births per father varied from a maximum of 4.3 to 3.3 for miners, farmers, labourers and clergymen, to a minimum of 2.3 and less for bankers, technical engineers, and bookkeepers. In the urban population of the United States the part representing the white-collar jobs was as a group dying out, even though from 60 to 70 per cent of these had three or more children.[1] This form of differential fertility is marked, even to-day, in those towns where there are still fairly wide differences in culture between the different classes. There were in Budapest in 1926 and 1927, on the average, 2.5 children per marriage dissolved by death. The distribution between the various occupations, however, was as follows:[2]

Liberal professions and public functionaries ...	1.8
Industrial workmen	2.5
Day-labourers	3.0

The restriction of the size of the family has been especially prevalent in the higher liberal professions, and

[1] Thompson, *Population Problems*, pp. 94 and 354.

[2] *Journal de la Société Hongroise de Statistique* (1929), p. 39.

falls to a minimum in the case of illustrious men.[1] It may be that the complaint of Darwin, that he lost his love for poetry with the development of his biological reflections, is merely an index of the general weakening of the affinitive aspect of the life of the genius. As, however, the same relative sterility is found in the case of the average Harvard graduate, an environmental explanation would be more conforming to the facts. What children offer are pleasures of the affections; from the point of view of the intellect they are merely a disturbance of the family peace. Between any form of intellectual indulgence, therefore, and a large family there is little compatability.

Much more important as an explanation of differential fertility, and of the fall in the birth-rate in general, than the intellectual diversions of the man is the modern emancipation of the woman. The homely ideal of Victorian England, or of Imperial Germany, when a woman had few interests outside her home and her religion, is a thing of the past. The "*Kinder, Kirche und Küche*" type of intellect has given way to companionate marriage. Outwardly this change is reflected in the increase in the number of women who earn an independent living and in the great increase in divorce, which in America has become almost an obsession. Here the position of the sexes has been reversed almost to that of a matriarchate. Such women prefer to preserve their charm and their leisure at the expense of a family. In Japan, on the other hand, where the "woman is not expected to have interests outside her home and her children, and the regard which society pays to her is rendered, not as the due of woman as a sex, but rather in respect to her functions as a wife and a mother," the phenomenon of differential fertility is unknown.[2] But here, too, there are signs of an impending change.[3]

[1] Gini, "Population Conference," pp. 161–2.

[2] Allen, G., *Modern Japan and its Problems*, p. 191.

[3] Kennedy, *The Changing Fabric of Japan*, Ch. viii; Nasu, S., *Population*, pp. 197–205.

The bigger birth-rate for rural as compared with urban communities is found in all Western societies. This differentiation also seems to be relatively modern, and is probably a temporary, phenomenon. In Berlin in 1878, for example, the birth-rate was 45.4 per 1,000, though this high rate was probably due partially to a very favourable age-composition. The fall in the birth-rate commenced earlier and has been more precipitous in the towns than in the country:[1]

	German birth-rate	Berlin birth-rate
1880–1881	37.6	38.9
1927	18.3	9.9
	Austrian birth-rate	**Vienna birth-rate**
1871–1875	34.5	40.2
1911–1913	24.7	19.0[2]

The correlation between the birth-rate and the size of the community in Europe and America is remarkable. The number of children of from 0–4 years per 1,000 native white women for the United States in 1920 varied as follows:[3]

Area as a whole	Cities of 100,000 and more	Cities of 25,000 to 100,000	Cities of 10,000 to 25,000	Cities of 2,500 to 10,000	Rural districts
538	341	390	434	477	720

Whereas, in East Prussia in 1925 the birth-rate was still 29.6, and in Upper Silesia 34.6, in the forty-six largest cities of the Empire it was only 14.2, in Hamburg only 13, "as against 10 in the four-million city of Berlin."[4] In Berlin there were in 1927 not only 6,000 more deaths than births, but also more marriages than legal births.[5]

[1] *Handwörterbuch, der Staatswissenchaften. Ergänzungsband,* p. 129.

[2] Kuczynski, ii, p. 46.

[3] Thompson, *Population Problems,* p. 101.

[4] Grotjahn, "Population Conference," p. 149.

[5] *Ergänzungsband,* p. 129.

The excess of deaths over births has since steadily increased.

The birth-rate has fallen rapidly even in the larger cities of Eastern Europe where the birth-rate for the whole country as yet shows practically no such tendency:

Bukarest	...	1911	32.0	1926	13.3
Rumania	...	1909–13	41.6	1927	35.5[1]

In the Ukraine there was a direct negative correlation between the size of the community and the birth-rate. In Moscow, in 1926–27, there was a considerable deficit in the net reproduction of the population, and yet the fertility of Moscow was larger than that of the largest cities of the Ukraine.[2]

In the East, on the other hand, there is little sign of a similar differentiation. The apparent exception of Bombay is ascribed to the fact that it contains only half as many women as men.[3]

Birth-rate of Egypt, 1926	...	...	. .	...	42.9
Cairo	...	...	...	...	51.6
Alexandria	...	...	...	...	49.6

The difference may, however, be due to the better recording of births in the towns than in the country.

But even this low fertility of Western towns, and especially of the largest, is exaggerated because immigration from the rural districts leads to a specially favourable age-composition. Thus, whereas the percentage of the American population in 1920 between the ages of 20 and 44 years was 43 in urban communities, it was only 34 in the rural areas. In Germany in 1907 the percentage of the population between 20 and 40 in the cities of over 100,000 inhabitants was 36.7, outside these cities it was only 28.7.[4] Thus, with a natural increase for Milan in 1926 of 1.5, Gini found a standardized increase of −3.[5]

[1] Julius Wolf, op. cit., p. 148.

[2] Kuczynski, op. cit., II, pp. 25-27.

[3] Wolf, op. cit., p. 148.

[4] Sombart, *Der Moderne Kapitalismus*, III, i, p. 418.

[5] Gini, "Population Conference," p. 160.

The increase in the urban relative to the rural population has been continuous for all countries throughout the nineteenth century, and is still continuing to-day. In the United States the percentage of the population living in places of more than 8,000 inhabitants varied as follows:

1790	...	3.3		
1900	...	32.9		
1910	...	38.7		
1920	...	43.8	per cent in all towns	51.4
1930	...	49.1	,, ,, ,, ,, ,,	56.2

Since the War there has been in the Western world an agricultural, and to a certain extent a rural, depopulation. The rate of increase of the largest, and especially of the capital, towns on the other hand, has been much greater than that of the aggregate populations of the different countries.[1]

Throughout the century there has been a continuous transfer of industries from the country to the towns. The scope of the work performed on the land has decreased considerably, and the services of townsmen who distribute, transport, and produce agricultural products and machinery account for a continuously increasing share of the price of agricultural produce. Thus the farmer in the United States to-day usually only receives from one-quarter to one-fifth of the price charged to the consumer of his produce. The retailer's share is, as a rule, almost twice as large.[2]

The birth-rate in western Europe is correlated positively also with the prevalence of Roman Catholicism. In Holland, for example, in 1909–10, the number of legitimate births per 1,000 married women under 50 years of age varied as follows:

Catholic women	287
Protestant women	219
Jewesses	157[3]

The fact that whereas between 1881 and 1901–3 the

[1] Cf. *World Economic Survey* (1931-32), League of Nations, p. 14.

[2] Cf. *Principles of Marketing*, Maynard, Weidler, etc., pp. 9–10.

[3] Methorst, " Population Conference," p. 182.

standardized birth-rate for London decreased by 17 per cent, and that of Liverpool by only 5 per cent, is ascribed to the large percentage of Irish Catholics in the latter city.[1]

This phenomenon is accounted for, partially, by the attitude of the Catholic church towards large families, propaganda for birth control, and sexual morality. In France, for example, large families are usually described as "*des familles catholiques*". On the other hand, this difference in fertility must be accounted for largely by the same facts which account for the difference in fertility between the different social classes. The centres of Protestant population have become also the centres of industry, either because the people with most economic initiative became Protestant, or because Protestantism developed capitalistic aptitudes, or for fortuitous geographical and political reasons. The German census for 1907 gives the following percentages for independent people engaged in the various professions:[2]

	Agriculture	Industry	Trade and Transport
Protestants ...	56.2	66.4	63.8
Catholics ...	43.5	31.7	27.8
Jews	—	1.4	7.7

The cultural and economic "inferiority" of the Catholics in Germany, as measured for example by the attendance of higher educational institutions, is however, rapidly disappearing.[3] With the increase in the general level of culture the birth-rate has also started to fall among Catholics. The number of births divided by the number of marriages the previous year varied as follows:

	1913	1920
For wholly Catholic marriages ...	4.0	2.0
,, ,, Protestant ,, ...	3.0	1.6
,, ,, Jewish ,, ...	1.8	1.0[4]

[1] Carr Saunders, "Population Conference."

[2] *Handwörterbuch der Staatswissenschaften*, Band 7, p. 8.

[3] ibid.

[4] Grotjahn, "Population Conference," p. 150.

The fertility of mixed marriages has in Germany, for the time for which there are statistics (1875–1879 to 1900–1904), been considerably less than where both husband and wife belong to the same religion, and falls lowest in the case of the Jewish-Christian couples.[1]

This points to the fact that the absence of religious scruples probably has a much more important influence on the fall of the birth-rate than the prevalence of any one religion. There is a great contrast in the fertility of the devout Eastern Jew and his emancipated Western brother, between the Jews of Algeria (whose birth-rate was 50 per 1,000 in 1900), and those of Prussia, among whom it was 19.5.[2] There is the same distinction between the free-thinking Frenchman and the devout Canadian. The spread of irreligiousness has begun and has been especially prevalent among the large, formerly mostly Protestant, masses in the great towns.

In the East, on the other hand, ancestor-worship makes it the duty of every man to marry young and to beget a large progeny, especially of males, to carry on the family tradition. The Western conception of individuality is there so little developed that the word "personality", for example, is unknown in the Chinese language. Even in Russia the calculating intellectual attitude of the western European is lacking, and an emotional unreflecting character among all classes is conductive of a numerous offspring. More materialistic motives are, however, not lacking. Thus a large family has been called the "old-age insurance policy of the Chinese."[3]

As the causes which influence the fall in the birth-rate exercise their influence predominantly in the Western world, a re-distribution of power will probably take place in the near future. The nineteenth century was largely one of Germanic expansion. In Europe alone

[1] Thompson, *Population Problems*, p. 108.

[2] *Handwörterbuch*, Band 4, article "Geburtenrückgang."

[3] Quoted by Wolf, *Die Sexualmoral*, p. 127.

the three great races increased from 1800–1910 in the following proportions:

The Germanic Nations	from	59,000,000	to	152,000 000
The Latin	,,	,,	63,000,000	,,	108,000,000
The Slavonic	,,	,,	65,000,000	,,	187,000,000[1]

To-day the birth-rate is lowest in the Germanic countries. The natural increase of the population of European Russia in 1927 was 2,568,000 for a population of 118 millions. For the rest of Europe, with a population of over 350 millions, it was only slightly more, or 2,758,000.[2] In the towns of the United States, even with a very favourable age-composition, the native stock has, since the War, been little more than maintaining its numbers. Practically the whole of the excess of births over deaths comes from the foreign-born.[3]

The factors of increased productivity and improved hygiene which led to the rapid increase in the population of the Western world in the nineteenth century are beginning to exert their influence in the East. The most rapid increase in population since the War has taken place in Russia, in parts of Asia and in South America. A new economic grouping seems to be developing in the region from India to Japan. Whereas trans-oceanic migration from Europe has virtually stopped since the War large and significant movements of population have taken place in Asia. Population has shifted on a large scale from China proper to Manchuria, from South-east China and India to Malayan and East Indian regions, and to a smaller extent from Russia to Siberia.[4]

The capitalistic development of the nineteenth century was due largely to the Protesant Germanic and Jewish races: "*eine germanisch Jüdische Angelegenheit.*"[5] The other races and religions will probably play a relatively

[1] *Handwörterbuch,* Band 2, p. 132.

[2] From the Statistical Year-book of the League of Nations (1930–31). (Yugoslavia always omitted).

[3] Thompson, *Population Problems,* p. 354.

[4] *World Economic Survey,* Ch. I.

[5] Sombart, *Der Moderne Kapitalismus,* III, i, p. 26.

much more important role in the future economic development of the world, both on account of their numerical preponderance and because the methods of organization will conform with their mentality.

With the increase in the general level of culture during the twentieth century, the practice of contraception has spread from the upper classes to the proletariat. The irresponsible reproduction, which has given this class its name, and which contributed largely to maintaining it in its status of inferiority, is making way for families more conforming with its means. The following are examples of the statistics gathered by Julius Wolf for various European cities:[1]

Birth-rate for Different Quarters of Various European Cities

Berlin	1909	1912	1926
Tiergarten (wealthy district)	15.2	13.8	10.6
Wedding (poor district) ...	31.8	26.4	11.8
Prague		1913	1926
In rich quarters		12.0	9.4
In poor quarters		23.0	14.2
Riga		1912–14	1922–26
Wealthy districts		12.5	10.1
Poor districts		28.9	16.5

On the whole the poor quarters had, in 1926, about the same birth-rates as the wealthy quarters had before the War. If the large number of relatively infertile servants in the richer districts is taken into consideration, it is probable that in most western European towns there is to-day no difference in the size of poor and of wealthy families. For Berlin in 1929 a zero correlation between fertility and social status is reported.[2] For Stockholm, during the years 1919–22, Dr. Edin even found that the birth-rate among industrial workers was

[1] Julius Wolf, *Die Neue Sexualmoral und das Geburtenproblem unserer Tage*, pp. 32–60.

[2] Hogben, *Genetic Principles in Medicine and Social Science*, pp. 194–5.

25 per cent lower than among the upper classes, whereas the infantile death-rate was 26 per cent higher. Among the upper classes also the size of the family increased and the infantile death-rate decreased as the income increased. This does not, however, imply that the rate of reproduction is higher among the wealthier sections of the community because the probability of marriage is higher and the age at marriage lower among the working classes. The fall in the birth-rate among unskilled workmen is ascribed to Communist propaganda in favour of birth control.[1]

The fall in the birth-rate will be difficult to stop. With an increase in the knowledge of contraceptive methods it is very likely to continue. With the increase in the proportion of people living in towns, and probably in flats, the percentage of families who will find it intolerable to rear the three or more children that are required to maintain Western communities stable will increase. The reduced rate of increase will have important effects on the economic life of Western countries. Already the importance of consumption as compared with constructional industries is increasing. The reduction in the rate of increase of Western peoples will undoubtedly facilitate the modern tendency towards equality. It will react very strongly on economic policy and on economic welfare. The change in the age-composition, the smaller families, and the reduced migration among Western communities will have important effects on economic enterprise. The greater proportion of first-born may seriously affect their physical vitality as well.[2]

[1] Edin, " Population Conference," pp. 206–7; Gini, *Population*, p. 35.

[2] Cf. Karl Pearson, *On the Handicapping of the First-born.*

CHAPTER III

ENTERPRISE

THE economic function of society is the supply of the services which constitute the national dividend. By enterprise is, therefore, meant the responsibility for the decisions which affect the distribution and application of resources to the production of these services. From a dynamic point of view it means especially the responsibility for the redistribution of resources that is involved either in rendering old services more effectively or in rendering new services. All energy expended on the production of income involves a certain measure of discretion. Economic initiative, in its broadest aspect would, therefore, include the rather passive function of saving and the performance of work under direction. The distinction is one of degree. In its essence enterprise means the taking of decisions which gets services to be rendered. It is this continuous adaptation of resources and the planning anew, the power of organization that it implies and the assumption of risk that it involves, that are associated with enterprise in business. Ultimately, of course, the supply of services is subject to the selection of consumers who accept or reject,[1] But there are many ways of influencing their judgment, from the assertive salemanship of the private firm to the legal coercion of the State.

With the increase in economic well-being during the nineteenth century there was a change in the nature of the services demanded. The demand for agricultural produce is inelastic. With every improvement, therefore, in agricultural technique which supplied the pro-

[1] This function is performed mostly by women. In the United States, for example, it is generally maintained that women to-day buy 80 per cent of the goods sold at retail.—Converse, *Elements of Marketing*, p. 604.

duce more rapidly than the increase in demand, which is dependent mostly on the increase in population, resources were transferred from agriculture to industry, trade, and the various professional services. This process continued in Western countries up to the end of the Great War. The table on the following page gives the percentages which each occupational group formed of the total population at the last pre-War and post-War censuses respectively.[1]

Since the War the transfer of resources from agriculture has continued. Thus, during the period 1925-1929 the average annual increase in the production of foodstuffs was only 1.2 per cent. The production of raw materials increased at the rate of 4.7 per cent per annum. The increase in manufacturing industries differed considerably in the different countries, but was, on the whole, considerably greater than the increase in the output of raw materials. Every branch of agriculture has, however, not suffered equally. There has been a decline in the consumption of cereals, but a large increase in the consumption of fruit, dairy products, and some of the "colonial goods". Thus, whereas between 1913 and 1928 the population of the world increased by about 10 per cent, the consumption of cereals decreased by about 4 per cent, but the world's consumption of meat, on the other hand, increased by over 20 per cent.[2] Supply has however, outstripped demand in practically every branch of agriculture. Farmers producing virtually every line of product are acutely aware of the necessity of adjusting the scale of their production downwards, but are at a loss to find out the substitute crop which can be adjusted upwards. The consequent fall in prices has left the farmer with an income much below that of the average town inhabitant. In the United States in 1925 his income was only 39 per cent of the *per capita*

[1] Statistical Year-book of the League of Nations (1930–31).

[2] *The Course and Phases of the World Economic Depression* (League of Nations, 1931); pp. 20–21; *World Economic Survey*, p. 151.

Country	Year	Mining	Agriculture and Fishing	Industry	Trade	Public Administration	Liberal Profession	Domestic Services
United States	1910	2.5	33.2	27.9	9.5	0.9	4.4	9.9
	1920	2.6	26.3	30.8	10.2	1.3	5.2	8.2
England	1911	6.9	7.7	38.7	13.4	4.4 [1]	4.4	11.8
	1921	7.5	6.8	39.7	13.9	6.5 [1]	4.2	15.1
Sweden	1910	0.6	46.3	25.1	5.4	0.9	2.7	8.9
	1920	0.8	40.7	30.2	8.4	1.1	3.8	7.0
Australia	1911	5.3	24.2	28.4	14.5	1.1	5.9	10.1
	1921	2.9	22.9	31.2	15.3	1.7	6.5	9.0

[1] Army and Navy included

income of the total population.[1] Everywhere the prices of the articles he has to buy have risen relatively to the prices of the articles he has to sell.[2] The revolution in farming methods has as yet, however, only begun. The improvements in winning artificial nitrogen from the air has displaced more agricultural land in Germany than was lost by the Peace Treaty. Whereas in Germany, however, 43 per cent of the gainfully employed people are still needed to feed the population, in American 29 per cent suffice to perform the same service.[3] It has been estimated that if all the work on peasant farms in Russia were organized as efficiently as that on State farms, the 26 million peasant householders comprising 100 million persons could be displaced by 1,200,000.[4] In the Western world it is to-day no longer a question of the pressure of population on food but of food on population.

Since the War a similar development has affected industry. The increase in the effectiveness of the average labourer in industry has been greater than the increased demand per head of the population for manufactured products. Additions to the working population have been transferred to rendering services directly, rather than through commodities. In the future, western communities will be both less industrialized and less agricultural. They will probably be more commercial, more professional, and more leisured. Those countries which are best fitted to supply services, and especially tourist services, will grow in relative importance. Already this tendency is reflected partially in the post-War prosperity of France.

In the United States about 600,000 fewer men were employed in manufacturing in 1927 than in 1920. Even

[1] *Recent Economic Changes in the United States* (National Bureau of Economic Research), p. 883.

[2] *The World Economic Depression* (League of Nations), p. 77.

[3] *Recent Economic Changes*, p. 3.

[4] Chamberlin, *The Bolshevist Revolution in a New Phase—Current History* (May, 1930), p. 320.

during the period of Industrial prosperity from 1922 to 1927 there was an average annual decrease of employment in factories of 0.7 per cent.[1] In addition, during the period 1920 to 1927 about 860,000 farmers migrated to the towns. The employment in mining remained stable. On the other hand the number of mercantile employees increased by 1,400,000. The loss in railway employment was more than balanced by the increase in automobile transport. There was an increase of employment in transport and communication of one million employees. Employment in construction, excluding highways, increased by 600,000, and the number of public employees by 100,000. By far the greatest increase in employment, however, took place in professional services, banking and insurance, hotel services, amusements, and so forth. Together there was an increase in the number of people employed in rendering these services of over two and a half million. These industries have been organized on such a large scale as to have become "mass services".[2]

As in the case of agriculture, so the various branches of industry have not suffered equally. From statistics collected by the League of Nations for a number of countries it appears that in every case the more finished goods have risen more in price during the post-war period, as compared with 1913, than the raw materials from which they are made, and that the higher the article stands in the stage of manufacture the more it has risen in price.[3] The highly industrialized states have

[1] *Recent Economic Changes,* p. 607.

[2] *Recent Economic Changes,* pp. 462–478.

The number of wage earners reported in all American industries varied as follows:

(Factory Production, 1899-1927).

1899	4,712,763	1923	8,778,156
1914	7,036,247	1925	8,384,261
1919	9,096,372	1927	8,351,257

—*Mergers in Industry,* National Industrial Conference Board, p. 184.

[3] *The World Economic Depression* (League of Nations), pp. 74–77.

gained at the expense of the countries producing raw materials, because, since the war, they have exchanged their wares on more favourable barter terms than in 1913.[1] There has been a transfer from construction goods to consumption goods, and especially towards the production of luxuries such as automobiles, electrical appliances, radios and rayon. Thus, whereas there has been depression in the Western world in the cotton, woollen and worsted branches of the textile industry there has been a boom in the rayon, silk hosiery and fur trades. In the building industry the value of contracts for residential purposes has increased greatly, even in the United States, relative to that for commercial and industrial purposes.[2]

In Russia, on the other hand, where there is a complete shortage of all kinds of industrial products, and where it is the ambition of the communist régime rapidly to industrialize the country, the tendencies have been exactly the reverse of those in Western countries, and there has been a large increase during the last few years in the number of workers engaged in industry. Outside Russia, however, the problem of industry is no longer the technical one of production, but that of the disposing of the goods produced. The surplus capacity existing during the boom period in 1928-29 was on a much larger scale than during pre-War cycles.[1] Conditions seem to have changed permanently from a "seller's market" to a " buyer's market."

The large increase in the number of people engaged in distribution is due, probably, to the fact that the cost of marketing, in contrast with the cost of production, has increased in relation to sales. But the "overstocking" of distribution is due also, not so much to the objective possibilities of trade as to the subjective estimate of the possibilities for small men to gain independence and to succeed in com-

[1] *The World Economic Depression* (Leagut of Nations), pp. 81–2.

[2] *Recent Economic Changes*, pp. 220–222.

[3] *The World Economic Depression*, p. 65.

merce as compared with industry. Thus the 500,000 shops of England and Wales are estimated to have an average weekly turnover of only £62. As about one-quarter of the price of finished goods goes to dealers, the chances of the average shop-keeper to succeed, and even to make a decent living, seem to be much exaggerated.[1] The mortality of independent grocers in several large American cities, for example, has been calculated to be as high as 30 per cent per annum. It is said that under 5 per cent of the people who enter the mercantile business in the United States succeed; the others either vegetate or fail. Over three-quarters of the failures, however, are attributed to the personal element, and not to outside factors.[2].

The increase in the proportion of people engaged in the liberal professions is due to the increased complexity of social relations, to increased fastidiousness, and to the greater use of leisure. Especially great has been the increase in the proportion of their incomes spent by Western peoples on travelling, on education, and on amusement. It is estimated that Englishmen, during the post-War period have spent annually about £240,000,000 on travel.[3] This about represents the sum spent annually by American tourists abroad. The expenditure on education, in the United States, quadrupled itself between 1914 and 1928. The increase in expenditure on sport, on cosmetics, and on amusement, has probably been still greater. The tendency to-day is to work shorter hours, to live in smaller houses, to restrict the family, to have fewer servants, and to spend a smaller proportion of the family income on furniture and on food, but a larger proportion, on the other hand, on cars, radio, amusement, holidays, health and education.

Not only has there been a change in the kind of ser-

[1] *Economic Journal* (September, 1929), p. 362.

[2] *Encyclopædia of the Social Sciences*, Vol. vi, p. 319; Converse, *The Elements of Marketing*, pp. 810–814.

[3] A. E. Feaveryear, "Spending the National Income"—*Economic Journal* (March, 1931).

vices demanded, but there has been a change in the nature of the men and the institutions which supply these services.

During the greater part of the nineteenth century industry was conducted on a relatively small scale. The source of enterprise was easy to locate. It was associated with the *entrepreneur*. He was a capitalist who risked his own wealth in a small industry which he himself directed. The small beginnings from which he started assured him a thorough mastery of details. The qualities that were demanded of the undertaker were powers of organization, a keen wit and inventive power, a knowledge of the technical processes of his industry, and of the general conditions of the market.[1] The *entrepreneur* in economic literature was the independent, unemployed manager, the one who carried the risks and claimed the gains of the enterprise.

These men were for the most part *parvenus*. The self-made man at the head of a business was the rule and not the exception. They were recruited mostly from the upper ranks of workmen, artisans, and even small farmers. The changes brought about by the Industrial Revolution gave great scope to men of character, individuals of "motor" temperament, capable of winning through in the competitive struggle for existence. "The social foundations of progress", says the Liberal Report, "were the liberation of the energies of the middle classes, the scope offered to their enterprise, their talents, and their thrift, and the honour paid to success in business life."[2]

With industry organized on a small scale, where the individual firms do not have easy access to the money market and cannot afford expensive research in business practice or in industrial technique, innovation is both difficult and risky. Economic development takes the form, not of the extension of old firms, but of the setting

[1] Marshall, *Industry and Trade*, p. 355.

[2] *Britain's Industrial Future*. Report of the Liberal Industrial Inquiry (1928), p. 6.

up of new ones. As soon as the success of a new experiment is evident it furnishes an easy example to a whole host of imitative admirers. This accounts for the rapid expansion which followed each major invention, as well as the crises which came in their wake.[1]

Newcomers into an industry could easily oust their predecessors if their methods of rendering the services were superior. The rate of mortality was big. Everything depended on the initiative and skill of the undertaker. The ownership of the business gave him unfettered control in the management of his own affairs, and the facility of taking decisions; the personal possession of the business supplied the stimulus to succeed. "He worked day in and day out with the consciousness of the hell of penury on one side, and the paradise of huge possessions on the other."[2] This developed a fighting spirit, the sense of playing for a side, an individualism which tolerated no outside interference. But it also stimulated the qualities of thrift, resourcefulness and perseverance, which are usually associated with the *petite bourgeoisie*.

Most of this has changed. There are, of course, numerous such industrialists left to-day. They are to be found especially in the textile industry, and in retail trade. They were predominant in the motor industry at the beginning of the century, but the tendency of economic organization is to eliminate the type, especially in those industries which are characteristic of modern economic development.

Businesses owned by individuals have, since the last quarter of the nineteenth century, been generally displaced by the corporate form of organization. There are many such private firms still in existence to-day, but they are insignificant from the point of view either of the number of workmen employed or the value of goods

[1] Schumpeter, J., "The Instability of Capitalism"– (*Economic Journal*, September, 1928), p. 384.

[2] Sidney and Beatrice Webb, *The Decay of Capitalist Civilization*, p. 73.

produced. The percentage of establishments, wage-earners, and value of products owned and employed by individuals in the manufacturing industry in the United States, for example, decreased as follows:[1]

Year	Percentage of establishments	Percentage of wage earners	Percentage of value of products
1904	52.7	13.8	11.5
1914	51.6	10.1	7.9
1919	47.6	6.9	5.7

Whereas establishments operated by corporations employed on the average 86.1 wage-earners per establishment in 1919, those operated by individuals had an average of only 4.5 workmen.[2] Industry, mining, transport, and banking are to-day, in all the great industrial countries of the world, organized predominantly in the form of corporate undertakings.

The advantages of the corporate form of organization are obvious. It facilitates the acquisition of large amounts of capital and gives relative security to shareholders owing to the division and limitation of their liability. It gives endurance and stability to a business and facilitates the drawing of new blood into management. Usually the company is privileged with regard to taxation as well. The defects in the relatively greater clumsiness of administration are rapidly disappearing. The corporation gains over the private business in many economies of operation, and in continuity of policy.

With the development of corporate enterprise there has come a differentiation of functions. The individual enterpriser has given way to a large number of different personages, such as promoters, directors, managers and shareholders. Enterprise is no longer the monopoly of any one individual, but is associated with a large number of persons and institutions.

The administration of the business is relegated to a

[1] Marshall, L. C., *Industrial Society*, p. 471.

[2] ibid., p. 472.

paid directorate in collaboration with salaried managers. They promulgate principles of policy and take decisions with regard to the measures to be adopted. The execution of the policy in detail is relegated to the managers and the technical staff. The directorate is legally responsible to the shareholders. The effectiveness of this responsibility depends on the dissemination of the shares and on the character of the shareholders.

The number of small stockholders in large corporations has greatly increased.[1] The function of risk-bearing, formerly undertaken equally by all shareholders, has also been broken up and diminished. Various devices have been instituted, by differentiating the kinds of shares, of drawing waiting only from certain shareholders and uncertainty-bearing from others.[2] Shareholders themselves distribute their investments among a large number of companies on the principle of not having all their eggs in one basket. All these developments have decreased the interest of a large number of stockholders in the affairs of the concerns which they own. Various financial institutions, and especially investment trusts, by affording skilled management in the selection and diversification of shares, have taken over the function of investment.

Most large companies have passed out of effective control of their shareholders. The dispersion of stock among a large number of small holders develops indifference.[3] The maintenance of secrecy, which is largely an inheritance of the nineteenth century, makes

[1] The number of shareholders in American railways, trams, light and power industry, telephone and telegraph, packers, ten oil companies, five iron and steel corporations, ten high-grade manufacturing industries increased from 2,537,105 in 1918, to 5,051,499 in 1925.—Cross, *Types of Business Enterprise*, p. 329.

[2] Cf. Pigou, *The Economics of Welfare*, Part II, Ch. v.

[3] One-third of the holders of stock in 367 typical American companies investigated recently did not hold more than 500 dollars worth of stock each.—Marquand, *The Dynamics of Industrial Combination*, pp. 129–30.

it impossible for the shareholders to find out the conditions of the companies which they possess. As reflected, for example, in the number of votes cast at elections, the holders of shares are both indifferent to the affairs of the concerns they own, and incapable of exercising the necessary judgment in the choice of directors. "The election of directors is nominal, their re-election automatic, their vacancies filled by co-option."[1] Small investors are encouraged by the directorate. Its power is assured by the issue of bonds and preference shares to the public. The holders of preference shares, even when they have voting rights, are notoriously indifferent to the exercise of this function and are interested mainly in the dividends paid out.[2] Attempts have even been made to limit the voting power of common stockholders.[3] In Germany plural-voting shares have been created by concerns on a larger scale since the War to prevent foreign domination.[4] The number of shares in the possession of concerns themselves seems to have increased.[5] Industry has, in Europe during the post-War period, been financed to an increasing extent by the incurring of debt rather than by the issue of shares direct to the investing public.[6] By these means the administration remains vested in the promoters, who are constituted a self-perpetuating oligarchy.

On the other hand, the freedom of action of the ad-

[1] Arnold Plant, "Trends in Business Administration"—*Economica* (February, 1932).

[2] Of 245 issues of preference shares made by 189 representative American companies there were, on September 1st, 1930, 155 issues with voting rights, 74 had only contingent voting rights, holders being mostly given a share in the control when dividends had not been paid for one year, and only 13 of the issues were of non-voting preference stock.—*Die Betriebswirtschaft* (April, 1931), p. 104.

[3] Ninety-seven per cent of the issues of common stock made by 327 American companies investigated on September 1st, 1930, had voting rights.—ibid.

[4] For the importance of this practice, see D. Warriner, *Combines and Rationalisation in Germany* (1924-1928), p. 143.

[5] Passow, *Der Strukturwandel der Aktiengesellschaft*, p. 12.

[6] *World Economic Survey*, pp. 210–11.

ministration of a large modern corporation is considerably restricted. Its scope is restricted by the rules laid down by the Acts of the company, and by the requirements of the auditor. Its decisions on technical innovations are formulated for it by technical experts in the various research departments. The power of the management, as against the directorate, has probably increased. Policies are limited and often dictated by numerous arrangements with amalgamated firms or independent concerns with which the administration has entered into agreements. Plans are controlled by enforced or voluntary publicity, and by government control. Everywhere a system of checks and controls limits and directs initiative, while the stimulus to exertion is weakened by fixed-salary relationships, and the willingness to undertake risks tempered by the fact that the executive is merely the administrator of entrusted funds.

The success or failure, the life or death of the business in a small scale industry depended on the correct insight, the clear grasping of the course of things in the near future, and on the promptness with which the *entrepreneur* acted on his intuition. The taking of decisions still remains the primary function of the modern administration. But more and more these decisions are supplied to it. The insight, power of divination, or vision of the *entrepreneur* is tempered and partially displaced by the calculations of the expert. This is true, not merely of the industrial, but also of the commercial side of business. The difficulty, but also the fascination, of the exercise of judgment in the past lay in the fact that the course of facts could not be predicted. With the development of statistical material and statistical technique many of the facts of business have come to be forecasted. Like the modern general, the modern business administration no longer has the Napoleonic scope for intuition and will power. It has, to a large extent, merely to ratify what a complicated organization of specialists puts before it. There is a stereotyping and mechanization of the power of taking decisions. "Progress," says Schumpeter

"becomes 'automatized', increasingly impersonal, and decreasingly a matter of leadership and individual initiative. This amounts to a fundamental change in many respects, some of which reach far out of the sphere of things economic."[1]

Numerous devices have come to the aid of the executive. Modern methods of accountancy make the financial position of the different branches, and of the whole business, more easily supervisable—and over much shorter periods, and even daily. On the other hand, the science of forecasting enables him to predict economic trends over a much longer period. A whole "system" of executive experience and method has come to facilitate the internal organization of work.

These processes, associated with scientific management, require abilities of a totally different order from those which characterized the nineteenth-century *entrepreneur*. As powers of organization have come to play a larger role, resourcefulness and inventive genius have been pushed into the background. The greater importance of scientific knowledge demands more intellectual effort, and also more humility, submission to facts rather than the domination of situations. The speculative element loses in importance, the calculating side becomes more prominent. Intuitive comprehension loses in relation to statistical observation. The importance of engineering faculties and of formal training in business administration has increased relatively to intuition and "motor" temperament. Co-ordinated staffs replace the *entrepreneurial* dictator.

The type of *entrepreneur* changes also, because the tactical qualities that are demanded from a modern executive differ from the qualities which led to success when industry was operated on a small scale. The qualities now demanded are powers of negotiation: with workmen, with executives of other industries, with

[1] Schumpeter, "The Instability of Capitalism," *Economic Journal* (September, 1928); *Strukturwandlungen der Deutschen Volkswirtschaft*, I, iii, p. 14.

government institutions. These require talents of a more 'refined' character than those which characterized the nineteenth-century undertaker.

The selection of executives has therefore changed. The criterion of service in the competitive struggle was success. Success in business was a process of selection which guaranteed that economic resources should be distributed in the most effective manner. Selection in business to-day has much more affinity with political election or with the appointment of officials. The qualities which raise to leading positions are not always those which assure the successful carrying out of business functions. They are often affiliated more with popularity, skilful tactics, good presentation, and nepotism. Strength of personality may be a liability, rather than an asset to candidates for leading positions. Industry is being politicalized.[1] This is reflected, for example, in the decrease in the number of Jews in leading executive positions.[2]

Innovation comes from the extension of existing firms rather than from the founding of new ones. Improvements in technique come more and more from the organized research departments which only the large consolidations can afford. Extensions are conceived on the advice of specialists, and are executed by the administrative apparatus which combines have readily available in their existing systems. Their large capital resources enable them to adopt a policy without regard for immediate effects, and lessens the risk of failure. The increasing concentration of industry makes the entry of outsiders relatively more difficult. Thus, in the artificial silk industry, for example, the difficulties of manufacture, the position with regard to patents, and the large capital outlay needed for setting up new undertakings have assured the French, German, and English pioneers a virtual monopoly. The extension of the industry in other

[1] Schumpeter, *Strukturwandlungen der Deutschen Volkswirtschaft*, Vol. I, pp. 316-20.

[2] Sombart, *Les Juifs et la Vie Economique*, p. 12.

countries has taken the form, not of the establishment of independent concerns, but of the founding of affiliates of these original firms.[1] With regard to powerful corporations, it is, to a large extent, true that inefficient producers are no longer speedily eliminated. "An established business is frequently too strong to be supplanted, although a new one may be better managed. Bankruptcy has gone out of fashion; at the worst 'capital reorganisation' has taken its place."[2]

Large combinations have not been deficient in enterprise. On the contrary, they have taken the lead in modern industrial development. In Germany, for example, coal distillation, long-distance gas supply, synthetic nitrates, and artificial silk, have all been initiated by powerful industrial groups. In America, combinations have taken the lead in mass production, in scientific-management, and especially in industrial research. In Great Britain they they have been prominent in the speculative industries. "Capitalistic aggregations," says Marshall, "approximating to the mechanical routine of a socialistic bureaucracy, have so far been most prominent where economic progress has been most rapid."[3]

The motive force of expansion has come largely from the accumulation of reserves. The supply of new capital has become practically an automatic process. Profits which are reinvested in business, along with the funds saved by the rich, have in the past probably always formed the chief source of new capital. In the corporate form of organization it has attained a new and significant aspect since the War. With the increased dissociation of

[1] Cf. *Economic Aspects of Several International Industrial Agreements* (League of Nations, 1930), pp. 52-4.

[2] *Britain's Industrial Future* (Liberal Inquiry), pp. 221–2. This greatly increases the rigidity of the economic system. It reduces the force of the argument that the socialization of industry would remove the surest method of selection. In private enterprise inefficient firms are eliminated by bankruptcy. In Russia, inefficiency merely adds to the cost of industrializing the country, and is borne by the community.

[3] Marshall, *Industry and Trade*, p. 175; Colwyn Report, p. 163; *Mergers in Industry*, Ch. vi.

the administration from the ownership of the enterprise, corporate savings are forced by the administration on the involuntary and helpless shareholders. Whether to meet heavy taxation or for expansion, dividends have been sacrificed and reserves maintained.[1] The supply of capital has become inelastic, and bears little relevant connexion with the returns yielded by new investments.[2]

It has been estimated that of the £500,000,000 of new savings in Great Britain in 1925, £149,000,000 were saved in the form of "profits not distributed by companies and private traders, but invested in own business."[3] In Germany, the proportion of total savings due to the self-financing of the corporation is probably even bigger. In the United States it is about 40 per cent.[4] It has been estimated that in 1925, in the manufacturing industry in the United States, more than one-third of the net income was added to surplus. In the case of a sample collected by the Federal Trade Commission, corporations which were probably more than normally prosperous were found to distribute only one-third of their income in cash dividends.[5] The automobile industry in America especially has developed largely "through the reinvestment of its own fabulous profits".[6] It has been estimated that practically four-fifths of the capital now invested in the American automobile industry has been derived from the direct reinvestment of profits.[7] The most conspicuous example is that of the Ford Motor Company. It started with a capital of 28,000 dollars. "No other cash was ever put into the company. The 'miracle' of a business

[1] Colwyn Report, p. 147.

[2] Jewkes, J., "The Efficiency of American Manufacturing Industry", *Economic Journal* (December, 1930).

[3] Colwyn Report, p. 17.

[4] Warriner, *Combines and Rationalisation in Germany*, p. 121.

[5] Jewkes, *Economic Journal* (December 1930).

[6] Dunn, R., *Labor and Automobiles*, p. 26.

[7] Seltzer, L. H., "Automobile Industry", *Encyclopaedia of the Social Sciences*.

enterprise valued at approximately one billion dollars from an investment of 28,000 dollars was accomplished without any more financial support."[1]

It has been maintained that funds saved in the form of reserves are especially valuable, because the fact that profits are made shows that the services rendered by the business are required, and that the undertaking is efficiently organized. There is, therefore, the probability that the marginal net products of surpluses reinvested in firms will be above the average marginal net products of resources invested in industry generally.[2] It has, however, also been asserted that these funds are often used, not for reinvestment in the original business, but for expansion into auxiliary, and even into different, trades, which industries would have been more efficiently managed in independent hands.[3]

Corporate savings were probably primarily responsible for the fact that in America, after allowing for price changes, annual national savings over the period 1922–27 were about twice as great as during the thirteen years preceding the War.[4] But these figures suggest also an increased capacity to save on the parts of individuals (for the larger the incomes the greater the proportion that can be saved) as well as an attitude towards saving which increases the effectiveness of this function. To these facts have been ascribed, primarily, the efficiency of American industry since the War.[5]

With the strongly progressive taxation that has existed in Western communities since the War, it seems that the savings of the working and the middle classes have increased relatively to those of the wealthier classes. For Great Britain it has been estimated that the funds saved by small investors have increased from £500,000,000 in 1913 to £2,000,000,000 in 1930. This shows a rate of

[1] Dunn, op. cit., p. 30.

[2] Cf. Colwyn Report, p. 149.

[3] Jewkes, op. cit.

[4] *Recent Economic Changes*, p. 674.

[5] Jewkes, op. cit.

growth which is much more rapid than the accumulation of capital by the purely *rentier* class.[1]

With the development of central banking in various countries the supply of credit has been adapted better to the needs of industry. This function will be performed still better if the hitherto not very successful attempts at co-operation between central banks become more effective.

The building up of reserves at the expense of dividends is due to the dissociation of management from ownership. The hereditary ownership of a large proportion of the shares of a business counts for little to-day, especially in America. Most of the leaders in business owe their positions to advancement. The interests of the administration are not those of the shareholders. The business becomes an objective personality with its own proper interests. From the point of view of the administration the paying-out of funds as dividends is a dissipation of the resources of the enterprise; the expansion of the undertaking which they direct, on the the other hand, is a means of self expression.

There thus arises a class of administrators who regard themselves, not as the possessors of private property, but rather as the trustees of funds exercising delegated authority and responsible to the community. The object of a large section of business men, it is often maintained, is no longer exclusively the making of profits, irrespective of the service rendered to society. The motives for rationalization are often couched in terms of the efficiency of national industry, of diminishing the costs of production, and of improved services to the public. In the words of Judge Gary, promoter and former chairman of the United States Steel Corporation, whose name has received publicity with regard to amalgamations, there has taken place in the twentieth century " a radical change in the mental attitude on the part of the men who conduct big business . . . Business has undergone a

[1] *Manchester Guardian Commercial* (January, 1931).

moral overhauling without precedent."[1] Mr. Keynes speaks of the tendency of Joint Stock Institutions, when they reach a certain age and size, to socialize themselves. "When this stage is reached, the general stability and reputation of the Institution are more considered by the management than the maximum profit for the shareholders. The battle of Socialism against unlimited private profit is being won in detail hour by hour."[2]

Even though the universality of the change may be exaggerated, and the assertions of business men be to a certain extent mere bluff and hypocrisy, this development nevertheless shows a change from the attitude of the nineteenth century with its avowed dissociation of charity from business, the frankly buccaneering terms on which industry was admitted to be conducted, and the cynical contempt for any concern for the interests of the public which was not also good business.

A class of administrators has developed whose position does not differ in any characteristic way from that of government officials or the professional class. The motives of these men may be expressed less deliberately in terms of service to the community; they are hardly less commercial than those, for example, of the medical or legal professions. Nor are they much better off materially. All this reflects the diminished significance of the *entrepreneur* personality which results from the mechanization of the modern industrial system.[3]

The distinction between public and private enterprise thus tends to be obliterated. For a large sphere of business enterprise it is no longer a characteristic difference that the object of public undertakings is service to the community, whereas private business aims exclusively at making profit.

On the other hand, changes in the administration both of public and private enterprise have tended to affiliate

[1] Quoted by Cross, *Types of Business Enterprise*, pp. 325-6.

[2] Keynes, *The End of Laissez-Faire*, pp. 42-4.

[3] Cf. Schumpeter, *Strukturwandlungen der Deutschen Volkswirtschaft*, Vol. I., pp. 316-20.

the two. For, whereas there has been a tendency for the administration of private business to become more bureaucratic and political in nature, there has been a movement, on the other hand, to commercialize the public undertaking. To-day there is no great distinction between them.

The advantages of private over public enterprise are usually considered to consist in the stimulus to exertion and to thrift that results from private possession, in the facility of taking decisions, and the absence of the red tape which is inevitable in a bureaucratic system. These contrasts, however, hold only of the individual business as compared with the administrative department. It is not true, in any significant sense, of the private corporation as compared with the public company. The most important hindrance to the development of public enterprise is thus removed. The relative efficiency of the two forms of undertaking depends, to a large extent, merely on the education and experience of the administration.

One of the most characteristic developments of the twentieth century is the growth of public and of collective enterprise. These include the services rendered by the State and by local authorities, and the services rendered by co-operative societies.

In practically all countries to-day public authorities maintain the postal services, and in many countries the railways as well. They develop and maintain roads, harbours and water-ways, are responsible for water supply and sewage disposal. In numerous countries light and power-supply services are also owned and operated collectively. Most states are largely interested in land reclamation and in afforestation. The protection of life and property, education, and research, are furnished predominantly by collective enterprise. Even businesses, such as life-insurance, are largely carried on collectively in the form of mutual benefit societies. To a much smaller extent public authorities furnish competitive services, such as banking, mining, and manufacturing. In Russia practically all services, outside agricul-

ture, have been socialized. In almost all countries co-operative societies have come to play an important part in production and in distribution.

It is difficult to estimate whether public undertakings are expanding more rapidly than private business without complete statistics over periods of both public and total income and wealth. As public enterprise was so little developed during the nineteenth century, however, there is the presumption that an increase of government activity in any one industry would mean also an increase relative to the whole of private enterprise. This is especially true of an important industry like railways, which in many countries represent from one-tenth to one-twelfth of the total national wealth.[1] When, therefore, the State railways in Europe increased from 54 per cent of the total railway mileage of the Continent in 1913 to 67 per cent in 1926, it is a fairly safe deduction that there has been an important increase in the relative sphere of public enterprise.

In all countries the proportion of the national dividend passing through the accounts of public bodies is increasing rapidly. It seems that this is due not merely to an increase in transfer disbursements but also to an increase in the proportion of the national income used for exhaustive expenditure.[2]

The development of public enterprise has gone much further in some countries than in others, in Europe, for example, than in America, and as gone furthest in the Teutonic countries, in Australia, and especially in Russia.

In Russia banking, transport, mining, and manufacturing have been completely socialized. Private enterprise in distribution is disappearing. Even agriculture is to be completely socialized by 1933.

The value of public property in Germany before the War, after deducting debts, was estimated by Hellferich at 25 milliard marks. Hirsch estimated the value in 1927 at 40 milliard marks. The capital wealth of the country,

[1] *Annals of Collective Economy* (1928), p. 370.

[2] Cf. *World Economic Survey*, pp. 247–49.

on the other hand, does not seem to have increased during the period.

The value of the turnover, in goods and services, of public undertakings in Germany amounted in 1929 to 14 milliard marks. This about equalled the value of the agricultural production of the country. Public works employed just over two million persons, or from six to seven per cent of the total of employed persons in the country. They placed orders totalling from 8.5 to 9 milliard marks in the course of the year, and are thus able to exercise an important influence on the course of industry and trade. Credit institutions run by public authorities in 1929 founded 30 per cent of the short-term credit and 50 per cent of the long-term credit of the country. Their deposits, including the social insurance funds, amounted to 50 milliard marks.

The Reichsbahn, in 1925, possessed over 92 per cent of the railway milage of the country. The share of public authorities in the generation of electrical industry increased from 23.6 per cent in 1913 to 76.8 per cent in 1925. In addition, in this year 9.4 per cent of the electricity was produced by mixed undertakings, controlled predominantly by municipalities. In 1913 half the tramway system of Germany was owned by municipalities. In 1927 73 per cent of the capital was in their hands. In 1930 only four per cent of the water-works in the country belonged to private firms. The percentage of gas-works in municipal ownership increased as follows:

1860	1880	1913	1928
25	50	78	82

Municipalities and mixed works were interested equally in 1927 in the long-distance supply of gas, each supplying about 47 per cent, leaving only six per cent to private works.

The State plays an important role in manufacture and in mining. Eighty-four per cent of the unwrought aluminium in Germany in 1927 came from government works; eight per cent of the production of the potassium

syndicate in 1925 fell to the States. The share of the State in various mining industries increased as follows:

Industry	Percentage that State Production was of Total in 1913	in 1925
Coal mining ...	6.93	10.13
Lignite	0.43	3.02
Iron ore	10.46	18.81

The government holds the majority of the shares of the Junkers Works and the the Air Hansa. The Federal Transport Ministry has holdings in about twenty different steamships, road, air and motor transport companies. The Reich has recently bought a controlling interest in the Steel Trust, which virtually gives it the control of the German steel industry.[1]

It is estimated that in Switzerland, in 1927, public enterprise supplied over 50 per cent of the water power, and that 73 per cent of the forests, which occupy one-quarter of the area of the country, belonged to public bodies. Of the capital invested in railways, 80 per cent belonged to public authorities. All the larger municipalities, except Geneva, possess municipal tramways. The water-supply is almost exclusively in public hands. Public authorities are interested largely in banking and in insurance. The deposits in public banks amounted, in 1927, to one-third of the total deposits of Swiss banks. Together, about six milliard francs was invested in "productive" public undertakings. Another six milliards was supplied through State banks in the form of credit to economic enterprises generally. Together, this amounted to from one-quarter to one-third of the national wealth.[2]

Even Anglo-Saxon countries—which, during the nine-

[1] *Handelwörterbuch der Staatswissenschaften, Ergänzungsband,* pp. 873-4; *Strukturwandlungen,* I., p. 49; *Annals of Collective Economy* (1928), pp. 71–96; (1929), pp. 209–270; *Manchester Guardian Commercial* (January 8, 1931).

[2] *Annals of Collective Economy* (1927), 313-314; (1929), 366-371.

teenth century, relied predominantly on private enterprise—have come to furnish numerous services collectively. The economic activity of the State in Great Britain is relatively restricted, except for road-building, the replacement cost of which is estimated at £1,300,000,000. Local authorities, however, were responsible, in 1928, for operating nearly £700,000,000 worth of revenue-earning capital plant. They owned 321 out of 784 gas-works, 338 out of 563 electricity undertakings, 168 out of 235 tramways, and 997 out of 1,236 water-works. Public authorities have taken a prominent part in building since the War. Whereas, before the War, 95 per cent of all new buildings in London were erected by private enterprise, after the War the County Council became practically the only builder. From the Armistice to March, 1928, the number of houses built in England was as follows:[1]

By Local Authorities	411,801
By Private Enterprise with State Assistance	312,068
Without State Assistance	378,518

Public productive undertakings in Great Britain, mainly transport and public utilities, and including co-operative societies, represent a capital of about £2,750,000,000, or £4,000,000,000 if roads are included.

In America, public enterprise is less developed. Besides a magnificent system of highways and of public schools and libraries, the government owns the Panama Canal and 252,000 square miles of forest land. It has also spent upwards of a million dollars on harbours and internal waterways. The railways, however, are all private, except one belonging to the city of Cincinnati, and another to the State of Georgia. The sphere of municipal enterprise is less restricted. It is estimated that in 1925 about 7,000 cities, towns, and villages operated municipal enterprises with a capital value of at least three million dollars. The percentage of municipal water-

[1] Liberal Inquiry, Bk. 2, Ch. vi, *Annals of Collective Economy* (1928), 1-51; 155-161.

works in the United States increased from 6.3 per cent of the total in 1800 to 53 per cent in 1896, and 70 per cent in 1924. The percentage of municipal electric light and power-plants increased from 9.5 per cent in 1885 to 30 per cent in 1912, and to 50.7 per cent in 1927. Only two per cent of the tramways in 1922, however, were municipally owned.[1]

Accompanying the growth in public enterprise there has been a great increase in the economic activities of co-operative societies. There are to-day, in thirty-six countries, a co-operative membership of from 70 to 80 millions. They, as yet, furnish only a small part of all their requirements collectively. Yet they, by themselves, already constitute a significant challenge to the predominance of the capitalistic system.

The movement has often been associated with other cultural and especially with political movements from which it has drawn much of its inspiration. In Great Britain the growth of the Consumers' Co-operative Movements and Trade Union development have gone hand in hand; in Denmark co-operation has been associated with the Folk School Movement; in Belgium with Socialism, and in Russia with Communism. Its political bias, however, sometimes seems to have been a hindrance rather than a help. Thus the fact that the Belgian co-operatives count only half the Swiss membership, although the population of the country is twice as big, is ascribed to its socialistic character, which estranges many potential members of other political convictions.

The co-operative movement has assumed different proportions, and the different forms have developed to an unequal extent, in the various countries. The Consumers' Co-operative Movement originated, and has developed furthest, in Great Britain. From there it has spread over the whole world. Credit co-operation developed in Germany and spread from there, mostly in the form of agricultural credit, to other countries. Agri-

[1] *Annals of Collective Economy* (1930), 281-293.

cultural co-operation for the marketing and purchase of materials, as well as the manufacture of dairy produce, has developed simultaneously in practically all countries inhabited by European populations. The Co-operative Workshop Movement, on the other hand, has been essentially a French development, adapted especially to the industrial conditions of that country.

The Consumers' Movement started in England in 1844 with the Rochdale Pioneers. The membership in Great Britain and Ireland increased from 1.8 millions (or 4.3 per cent of the total population) in 1901, to over six millions (or over ten per cent of the total population) in 1929. The membership in that year represented "the heads of between one-half and one-third of the families in Great Britain and Ireland." The share capital amounted to £107,000,000, and their retail trade to £217,000,000. The number of employees of the retail and wholesale societies was doubled between 1913 and 1929. As yet only a small part of each member's income is spent in the co-operative store.

In Germany the Movement started in the 'nineties with the urbanization and organization into Trade Unions of the working classes. In 1929 there were 3,750,000 members. In Austria the membership was doubled between 1913 and 1926, and in France trebled between 1914 and 1928. In France, in 1928, it represented 20 per cent of the households; in Switzerland, in 1930, over 40 per cent of the population.

In Russia, the revolution of 1905 marked the turning-point in the history of the Consumers' Movement. Membership and trade increased rapidly. At the outbreak of the War the annual turnover of consumers' societies represented seven per cent of the retail trade of the country in articles of general consumption, by 1918 the proportion had increased to 46 per cent of the total retail trade. The memberships increased from seven millions in 1924 to 33.5 millions in 1929. The turnover of the societies represented, in that year, 66 per cent of the retail and 56 per cent of the wholesale trade of

the country. These societies have strong central organizations, which co-ordinate policy and represent the co-operative sphere in the formulation of the Five-Year Plan. The increase in membership has, however, been due largely to preferential treatment received by members and by societies from State industry. For it is the avowed policy of the Soviet Government to socialize distribution as well as production into a "closed economic system."

In India the membership of consumers' societies has increased rapidly from under half a million in 1911 to 4.5 millions in 1930. Their economic significance, however, has not increased as rapidly as the membership. The success of the Movement is frustrated often by the embezzlement of funds, as well as by unsound financial and non-co-operative practices.

Co-operative agricultural societies had a membership in Germany, in 1930, of four millions. In Switzerland they include practically the entire peasant population. In Denmark the membership totals a million and a half, and has been attained without any aid from the government either in legislation or in finance. To-day, practically "all the needs of the Danish agriculturist are provided for by co-operative organizations." Agricultural co-operation plays a more or less important role in practically all countries of the world. In Japan, for example, besides numerous semi-co-operative associations of local origin, there were, in 1928, over 14 thousand societies based on the German type with a membership of over four millions. In Russia the nature of agricultural co-operation has been modified considerably by the Communist régime.

Agricultural co-operation developed rapidly in Russia before the War: from a membership of 1,400,000 in 1908, to one of 8,250,000 in 1914. Four-fifths of these were members of credit societies. By 1917 credit co-operation represented a total population of over 60 millions, or about one-half the total peasant population. Communism has not proved congenial to credit co-operation. Other forms of agricultural co-operation have been more suc-

cessful, and membership of such organizations, in 1928, represented about half the agricultural population. Although the co-operative form is still being maintained to-day, its nature has changed completely from that in other countries. Compulsory collectivization is everywhere taking the place of voluntary ownership and the private possession of the land.[1]

The capital for the expansion of collective enterprise has been obtained from the same source as that available for private enterprise. The added security of public ownership has only enabled the funds to be raised with less cost. In addition, however, funds raised by taxation have always played an important part. Thus railway construction has, in many countries, been financed partially out of taxation. Never in the history of the world, however, has taxation been used for financing industry on such a drastic scale as in Russia during the post-war period.[2]

The failure of Socialism has often been predicted on account of the difficulty of accumulating capital where income is evenly distributed. The difficulty is especially great where the community is poor. The presumption has been that a socialistic community would also be a democratic one. The Soviet Union has solved the problem by means of taxation.

[1] Articles on Co-operation, *Encyclopaedia of the Social Sciences* (By permission of the Macmillan Company, publishers.)

[2] It is often asserted that heavy taxation must necessarily have a harmful effect on the accumulation of capital. The effect of taxation on the individual is, of course, to reduce his power to save. The effect on the capital resources of society depends on the ways in which the State spends the resources. Proportional, and still more progressive, taxation reduces the incentive of the individual to work and save. The extent to which it does this depends on the elasticity of the supply of work and the habits of thrift of the population. The supply of work has become very inelastic for large classes of society. When the State uses tax funds for the repayment of debt, a substantial part may come from funds that would otherwise have been spent. The individual to whom the loan is repaid considers it as capital and will save the money, not seeing that his position, as an average individual, has been improved. A heavy sinking fund, therefore, acts as an inducement to save.

The rapid industrialization of the country, which is the object of the Five Year Plan, is financed largely by means of indirect taxation and by means of compulsary loans. "The role of 'normal net profits' of the industry itself is very small indeed, and the 'excessive profits derived' are simply the result of the monopolistic position of the industry with its manifold privileges."[1] These profits are merely a form of indirect taxation analogous to the revenue derived from the tobacco monopoly of the French Government.[2]

It has been estimated that the new capital investment made in Russia amounted to slightly more than five billion rubles for the year 1928–29, and to slightly more than ten and a half billion rubles in 1929–30. The national income in the former economic year amounted to 28,534 million rubles, and to 34,363 million rubles in the latter. More than 17 per cent of the national dividend was, therefore, saved in the first year, and over 30 per cent in the second. The total savings in the United States in 1925, it has been estimated, formed 17 per cent of the country's income. Even if these estimates are not strictly comparable on account of differences in the methods of computing income and capital investment in the two countries, it nevertheless shows a remarkable achievement by the Communist régime in Russia.[3]

Seldom has so large a part of a country's income been saved and used for industrial purposes. It is doubtful whether even so large a part was used by the belligerents for war purposes. The sacrifice is the more remarkable when the miserable poverty of the nation is considered.

[1] Haensel, *The Economic Policy of Soviet Russia*, p. 98.

[2] In 1930 there was established a chain of open stores, in contrast to the closed co-operatives where only persons with food cards can buy. These stores stock only the surplus commodities above the normal supply. The prices charged are from three to five times higher than those in the closed stores, and are designed to trap the "surplus" purchasing power of the population—Bruce Hopper, *What Russia Intends*, pp. 163–4.

[3] Hoover, "Some Economic and Social Consequences of Russian Communism," *Economic Journal* (September 1930), p. 425.

It could not have been attained under a democratic régime. It is attained, it seems, only by strong military measures, by the exploitation of Kulaks, the underpayment of the salaried class, and the expropriation of the *bourgeoisie*.[1] Even the proletariat is not spared. Real wages appear to have been 30 per cent less at the end than at the commencement of the first Five-Year Plan.

> Only a despotism could have made possible the export of butter, eggs, honey, flour, and other food products, and their sale on the foreign market, at a price far lower than that which the nearly starving populace would have been willing to pay. The funds obtained from the sale of this produce were expended mainly in the purchase of mechanical equipment and technical aid from abroad. But if the wishes of the population could have been openly expressed, the decision would have been overwhelmingly for less capital equipment and more food.[2]

The causes of the rapid expansion of collective enterprise are either the inadequacy or the unsatisfactory nature of private business, ideological considerations, or the interests of groups of producers. They are rarely fiscal. The significance of the various causes varies in the different countries, and these factors are nowhere independent. The inadequacy of private enterprise is subject to interpretation, and the importance to be attached to the interests of certain groups of producers is influenced by political propaganda.

The services furnished by municipalities are predominantly of a monopolistic nature. No municipality will allow its streets to be broken up by competing tram, water-supply, or light services. Even if this were allowed, the initial outlay of capital is so large that a second competing company would mostly make both unprofitable. In granting monopolies to private companies, however, such stringent regulations have to be made to prevent the exploitation of the public, and so

[1] Haensel, op. cit., pp. 101–2.

[2] Hoover, op. cit., pp. 425–6.

much negotiation with regard to tariffs, services or wages that, rather than assume an involved control, municipalities have preferred to render the services themselves. The case of railways is much the same. In many countries, where private initiative was willing to undertake the services, the State had to aid in supplying the capital. This led to continual difficulties with regard to the kind and extension of services. In many countries private initiative was not forthcoming at all. No government can, besides, be indifferent to the labour conditions, disputes, or tariffs, of a system on which the general welfare is dependent. Public ownership relieves a country of these difficulties.

The other services furnished by public bodies are predominantly of a general cultural character. All modern communities consider the marginal social net products of resources invested in these services to be greater than the marginal private net products, so that private enterprise will not push the investment of resources in furnishing these services as far as is socially desirable. This is true of educational and of medical services. It is true especially of preventive hygienic measures. Private medical practitioners have little interest in measures to prevent disease, and the organization of their practices is not suitable to furnishing such services. This is equally true of the various æsthetic services, of recreation or means of spending leisure, of housing, as of defence and measures of public safety. Public ownership of forests, minerals, or oils has been motivated largely by the desire for conservation. Irrigation and services of land reclamation have been furnished lavishly, because agriculture has been considered an industry which is especially desirable socially.

The extension of public enterprise received a powerful stimulus from socialist propaganda. With the increase in the political power of the working classes after the War, the composition of parliaments and of municipal councils changed. Even conservative governments were forced to furnish the services which the masses demanded

and which private business failed adequately to supply. In Russia the whole system of private enterprise was scrapped.

The interests of workmen as producers received more consideration. Hitherto in democratic countries the interest of any specific group of workmen as producers has been small as compared with the great mass of the consumers of their products. Only in times of depression have services been speeded up or extended in order to furnish work. Since the War the interests of workmen have come to be identified in many countries with that of the nation as a whole. In Russia they form a new privileged aristocracy. The right to work has been inscribed in constitutions. In the future strong organizations of workmen will probably exert pressure on socialistic governments to extend public services, in order so supply suitable work to their members. They have the example of the propaganda of contractors and iron magnates for competitive armaments in the past.

The services taken over by collective enterprise have, in chronological order, been more and more difficult to judge with regard to the relative efficiency of public as opposed to private enterprise. In the case of the last to be taken over, such as the manufacturing and mining undertakings of the State, but also the transport and power services of municipalities, and the economic activities of co-operative societies, the greater efficiency of collective enterprise is extremely doubtful. It is very difficult to judge the relative efficiency of different kinds of enterprise. These differences, besides, are not static, but are modified through time with the development of the forms and methods which experience shows to be best adapted for rendering the particular services, as well as with the cultural and economic conditions of the country.

It is, therefore, very difficult to compare directly the efficiency of public with that of private enterprise. Profit is not an adequate criterion, because collective services are usually furnished for other than purely commercial purposes, and services are rendered in addition to those

for which direct money payments are made. Co-operative societies run schools, libraries, dance halls, and building societies. State railways, for general economic or social reasons, furnish certain kinds of services at low rates, such as the transport of workmen, or of agricultural produce. The comparatively unfavourable financial results of the public operation of railways in Hungary and in Switzerland is due to heavy pension funds which should have been assumed by the public treasury. On the other hand, the tax burden of public undertakings may be specially reduced. Public authorities may reserve the operation of the most profitable utilities for themselves. More often private enterprise was first in the field, and public undertakings represent the sub-marginal spheres of investment which it had ignored.

The profits of public monopolies would depend largely on the price policy pursued. Some municipalities use their works to yield profits for relief of local taxation; others subsidize their works to furnish the services at reduced costs. The trend seems to be definitely in the latter direction. This is reflected, for example, in the reduced surpluses being made in Great Britain by municipal works.[1] Public undertakings are being regarded more and more as performing services in the interests of the community as a whole, the profit being a subsidiary consideration. This is especially the case with health and cultural services. Both price discrimination and rates below cost have been instituted, not merely for education and medical services, but for housing, transport, gas, water, and electricity as well. These services are thus brought to the level of the purchasing power of the masses, and the consumption considered desirable encouraged. In the case of public utilities operated by private companies, the rates are controlled by public authority, and deficits are sometimes made good out of tax resources.[2]

There are numerous examples where, in the same

[1] *Annals of Collective Economy* (1928), pp. 163–5.

[2] Cf. ibid. (1928), p. 386.

country, the profits yielded by public undertakings have been greater than those of private concerns furnishing the same services. In the case of tramways in Great Britain, for example, the ratio of net revenue to capital was as follows:[1]

	1913	1925
Local Authorities ...	7.29 per cent	6.40 per cent
Companies	6.35 ,,	3.53 ,,

As many examples where the reverse holds good can, however, be supplied. Besides, the profits of different public undertakings differ as much as those of private works. In the case of 28 gas-works in Italy, examined in 1928, the percentage of profit on capital oscillated between 0.11 per cent for Reggio Emilia, and 42.62 per cent for Pavia.[2] The results of the provision of the same services in different countries are similar. The effects of the public operation of railways vary from the success of the Japanese system, which compares favourably with the best-managed private railroads in the world, to the large losses annually incurred in some of the South American republics.[3]

The cost of rendering services, though a better criterion, is inadequate for the same reasons. Public works have to set up the standard of wages and welfare work for the whole country. Public contracts have everywhere become the monopoly of the home market. Besides, the services rendered are usually of a monopolistic character, and the comparison of costs under different local conditions does not afford good tests of relative efficiency. Nor are services, generically the same, necessarily also qualitatively similar in different localities and when furnished by private and by public undertakings.

[1] *Annals of Collective Economy* (1928), p. 9.

[2] *Annals of Collective Economy* (1929), p. 354.

[3] Cf. Splawn, *Government Ownership and Operation of Railroads.*

Dr. Robson has compiled figures of revenue receipt, revenue expenditure, and gross profit, indicating the revenue cost in Great Britain of producing 1,000 cubic feet of gas in municipal and in private undertakings respectively:[1]

	Year	Revenue receipts per 1,000 cubic feet sold s.	d.	Revenue expenditure per 1,000 cubic feet sold s.	d.	Gross profit per 1,000 cubic feet sold s.	d.
1913	Municipal undertakings	3	2.5	2	6.4	0	8.1
	Non-municipal undertakings	3	6.7	2	10.1	0	8.7
1925	Municipal undertakings	4	7.2	3	0.11	0	8.2
	Non-municipal undertakings	5	2.1	3	5.9	0	8.2

In the case of electricity, the cost of production for public works was about the same as that for private companies. But, whereas with public works, after adequate reserve funds are built up, the surpluses are used to reduce capital indebtedness, to increase capital expenditure, and to assist local taxes, in the case of private companies profits go to dividends and reserves. The proportion expended by privately owned companies on interest was, in 1922–23, nearly double that of public companies, and most of the remaining surplus went to reserve funds.[2] Communities with municipal electric systems in America, it is said, are "without exception, enjoying rates well below those of similarly situated cities served under private auspices. The plants are efficiently administered, and their foresighted policy of amortizing outstanding bonds from earnings is preparing the way for even more successful results in the future."[3]

[1] *Annals of Collective Economy* (1928), p. 159.

[2] ibid (1928), pp. 162–3.

[3] ibid (1931), p. 255.

Among the advantages of private over public enterprise and freedom from nepotism, and the treatment of the problems arising in business purely on business principles. This includes questions of contracts, of tariffs, of wages, as well as the payment of salaries for leading administrative positions, which are adequate to attract men of great ability. Thus the fatal disadvantage of the public operation of railways is said to consist in the large number of voters to whose demands no government can be indifferent. An even greater disadvantage is the ease with which a government can prohibit competition with its own undertakings. Everywhere, for example, State railways are now being "protected" against motor transport.

These relative disadvantages are, however, rapidly disappearing. Where public utilities are operated by private firms, franchises have to be granted, so that politics creep in all the same. And the freedom to treat questions of tariffs and wages on "business principles" is tempered by the power of resistance of strong, organized groups, and the public control which all countries assume over public utilities operated by private companies. This "adaptability" of private firms in adjusting the number of their workmen or their wages to immediate requirements is, besides, no longer regarded as invariably a social asset.

The alleged superiority of private over public business is considered to be predominantly a question of administration. It consists in the sense of responsibility and the stimulus to exertion, but above all in the freedom from red tape, in the facility of adaptation to immediate requirements, without decisions first having to pass through a long line of intermediaries for final approval. Public administrations, it is maintained, are fossilized, unenterprising, and extravagant, "controlled and managed by salaried, or in some cases unpaid, individuals, and not under the stimulus of personal profit."[1]

The charge of lack of enterprise is, probably, to a large extent true, and cannot be completely effaced by changes

[1] Liberal Inquiry, p. 79.

in the method of organization. No democratic parliament or municipal council would venture to risk public funds in highly speculative undertakings, the necessity of which is not directly evident to the public. Co-operative societies share this deficiency. They have, even in England, remained powerful competitors with private enterprise only in the supply of foodstuffs, and, to a much smaller extent, of clothing. The productive enterprises supply only a small part of the needs of their members. It seems that, when uncertainty has to be borne, the joint stock mechanism of debentures, preference, and ordinary shares, has hitherto been better fitted to elicit the capital. On the other hand, much of the "initiative" directed towards personal enrichment in a private economy contributes nothing to public prosperity, and will not be needed in a socialized community.

So far, public authorities have not been remarkably successful in the furnishing of competitive services. Neither the Australian nor the American shipping lines has been a commercial success. But this applies to many private companies during the post-War period, and the reduction in freight charges caused by national lines has probably made good the loss to the State. On the other hand, the success of public woollen mills and brick works in Australia seems to show that the efficiency of public enterprise in competitive industry is largely a question of the personal element in management. Farmers' co-operative societies in many lines have, since the War, become "large-scale business enterprises, utilizing extensive advertising and sales-promotion methods comparable to those of large private corporations." They have succeeded in supplanting private business by the introduction of economies in marketing, by improving the quality of the products of their members, and by effective methods of sales promotion.[1]

New industries during the twentieth century have developed predominantly on a capitalistic basis. This is true especially of the automobile industry, of the chemical

[1] *Recent Economic Changes*, pp. 378–423.

industry, and of the cinema. Public authorities, on the other hand, have played an important part in the development of electric power, in encouraging aviation, and in the radio industry. In Norway the municipalities have taken a leading part in building up the cinema industry.[1] The comparative lethargy of public authorities may, however, be due to the influence of preconceived ideas stimulated by propaganda, rather than to lack of collective enterprise. Over the largest part of the world the Press is predominantly in the hands of the capitalist class, and the burden of proof for the necessity of the extension of State enterprise rests with those who desire it. The *bourgeoisie* are determined that public undertakings shall be restricted to furnish services "where skill and not initiative in administration is essential."[2] That initiative, however, as apart from ability, can be stimulated to a remarkable degree in Socialist societies is shown by the Bolshevik *tempo*.

The freedom of initiative of private as compared with public enterprise has been considerably reduced by the growth of the combination movement. For, however much the central administration may try to relegate authority to their subsidiaries, it nevertheless superimposes on local firms "an amount of red tape that compares favourably with the red tape that is supposed to characterize governmental transactions."[3]

On the other hand, efforts have been made in all countries to decentralize the administration and to increase the independence of public undertakings. When public authorities started to furnish economic services they took no trouble to develop new methods of administration, but incorporated the new undertakings into an administrative system adopted to rendering quite different functions. As branches of State or municipal departments, the budgets of these undertakings were included

[1] *Annals of Collective Economy* (1927), pp. 130-33.

[2] Resolution of the Chambers of Commerce of Buda-Pest; *Annals of Collective Economy* (1931), p. 225.

[3] *Annals of Collective Economy* (1928), p. 384.

in the State Budget, thus putting them at the mercy of fiscal and political considerations with regard to expenditure, extensions, or tariffs, and severly limiting the freedom and efficiency of the management. It subjected them to a system of accounting which is antiquated and exasperating, where their expenditure and receipts are fixed more than a year in advance, without the power of the management to modify it. It subjects the management above all to a system of bureaucracy where decisions are subjected to the authorization of numerous bodies, hindering the adaption of price policy to market conditions, and of equipment to new technical developments.

With the development of the scope of public enterprise the conviction everywhere gained ground that the bureaucratic methods of departmental administration hindered efficient management. Public undertakings, it was seen, have only one thing in common with government administration, namely State ownership. In all other respects they are affiliated much more with private enterprise. The tendency in organization has therefore been to give greater financial and administrative freedom to the management by simplifying the systm of departmental control. Where this movement has gone furthest, public undertakings have become incorporated as independent companies subject to private law, adopting commercial methods of accountancy, and having financial as well as administrative autonomy. This facilitates the taking of decisions, while the municipal or government representatives on the board of directors secures the pursuit of a policy consistent with public principles.

In the effort to obtain autonomy, on the one hand, and the benefit of private initiative and experience on the other, numerous forms of mixed works have been established. These are represented not merely in central banks and public utilities, but also especially in the more competitive undertakings such as industrial, mining, or commercial companies. These works are especially favoured by Fascism. On the other hand, as public

authorities can draw more and more on their own experience and technical ability, they seem to develop rather in the direction of autonomous companies. This is the prevalent form of organization for the new industries established by public authorities on a large scale, as for example the supply of electricity. Departmental undertakings have often been reincorporated in this form.

With the introduction of the N.E.P. in Russia, State factories were organised in trusts. These were to a large extent made autonomous and had to follow "commercial principles with a view to making profits." For all general questions of policy, however, the management of the trust was still responsible to the various economic councils. This led to a confusion of status. After the period of reconstruction was over, and with the introduction of the Five-Year Plan in 1927, the emphasis was shifted from profits to adherence to the plan laid down by the central economic organs. The trusts were now defined as "State enterprises operating on the basis of commercial account in accordance with planned tasks sanctioned by the State."[1] In Germany after the War the industrial undertakings of the Empire were removed from the control of the ministerial departments and united into a single holding company. "The idea of a paying concern finds here in its fullest development." It not only ensures complete independence, but facilitates the closest co-operation between the different works with beneficial results with regard to economy and efficiency. It is especially suited to facilitate co-operation between different municipalities, as it distinguishes clearly claims of property, of expenditure, and of income. In this form it seems that almost all the claims of the inferiority of State enterprise—both administrative and psychological—are removed.

The administration of public companies has often been made representative of those engaged in and inter-

[1] Yugoff, *Economic Trends in Soviet Russia*, p. 55; Bruce Hopper, *What Russia Intends*, p. 109.

ested in the industry. A significant development in post-War administration has been the efforts of workmen to obtain direct representation on the executives of both private and public companies. During and after the War workmen gained greatly in economic and political power. Everywhere they demanded a share in the control of industry in the form of works councils. In this way the workman would be partially relieved from the drudgery of the simple repetitive processes upon which he was everlastingly engaged, and elevated to the supervision of the whole process of production. Thus he would regain to a certain extent that comprehensive survey of economic relations of the master craftsman which he lost when he was lowered in the nineteenth century to the status of a workman. Labour would thus cease to be a mere instrument and become a responsible agent, with a definite "status", in the process of production.[1]

On the other hand, the danger of well-organized groups who have no share in the control of industry, while fundamentally interested, was realized. Their criticism tends to be irresponsible and therefore destructive. The negative control which they exercise by means of strikes, boycott, and 'ca-canny', is expensive to the country and often ruinous to particular industries. If labour could be associated in the administration it would reduce the feeling that they were being done-down, and their power would be exercised with more consideration for all the interests involved.

After the War, works councils were introduced in numerous countries. In Russia they form an integral and leading part in the Communist scheme of administration. In Germany, Austria and Czechoslovakia their introduction into all public and private undertakings was made obligatory by law, and even laid down as an article of faith in the constitution. In England and in the United States they have been introduced volun-

[1] Finer, *Representative Government and a Parliament of Industry*, p. 60–61.

tarily. These "constitutional factories" are an attempt to transfer the ideas of political representation to the economic field.

The success of these councils has not been as great as was generally anticipated. Their influence on policy has been small. German experience shows that important questions are decided outside and merely brought for ratification in the formal sittings of the administration. In Russia the "bright ideas" of workmen have often been a nuisance rather than a help to executives.[1] The influence of labour representatives on policy has been confined, both in Germany and in Great Britain, to conditions of work, to wages, and to welfare work.[2]

There has been a decided increase in the willingness of labour to co-operate in the administration of industry. Already before the War it was noticed that the proportion of trade union officials, as opposed to members of the *bourgeoisie*, as representatives of socialist parties in parliament, increased with the general level of culture of the working classes. These men, who are brought into daily contact with the problems of industry and are accustomed to administer large funds, are more moderate and compromising in their attitude than the disillusioned and often unpractical members of the middle classes. The change in attitude of workmen since the War is reflected in their willingness to co-operate in the introduction of rationalization, even though they are the immediate sufferers. Trade unions even have their own research departments for offering advice to executives on the introduction of scientific management. Their new attitude is reflected also in their enthusiasm for the latest improvements in technique, which the Russian shares

[1] Haensel, *The Economic Policy of Soviet Russia*, p. 105. On the other hand it is said that in ten industrial enterprises in Russia in 1929–30, 63,000 suggestions were made by workmen for rationalizing industry. This "mass scientific and technical creative power resulted in economies valued at 20 million roubles—Obolensky—Ossinsky, *The premises, Nature, and Forms of Social Economic Planning—Annals of Collective Economy* (1931), p. 304.

[2] Passow, *Der Strukturwandel der Aktiengesellschaft*, pp. 26-7; Selekman, *British Industry To-day*, Ch. v.

with the American workman, and in their propaganda for material development.

Each approach to the goal of Socialism has probably made labour more concerned with its heritage. The more conciliatory behaviour of the employer has softened the militant attitude of the workman, while his improved education and social surroundings have increased his appreciation of economic facts. The increased technical character of modern management has changed his appreciation of the function of the salaried staff. The social services furnished by the State have reduced the injurious effects of economic change on the working classes. The rise to power of labour, both economic and political, and their share in government, have had the moderating influence which always accompanies the exercise of authority.

The distinction between the executive and labour has, on the other hand, been toned down by the growing importance of a large salaried class. With the mechanization of production, the work is taken over by machines and the proportion of engineers is increased. The concentration of industry, the widening of the market, and the increased importance of marketing, increase the proportion of the clerical staff. The increase in the scope of government activity increases the proportion of officials among the total employed persons of a country.

The percentage that the different classes formed of all the persons employed in agriculture, industry, transport and distribution in Germany varied as follows:[1]

	1907	1925
Independent	22.2	18.3
Salaried	9.1	13.6
Workmen	51.5	48.9
Family members who help ...	17.2	19.2

Whereas, according to King, the number of wage-earners attached to manufacturers in the United States

[1] "Hauptberuflich Erwerbstätige" only:—*Handwörterbuch der Staatswissenschaften, Ergänzungsband*, p. 984.

decreased between 1920 and 1927 by 635,000, the number of salaried persons increased by 50,000.[1]

The composition of this class has been altered. The use of typewriters, telephones, and other mechanical devices, has facilitated the entry of large numbers of women into the salaried class. In Germany there has recently been a strong influx of women into trade, public administration, and health services. Between 1882 and 1925 the percentage increase of men and women engaged in the different occupations was as follows:[2]

	Men	Women
Agriculture	- 2.8	125.5
Industry	120.6	185.3
Trade and commerce	215.7	478.6
Administration, Army, Church and Liberal professions ...	56.9	363.5
Health	292.5	504.3
Domestic services and wage work of a changing character	- 31.7	6.7
Together	72.1	131.7

The tendency is for women to shift from the working to the salaried class. Of all the women in Germany engaged in agriculture, industry, transport and distribution the percentages varied as follows:[3]

	1907	1925
Independent	13.9	10.8
Salaried	4.7	10.9
Workers	40.2	34.7
Family members who help ...	41.2	43.6

In the United States between 1910 and 1920 the male clerical workers increased from 3.8 to 5.1 per cent of all men engaged in gainful occupations. Among women, the increase was from 7.3 to 16.7 per cent.[4]

[1] *Recent Economic Changes*, p. 478.

[2] *Ergänzungsband*, p. 974.

[3] "Hauptberuflich Erwerbstätige," *Ergänzungsband*, p. 984.

[4] *Recent Economic Changes*, p. 544.

Women, however, are still employed mostly in dependent, serving positions, and their entrance into the salaried class has been due less to the better qualifications on their part than to the lowering of the standard of clerical work by the process of mechanization, a kind of work for which they are especially adapted. Their increased attendance at universities, however, is probably a sign of the desire to rise to higher levels.[1]

The growth of a salaried, professional and official class tends to tone down the difference between the labouring and possessing classes. Mobility between the various classes is great, especially between different generations. Universal education, and especially the standardization of knowledge, as well as the increased sphere of government activity, makes for continual interchange among their members. Rationalization in industry has further tended to bring about a larger measure of social homogeneity. Both the skilled and the unskilled workman is being largely replaced by the semi-skilled machine minder. The last vestiges of the artisan are removed. Hitherto, said Taylor, personality was put in the first place; in future, organization and the system will take its place.

Social conditions have worked in the same direction. Cheap clothes, cheap amusements, and cheap newspapers, have tended to affiliate the classes socially—in appearance and in ideas. The equal distribution of political power, the increased wages of unskilled workmen relative to those of skilled workmen and of the lower *bourgeoisie*, have affiliated them politically and economically. There is the same tendency to think in terms of social values, the same enthusiasm for material development from Bolshevik Russia to America. Among all classes there is the same willingness, even desire, to become standardized, not to attract attention nor to be loud or stared at as original, but to pass unobserved, to disappear in the mass.

Even the rigidity of the Indian caste system is being modified by the facts of economic development.

[1] *Ergänzungsband*, p. 990.

> The operations of large-scale industry bring together in a common enterprise men of different castes, and in the mills and mines of India many of them are working side by side in the same occupation. Trains and trams cannot make provision for caste distinctions. In the villages co-operative societies have an important influence in breaking down ancient barriers, and political education and economic activities everywhere tend to bring into contact different grades. For practical purposes, therefore, it may be assumed that the strictness of caste-feeling is being slowly modified in many directions, and the movement has the sympathy and support of not a few of India's progressive leaders.[1]

In the negation of every aspect of individual separate existence, Russian communism has completely suppressed the human personality. It stresses environmentalism to a caricature where every form of individual achievement is reduced to a product of collective conditions. Nineteenth century idealism considered the object of life to consist in self-realization and the development of personality. For Bolshevism the true path to salvation leads through the annihilation of the individual in a " mass man " externally organized. " The complete subordination of all individuals to the impersonal organization of an automatic collectivity passes in Soviet Russia for supreme happiness."[2] The Unknown Soldier of the Western world has its counterpart in Russia in the " anonymous incapacity " of journalism, or in " monumental proletarian music " consisting of a symphony of factory sirens.

The greater conformity of different classes to the same standard type may, however, easily coincide with greater differentiation within the same special groups. In the standardization of ideas, no less than in the standardization of goods, revolt is evident. There is the break with convention in modern literature, the impatience with

[1] The Simon Report on India (abridgement by R. Brock), pp. 16-17. Certain economic and social developments are, however, also tending to accentuate caste distinctions.—Cf. G. Ghurye, *Caste and Race in India*, pp. 176-181.

[2] Füllöp-Miller, *The Mind and Face of Bolshevism*, p. 19.

photographic representation in art, and, what is more important, the systematic attempts in many universities and schools to break away from the doling-out of information, and to develop independence of thought and action.

The tendency towards equality will probably make for a relative economic stability. People in the middle range of incomes normally invest with a view to security rather than with a view to becoming rich in the immediate future. The smaller the estate the larger, as a rule, the proportion of it that is invested in houses and insurance premiums. Progressive taxation makes people prefer gilt-edged rather than speculative securities, because the State takes a large part of the profits when these accure, but does not share the burden when there is a loss.[1] The heavy taxation of the profits of corporate enterprise has been a strong incentive to the financing of industry by debt rather than by risk-bearing equities. The greater rigidity of the economic system on account of this greater indebtedness and because of the inflexibility of wage rates has thrown the burden of adjustment to a falling price level on business profits, thus weakening economic incentive and retarding recovery during periods of depression.[2]

The supply of work furnished by the great majority of people has, besides, to a large extent, become independent of their own free decisions. Their hours of work are fixed by legislation or by collective bargains which have crystallized into custom. The intensity of their effort is determined by convention or by the organization of the establishment. The age of retirement is regulated by pension agreements. It is only in the liberal professions that the amount of work performed is to a large extent determined by the individual. Social services have brought about a lack of adaptability to changed conditions. This is reflected, for example, in the large amount of permanent unemployment co-existing in Great

[1] Cf. The Colwyn Report, pp. 137–8.

[2] *World Economic Survey*, pp. 210–11; 227.

Britain to-day with a large reduction in the scale of emigration. Such conditions are not very conducive to the development of capitalist enterprise.

Capitalism as a faith is also becoming inadequate, however efficient it may be technically as a method of organization. The continuous appeal to the money motive is nauseating to a large part of the population who are dissociated from the gains or unwilling to participate in them. The weakening of the other worldly religions has given scope to one which bears on the practical values of life and aims at service to the community. It is here that Communism has its strength; in the conviction, as Lenin said, that as a type of social organization it is superior to the capitalist system.[1] It is perhaps the greatest spiritual victory of Bolshevism that for the petty *bourgeois* virtues of concern with the economic position of the individual and his family it has been able largely to substitute interest in the Five-Year Plan and in the economic advancement of the whole proletarian community.[2] Even in the Western world success in industry has lost much of its appeal. The naïve optimism and objectivity of the nineteenth century has given way to an acute social self-consciousness. The rationalizing of the human mind, which has come with the increase in culture, has created for large sections of the community a mentality and an outlook on life which are not compatible with the fundamental assumptions of the capitalistic system.

[1] Stalin, *Leninism*, p. 27.

[2] Hoover, *Economic Journal* (September 1930), pp. 438–9.

CHAPTER IV

TRANSPORT, POWER, AND THE LOCATION OF INDUSTRIES

THE structural changes in technique which are of economic sinificance are new methods of transport, new sources of power, and their application to industry, and ways of eliminating waste in industry. These last, as well as the changes that are taking place in economic organization, are associated with the process of rationalization.

One of the most outstanding recent economic developments is undoubtedly the growth of the automobile. In the history of transport it can be compared only with the invention of the railway. The effects of the automobile on industry and on life in general have been no less radical.

The nineteenth century was essentially a railway era. The annual increase in railway mileage in the different decades was, in kilometres, as follows:[1]

Period	In World	In Europe	Outside Europe
1841–50	3,000	2,000	1,000
1860–70	10,000	5,300	4,700
1891–1900	17,000	6,000	11,000
1900–1913	24,000	5,000	19,000

It has been estimated that, during the period 1901–13, no less than five million people were engaged annually in railway construction.[2]

[1] Sombart, *Der Moderne Kapitalismus*, III, i, pp. 286–7; *Handwörterbuch der Staatswissenschaften*, xxiii, p. 903.

[2] ibid., p. 291.

With the exception of the Buenos Aires–Valparaiso line, no railway of international importance has been built since the War. The construction of a railway system in Afghanistan to link up with India and Siberia has, however, been authorized by the Government.[1] The increase in the world's railway mileage has, since the war, been on a much reduced scale.

Total Length of the World's Railway Mileage in Kilometres (000's omitted).

1922	1,166,6	1926	1,201,3
1923	1,174,4	1927	1,210,7
1924	1,187,2	1928	1,222,7
1925	1,194,6	1929	1,229,4

By far the largest percentage increases, over the period, were found in still undeveloped countries: 23 per cent in Africa, 18 per cent in Oceania, 15 per cent in Asia (outside Russia), 11 per cent each in Russia and Australia as compared with an increase of only 3 per cent in Europe (outside Russia), and 0.4 per cent in North America.[2] In the United States there has actually been a decrease in total route mileage between 1920–27 of 0.1 per cent owing to the abandonment of branch lines. There was, however, an increase in total track mileage of 4.4 per cent owing to the increase in second and multiple tracks, as also in yards and on sidings.[3]

As one country after the other became provided with an ever more developed network of railways, a slowing down in the rate of growth would have been expected in the twentieth century, even without the development of a new form of transport. The fall would not, however,

[1] *Manchester Guardian Commercial* (May 15th, 1930).

[2] *Statistical Year-book of the League of Nations* (1930–31) p. 198

[3] *Recent Economic Changes in the United States* (National Bureau of Economic Research), p. 261. This process has increased rapidly during the present depression. According to the National Geographic Society on 32 miles of new railway were constructed in the United States in 1932, while 1,380 miles of small branch 'feeders' were abandoned.

have been so rapid if it had not been for the growth of the motor industry.

The growth of the automobile has been phenomenal. At the beginning of the present century it was still a curiosity, of interest mostly to speed enthusiasts; "a luxury apt to degenerate into a nuisance." At the end of 1929 there were no less than 35.2 million automobiles in the world, of which 26.65 millions were in the United States.[1] From a production of under 3,000 cars at the beginning of the century the American production exceeded 4 millions in 1925. In that year it had, measured by the value of its product, become the leading industry of the country.

The development of the automobile has, besides, afforded a tremendous stimulus to industry in general. In America, where, in 1928, more than 83 per cent of the world's motor vehicles were produced, it has been estimated that more than eight billion dollars are expended annually for the goods and services required for motor transport. Directly and indirectly in that year it gave work to about 4,300,000 workers. The proportions of the total output of other industries of material used by the motor industry were, in 1928, as follows:[2]

Iron and steel	18.0 per cent
Plate glass	74.0 ,,
Rubber	85.0 ,,
Upholstery leather	60.0 ,,
Nickel	28.0 ,,
Aluminium	27.7 ,,
Tin	24.1 ,,
Copper	14.6 ,,
Hardwood	18.8 ,,

It is besides estimated that 80 per cent of the petroleum output of the United States is consumed by the automobile industry. This compares with the consump-

[1] *Statistical Year-book of the League of Nations (1930–31).*

[2] Seltzer, L. H., "Automobile Industry" in the *Encyclopædia of the Social Sciences.*

tion by the railways of the United States of about 20 per cent of the production of steel, 20 per cent of the lumber and fuel-oil, and 25 per cent of the output of bituminous coal.[1] The period of post-War prosperity, which culminated in 1929, was due essentially to the expansion of the automobile industry.

With the growth in the number of automobiles, roads —which had been relatively neglected since the coming of the railway- came into their own again. The roads in America, for example, are said to have been notorious before the War for their bad condition. "The development of one of the finest systems of improved roads in the world has been effected mainly since the World War, and has paralleled the increase in the number of automobiles."[2] Great improvements have been made, not only in the types of roads but also in the methods of construction. Compared with pre-War highways, the *autostrade* of North Italy, for example, are no less than a revolution in road construction. Such motor-roads are especially desirable in countries like Spain and Italy where most of the transport is done by animal traction, and the highways, therefore, besides being bad and dusty, are liable to be unsuitable for motor transport between the more important industrial centres.

The expenditure on roads has been met largely by taxes on oil and on automobiles, enormous as this expenditure has been. In Great Britain about 60 million pounds is being spent annually on roads. The expenditure for rural highways in the United States has increased as follows:

1904	...	...	59,527,000	dollars
1914	...	...	240,264,000	,,
1927	...	...	1,448,121,000	,,
1928	...	...	1,659,692,000	,,

The British expenditure corresponds fairly closely

[1] *Current History* (April 1932), p. 43.

[2] *Recent Economic Changes*, p. 246.

with the yield of motor taxes.[1] Of the total sum of 6,126,559,000 dollars spent on all the highways of the United States during the three years from 1926–1929, about 40 per cent was paid for by taxes on automobiles and petrol. In addition, the general taxpayer contributed 3,683,343,000 dollars.[2]

The motor has not only had important effects on practically every branch of industry, it has affected almost every sphere of life as well, from the art of waging war to the habit of outdoor camping. We have come to live in the age of the automobile, with the country dissected with metalled roads, streets blocked with cars, the atmosphere polluted with exhaust fumes, and the newspapers filled with motor advertisements.

The automobile has furnished an individual, flexible, and mobile form of transport; a swift, reliable and cheap means of conveyance. The canal, tram, and railway can provide transport only along definite routes and at given points. If the route proves unprofitable the capital sunk in its construction is largely lost. With road transport, on the other hand, goods can be picked up and delivered, and services rendered under the most diverse conditions. By providing door-to-door delivery the motor truck obviates the unnecessary handling of goods, the extra expense, delay, and theft which are incurred in railway transport. Vehicles can easily pass and be passed by others on the road; they can be transferred to any part of the country where traffic can be obtained, and if one route does not pay another can be tried. It is largely on account of this mobility, the small capital outlay required, and the frequent and individual type of service which it supplies, that the automobile has proved such a severe competitor of the railway.[3]

The railway has felt the competition of the automobile mostly for passenger traffic over relatively short distances. The number of passengers carried by rail in three of

[1] Brunner, *The Problem of Motor Transport*, p. 138.

[2] *Current History* (April 1932), p. 46.

[3] Fenelon, *Transport Co-ordination*, pp. 26-30.

the leading countries where road transport is most developed has varied according to the following table (000,000's omitted):[1]

	1923	1924	1925
United States	1009	950	902
Great Britain	1496	1478	1455
France	773	778	810

	1926	1927	1928	1929
United States ...	875	840	798	786
Great Britain	1260	1336	1330	1348
France	784	730	751	772

This loss of the railways has not been in the number of suburban season-ticket holders. The number of commutation passengers carried by the railways in the United States, for example, increased steadily between 1921–1927 at the rate of about three per cent yearly. In Great Britain the railways have shown decreases in all classes of business except season-ticket suburban passengers and excursions. The morning and evening business traffic is usually too heavy to be dealt with adequately by bus services. They have taken from the railways rather the mid-day shopping and evening pleasure traffic. The loss of American railways has been confined almost entirely to the traffic on local trains between adjacent cities or on branch lines. This competition has come from the private car rather than from the bus. Long-distance passenger traffic in America, as reflected, for example, in Pullman-car statistics, continues to grow slowly.[2] The decline in the number of passenger kilometres has not been as great as that of passengers carried. They are (000,000's omitted):[3]

[1] *Statistical Year-book of the League of Nations (1930–31).*

[2] *Recent Economic Changes,* pp. 272–3; Brunner, op. cit., pp. 64–89.

[3] *Statistical Year-book of the League of Nations (1930–31).*

	1923	1924	1925
U.S.A.	61,628	58,529	58,205
Great Britain	2,988	3,319	3,170
France	29,232	28,370	29,736

	1926	1927	1928	1929
U.S.A. ...	57,410	54,392	51,045	50,155
Great Britain	——	3,019	3,108	3,175
France ...	28,194	25,974	26,950	28,085

The competition of road with rail transport for goods traffic has been less severe in countries where the average haul is fairly long. In the United States, as contrasted for example with Switzerland, the proportion of freight of the total railway traffic has been steadily increasing since 1921 at the expense of passenger revenue.[1] The number of ton kilometers carried by the railways has increased steadily in France, and the United States, if not in Great Britain (000,000's omitted):[2]

	1923	1924	1925	1926
U.S.A. ...	607,722	572,228	609,417	653,254
France ...	36,388	40,471	40,309	43,948
Great Britain	31,004	31,171	29,976	22,961

	1927	1928	1929	1930
U.S.A. ...	630,727	636,673	657,263	563,500
France ...	40,330	42,753	45,550	——
Great Britain	30,818	28,996	30,847	29,147

The slow growth of railway transport has not been due entirely to the competition of the automobile. In Germany, for example, it has been estimated that at least one-half of the 58 million tons transported less in

[1] *Recent Economic Changes*, p. 294; *Annals of Collective Economy* (1927), p. 21.

[2] *Statistical Year-book of the League of Nations (1930–31)*.

1925 than in 1913 was due to rationalization, to the shifting of the process of manufacture to the most economical centres of production. Thus in the manufacture of steel, during the period, the consumption of ore and scrap decreased by only three per cent, the amount transported by 31 per cent. By 1925, however, the process of rationalization had as yet only begun. The transport of coal is being reduced by the increased manufacture of electricity at the pithead, by the substitution of water-power for coal, the transport of coke instead of coal, and the long-distance supply of gas. The time is probably not far distant when coal will not be sold in the natural state at all. the *Institut für Konjunkturforschung* has estimated that the increase in transport in Germany in the near future will at the most be as fast as the increase in population.[1]

The competition of the motor truck has been especially severe in the case of a railway system which, like the British, has been largely adapted to the rapid transport of high-class goods over short distances at relatively high cost. The competition of motor transport is especially effective within the 50-miles radius, and is potential over distances of 150 miles. In Great Britain the average railway haul is approximately 60 miles, so that a large part of the railway traffic must be directly competitive with the road.[2] The increase of commercial vehicles in the United Kingdom has therefore been relatively rapid.

The traffic which the road is taking from the railway in countries like the Uuited States, on the other hand, is relatively of much less importance. With regard to freight it is of a kind which the railway can give up with least loss. "The small, short haul shipments, while yielding high gross revenue per ton-mile, are carried at exceedingly high ton-mile cost, and the net revenue is relatively low. This kind of traffic is burdensome in its

[1] *Strukturwandlungen der Deutschen Volkswirtschaft*, Vol. II, pp. 162–175.

[2] Brunner, *The Problem of Motor Transport*, Ch. vi.

demands upon terminals and freight cars, and usually is moved in way-freights, the poorest paying of freight trains. Confronted with the continuing necessity for enlarging terminals and increasing the productivity of equipment, the railways may regard with equanimity the loss of a part of the tonnage which is least attractive from the view point of net revenue, and they can devote the released capacity in facilities and equipment to the long-haul and better-paying tonnage."[1]

The loss of traffic has nevertheless been severe to an industry as highly capitalized and as subject to decreasing costs as the railroads. They have tried to meet this competition by improving their services. The number of scheduled fast freight trains has been increased. Their movement has been speeded up by making up the trains "to run through without dropping or picking up cars *en route*, by establishing longer locomotive runs, by reducing delays at interdivisional terminals, and by cutting down the time required at initial and final terminals in the making up of the train, and the placing of the cars at destination."[2] The increased mileage equipped with automatic signals has enabled trains to run under closer headway, and to reduce the number of stops. Terminals have been greatly improved. The use of heavier rails and the employment of economizing devises, such as high-pressure boilers and other improvements in design, have made greater speed possible.[3] It has been estimated that in the United States the rapidity of freight transport was from 30 to 40 per cent greater in 1927 than at the close of the War.[4] By the introduction of compressed-air brakes on the German railways, it became possible to increase the average speed, between 1913 and 1927, of ordinary goods trains by 23 per cent; of express trains by 35 per cent, and in individual cases by as much as 50 per cent. The economies

[1] *Recent Economic Changes*, p. 274.

[2] ibid., p. 302.

[3] ibid., pp. 262-3.

[4] ibid., p. 301.

effected by the introduction of these brakes amount to-day to an annual saving of 100 million marks.[1]

The traffic on branch lines has been speeded up by the use of motor-rail cars fitted with internal combustion engines for the transport of passengers and light freight. Savings in expenditure which range from 25 to 30 per cent are effected by the use of these coaches.[2] The German railways have built motor-rail cars fitted with Diesel engines which can attain a speed of 100 miles per hour. These coaches cover the distance of 175 miles, between Hamburg and Berlin in two hours, and are specially instituted for the rapid conveyance of the passengers of Atlantic shipping lines and of business men.

The railways have tried also to improve their services by electrification. In 1927, in Switzerland, 60 per cent of the railways were electrically driven, in Austria 8.66, in Sweden 7.52, and in Italy 5.4 per cent.[3] The Weir Committee has recommended the complete electrification of the British Railways. The scheme would affect 51,000 miles of road track; the estimated cost is £386,000,000 and the annual monetary saving effected £12,500,000. The advantages of electricity are especially great in urban areas and in mountainous territory with steep gradients and long tunnels. By the distribution of the motors along the train the grip on the rails can be increased, and, as quicker acceleration can be secured by electricity than by steam, time is saved in approaching and in leaving stations.

Of even greater significance than these technical improvements are the additional services now generally provided by railways. Freight, for example, is called for and delivered. For the convenience of their customers the German Railways have issued international

[1] *Strukturwandlungen*, pp. 170, 183.

[2] *Principles of Transportation*, Johnson, Huebner and Wilson, p. 432.

[3] *Die Wirtschaft des Auslandes*, 1900-1927, Statistisches Reichsamt, p. 105.

time tables which enable each shipper to calculate the time goods will take to reach their destination.[1] More advertising is done for the transport of both goods and passengers. "Incidental services have been extended, and throughout the whole service there is greater effort to apply modern merchandising principles in the development and sale of transportation."[2] The former lethargy is said to represent the cost to the users of transport services from the institution of monopoly, the new attitude the gains from the re-establishment of competition.[3]

Much more severe than the competition of the automobile with the railway has been the competition of the private car and the bus with the tramway; of the motor truck with the horse-drawn vehicle. The horse has practically disappeared from the modern city. Its slow movement impedes the already congested traffic in the centre of large towns. Even on farms in the United States the number of horses and mules decreased between 1918–1928 by 6,300,000.[4]

The tramway shares the railway's disadvantage of high capital cost and lack of flexibility, and has few of its compensating advantages. The noise of the vehicles and the nuisance of an overhead system of wires are undesirable, both in the residential and in the business sections of towns. Above all, there is the damage done to the surface of roads by the rails and the congestion of streets from the immobility of the system. The tramway will probably, if more slowly, share the fate of the horse.

The competition of the various means of transport has

[1] *Strukturwandlungen*, pp. 170–1.

[2] *Recent Economic Changes*, p. 308.

[3] Somary, *Changes in the Structure of World Economics since the War*, p. 211.

[4] *Recent Economic Changes*, p. 881. In Great Britain the number of horse-drawn vehicles decreased by 57 per cent between 1922 and 1927 (Brunner, op. cit., p. 52). In Germany, on the other hand, the number of horses was still about the same at the end of 1927 as in 1913. The increased use for agricultural purposes made good the loss in transport. (*Strukturwandlungen*, II, p. 255).

thus been intense in urban areas and in small, thickly populated countries. In countries, on the other hand, where distances are long their services have been complementary to a much larger extent. Each type of transport has advantages within certain spheres and for certain kinds of traffic. The road is best adapted for short hauls and for the transport of high grade commodities. Its sphere is largely restricted to an area within 50 miles. Buses do indeed compete over much longer, and even over continental areas. In Great Britain there are long-distance express bus services between all the larger towns. A bus service running twice daily was organized in 1928 between Los Angeles and New York, a distance of 3,314 miles. The chief attraction of their services is their cheapness. The traffic which they have attracted from the railways, even in Great Britain, has hitherto, however, been insignificant. Such lines still are, and will probably remain, a novelty.

The same applies to the other means of transport. The canal is best suited for the carriage of low-grade commodities in bulk where speed is not required.[1] Air transport, on the other hand, has its support in speed and in independence of ground conditions.

The development of air transport has been almost as phenomenal as the growth of the automobile. Hitherto, however, it has been attained mostly by means of government support. The government expenditure on civil aviation in the United States, Great Britain, France, Italy, and Germany in 1929 amounted to 30 million dollars. The government expenditure on military aviation in the first four countries mentioned was in that year almost twelve times as high.[2] The more efficient companies, however, are increasing their income relative to their expenditure. Thus the European Union of air transport companies earned about 60 per cent of its total

[1] Its importance to industry is reflected, for example, in the transplanting of the Krupp works from Essen to the Rhine.

[2] C. H. Biddlecombe, article "Aviation," *Encyclopædia of the Social Sciences*, p. 346.

expenditure in 1925 as contrasted with only 20 per cent in 1922.[1]

Commercial air services using airships were started on a small scale in France and Germany a few years before the War. Commercial aviation is, however, essentially a post-War development. It is of significance as yet only in the conveyance of mails and of passengers where speed is the main objective. Banks in America are making use of air mail for the collection of cheques and drafts, thus saving interest charges on funds in transit. It is being used extensively also in Europe for the transport of bullion. It has been suggested that the transport of the South African gold by air over Cairo may have important effects on the London gold market. On account of the speed and the fact that handling of the goods is reduced to a minimum, such articles as jewellery, high-grade luxury goods, manufacturers' samples and perishable goods are also transported to a considerable extent by air.

In thinly inhabited areas, such as Canada, Australia, or Africa, the aeroplane is used essentially for survey work. It is used for investigating the geological formation of the ground, for mapping the routes for new roads and railways, for detecting and suppressing forest fires, for flood control, for locating the breeding grounds of mosquitos and the movements of shoals of fish, or for dusting crops. On account of the better view of the texture of the land from above, aerial photography is being used even in archæological research.

Because of the slowness of sea transport, air lines were first instituted over relatively short sea routes. Thus the first international air lines were established between Copenhagen and Warnemünde, Copenhagen and Amsterdam, London and Paris, and so forth. The future of air transport is essentially one of international, of transcontinental and of trans-oceanic services. It was formerly generally believed that the development would take

[1] *Principles of Transportation,* Johnson, Huebner and Wilson, p. 756.

the form of the use of airships for long non-stop flights over oceans and continents, and the use of aeroplanes for shorter land distances at relatively greater speed. The importance of the airship is, however, continuously receding before the technical development of the aeroplane.

The rapidity with which air transport has been organized is remarkable. The development has been especially rapid in the United States since 1927.

Country	Year	Kilometres flown (in 1,000's)	Number of passengers transported	Freight, post, etc. transported (tons)
Germany	1928	10,691	118,183	2,095
	1930	10,005	90,736	2,525
France	1928	7,297	19,698	1,287
	1930	9,296	28,935	1,865
Great Britain	1928	1,475	27,303	826
	1930	1,967	23,466	856
U.S.A.	1928	16,853	52,934	2,022
	1930	59,456	385,910	3,770 [1]

World air routes totalled 185,100 miles at the end of 1931 as compared with only 3,200 miles in 1919. On account of international conferences, daily air services are now provided between all the larger European cities.

With the help of subventions, passenger fares have been maintained at a level not much higher than that of first-class railway fares for corresponding distances. International air rates are as slow as 2½d. per kilometre.[2] The comfort and safety of flying have been greatly increased. Air insurance rates have been decreasing steadily. With the installation of the necessary facilities, night-flying is becoming possible over ever longer routes. Machines have been greatly improved. Formerly they had to be overhauled after only 150 hours' flying, where-

[1] *Weltwirtschaftliches Archiv* (January 1932), p. 318.

[2] *Strukturwandlungen*, Vol. II, p. 289.

as, with the best machines, this is now necessary only after 1,000 flying hours. On account of the high cost of the machines the expenditure for depreciation still forms a very large part of the total expense in air transport. In the case of the Luft Hansa, it amounted in 1927 to 20 per cent.[1] The example of the American aviation industry shows, however, that commercial air transport can already be almost entirely self-supporting.

The extent to which the different methods of transport are competitive varies in the different countries and in different localities within the same country. Where they supplement one another the advantages of co-ordinating their services are evident. Each service can be reserved for the method of transport which can render it most efficiently. Transport will thus be supplied without duplication and with a minimum waste of capital and labour.

Formally co-ordination may be attained in three different ways.[2] The most obvious method is for one form of transport to obtain financial control over the other. In the nineteenth century railways purchased canals. To-day the railways are recapturing some of the lost traffic by running bus lines, either as substitutes for branch lines or as auxiliaries to rail services. Investigations by the Interstate Commerce Commission found that more than 1,200 passenger buses were operated by Class I steam railroads or subsidiary companies in the United States in 1927, as compared with 20,000 run in direct competition with the railways.[3] Motor coaches have been fitted with both pneumatic tyres and railway wheels. They are intended to pick up passengers along the roads in country districts and to carry them to the railway stations, where they can be run on the line without inconveniencing the occupants. In good service, containers are extensively employed. These are demount-

[1] *Strukturwandlungen*, Vol. II, p. 281.

[2] Cf. Fenelon, *Transport Co-ordination*, Chapters v-ix.

[3] *Principles of Transportation*, Johnson, Huebner and Wilson, p. 427.

able bodies which can be transferred from the rail to the motor truck and then transported directly to their ultimate destination. Specially equipped trucks for the rapid conveyance of loaded motor lorries have been established on the American railways.

In urban transport competitive bus services are usually operated on the same routes and just ahead of the street cars, thus taking away their prospective passengers. To remove or forestall this evil, tramways have themselves come to operate numerous bus lines. By running buses parallel to or alternatively with electric cars their services have been improved and operating expenses often reduced. Where all the means of transport—buses, trams or underground railways—belong to the municipality, as in Berlin, effective co-operation has been substituted for competition.

The various forms of transport may also co-operate voluntarily, each maintaining its independence. Co-ordination has been relatively easy to obtain with air, rail, and shipping services. Many European railways have arranged their schedules so as to co-ordinate rail and air services. There is an agreement between the Reichsbahn and the Luft Hansa that whenever air services are interrupted passengers can change their tickets for those of the railways. With the use of the same invoice, goods can be transported by both air and rail.[1] By effectively combining these means of transport, great speed can be obtained. The air service between England and India (a distance of 5,000 miles), for example, is divided into several sections. The distance from London to Uskub, in Jugoslavia, is performed by aeroplane. The passage over the Balkan mountains to Salonica harbour is done by night in a railway sleeping-car. From there the flight is continued to Alexandria by flying-boat, from Alexandria to Karachi by aeroplane. The forward journey lasts 7 days, 8 hours, 40 minutes, of which nearly three days are spent in flying. The return journey is performed in eight days. This com-

[1] *Strukturwandlungen*, Vol. II, pp. 180-1.

pares with the 15 days taken by the quickest form of land and sea transport.[1]

Shipping services have also been effectively co-ordinated with the other means of transport. The S.S. *Ile de France* has on several journeys, for example, catapulted a single-engined seaplane from the after-deck, a few hundred miles short of New York, thus gaining about a day in the time of delivery of the mails.[2] The co-ordination of motor and rail with steamship services has reduced the time that goods are in transit and relieved congestion at piers.

Voluntary co-ordination between road and rail transport has been more difficult to attain on account of the greater similarity of the services rendered. But very effective co-operation has been organized between independent automobile companies and the American railroads in the transport of less-than-carload freight between the terminals of different lines and between different stations on the same line. This has greatly speeded up the movement of freight. Congestion at terminals has been reduced with a relatively small increase in capital outlay. The railways have been able to make better use of their vehicles, to centralize the stations at which goods are handled, and to concentrate to a certain extent on full train-loads moving between the more important stations.[3]

A third form of co-ordination is by means of public control. An authority may be instituted, either by the State or by the municipality, to enforce the pooling of resources, the limitation or extension of services, and to take steps to safeguard the interests of the public. In all countries where the railways are State-owned the

[1] Major A. Salt, *Imperial Air Routes* (25), pp. 101–9. The route now again runs via Basle and Genoa, the journey over the Alps being performed by night train. With the new high-speed mail carriers that are under construction this co-ordination of services will probably be avoided and the time considerably reduced. A service to India in two days, to Cape Town in three days, and to Australia in under five days, will probably be maintained.

[2] Fenelon, *Transport Co-ordination*, p. 113.

[3] *Principles of Transportation*, Johnson, Huebner and Wilson, Ch. xxxiv.

government has taken steps to control the competition of motor transport. In cities the transport problem has become especially acute. Unrestricted competition has led to the congestion of traffic in certain areas and to the provision of inadequate facilities in other districts. The difficulty can be solved only by regarding the area to be served as a whole and planning the different services so as to supplement one another. Until now authorities have tried to solve the problem mostly by means of traffic control. One-way traffic has been established in most squares. The use of horse-drawn vehicles, heavy motor traffic, and trams, has been forbidden in certain districts and in the busier streets during certain hours of the day. The number of buses has been limited. The private car will probably share this fate. Urban authorities have, however, tried to relieve congestion also by the building of parallel streets and by the construction of arterial roads radiating from the centre of the city. The building of underground motor-roads has often been suggested. It is a common experience that satisfactory co-ordination can be obtained only by the pooling of resources and by a certain measure of unified management. The same applies, if to a less extent, to transport facilities outside the town. Ultimately it is very probable that all forms of transport, goods and passenger, air, road, and rail, will come under one central administration.

The competition between the automobile and the railroad as methods of land transport has been paralleled by the rapid displacement of coal by oil as fuel in ocean transport. Before the War the use of oil as a bunker fuel for merchant ships was of importance only in California and in the internal trade of Russia. With the increase in the supply of fuel-oil and the replacement of ships destroyed by the submarine campaign, the tonnage of merchant ships equipped for burning oil increased rapidly.[1] Especially rapid has been the growth of the

[1] Oil Conservation and Fuel Oil Supply (National Industrial Conference Board), pp. 16-17.

motor-ship equipped with Diesel engines. The percentage of the different kinds of vessels existing in the world in 1913 and in 1930 varied as follows:[1]

	1913	1930
Sailing vessels	8.0	2.30
Steamships burning coal ...	88.90	57.60
Steamships burning fuel oil ...	2.65	28.50
Motor-ships	0.45	11.60

Merchant vessels of 100 tons and more under construction in the world varied as follows (gross tons, 000's omitted):[2]

	1925	1926	1927	1928	1929	1930
Steam	1,041	1,005	1,494	1,212	1,350	984
Motor	1,007	905	1,610	1,395	1,737	1,333

The world's tonnage of motor vessels increased from only 234,000 tons in 1914 to about 10 million tons in 1931.

Oil, even when used as fuel to raise steam in marine boilers, offers considerable advantages. Coal takes up much room and, as it has to be near the boilers, usually some of the best cargo space. The same volume of oil has nearly twice the heating value of coal. It can be pumped into any out-of-the-way part of the ship, or even carried in the ballast tanks, thus increasing the space that can be utilized for the carriage of freight. Considerably less labour is also required to handle oil than coal, and the work is less disagreeable. The use of oil-fuel, besides, adds to the comfort of passengers by the elimination of smoke.

The economies in fuel from the use of the internal

[1] André Siegfried, *La Crise Britannique au XX Siècle*, p. 69.

[2] *Statistical Year-book of the League of Nations* (1930–31).

combustion engine are much greater still. The consumption of oil per kilowatt-hour generated by the Diesel engine was only one-quarter in 1926 of that of the marine boiler. There is more space because there are no boilers, fewer men are required, and the brutalizing work in the stokehold is eliminated.

The use of pulverized coal may, however, again change the trend of fuel consumption. Recent tests with a mixture of oil and pulverized coal are said to have been a great success, and the tendency in recent years has been for the adoption of any type of prime mover which can be operated most economically.[1]

There has been an increased regularity in shipping. About four-fifths of the trans-oceanic shipping of the world was operated on regular routes in 1925 as compared with less than two-thirds before the War. The tramp is disappearing. Even the transport of staple commodities, such as wheat or cotton, is now done practically exclusively by liners.[2] Special lines for the transport of ore, oil, and fruit have also been established. This substitution of liner traffic for tramp services has favoured the growth of the larger, at the expense of the secondary, ports.

The regularity and speed of intercourse have also been greatly increased by modern methods of communication. There has been a great extension in the use of the telephone, partly at the expense of the telegraph. Underground cables are displacing the overground wires, thus reducing aerial disturbances and diminishing the cost of maintenance. Improvements in the transmission of sound have increased the distance over which the voice can be heard, and television will contribute still further towards giving reality to telephonic intercourse. Even more remarkable in the elimination of distance has been the wireless transmission of sound. It has reduced isolation on land, at sea and in the air. The radio, the

[1] *Recent Economic Changes*, pp. 312–3.

[2] *Recent Economic Changes*, p. 311; *Weltwirtschaftliches Archiv.* (January 1927), p. 23.

cinema and the modern Press, by the transmission of the same news and the same entertainments simultaneously over the world, have been the chief agents in the international standardization of thought, of habit, and of outlook on life.

The new developments in transport are having important effects on the location of industry. The centralization of industry in the nineteenth century has been ascribed, at least partially, to the railway policy of charging low freight rates on bulky agricultural produce. This stimulated the growth of large mills in certain specialized towns, rather than a more equal distribution of smaller factories throughout the country.

The automobile has made possible the delivery of smaller consignments under more diversified conditions. It is no longer essential for factories to be situated near railways, harbours or canals. It has stimulated economic activity in the country. Urban workers, on the other hand, can live outside the city. Motor transport has thus enabled the decentralization of population. In the country new houses are being constructed along the bus routes, rather than clustering around the railway stations.[1]

The decentralization of industry, both national and international, has also been greatly stimulated in the twentieth century by the development of new sources of power. In the nineteenth century coal was the source of energy most generally available. Industry shifted to the Black Country. In the twentieth century there came formidable competitors with coal in the form of fuel-oil, petrol, natural gas, and water-power. The proportion of the total energy produced in the world by coal was 90 per cent in 1900, 84 per cent in 1913, and only 64 per cent in 1927.[2]

The world production of coal and lignite (in terms of coal), of crude petroleum, natural gas, and of the pro-

[1] Fenelon, *Transport Co-ordination*, pp. 34-5, 56.

[2] *Economic Journal* (June, 1929), p. 270.

duction of electricity for those countries for which there are statistics over the period,[1] varied as follows:[2]

	Coal and lignite	Crude petroleum metric tons (000's omitted)	Natural gas cubic metres (000,000's omitted)	Electricity KWH. (mls)
1922	1,097,853	120,255	21,594	
1923	1,252,217	141,053	28,515	90,464
1924	1,241,397	141,434	32,325	29,443
1925	1,242,540	148,417	33,658	111,278
1926	1,237,615	152,256	37,182	125,304
1927	1,341,145	174,612	40,931	138,227
1928	1,311,153	183,526	44,406	153,025
1929	1,390,000	206,042	52,199	171,249

It is estimated that the use of oil and water-power since the War has decreased the annual demand for coal by about 20 million tons.[3] There has besides been a great economy in coal through its more efficient utilization. In the case, for example, of the railways of the United States, the 1927 fuel costs would have been about 62 million dollars; in the case of the German railways 70 million marks more, if coal had been burned with the pre-War efficiency.[4] As with transport, however, methods of co-ordination are being worked out which will lead to the various forms of power supplementing rather than eliminating one another.

The coal resources of the world are much greater than the oil reserves, and the liquefaction of coal will almost certainly be an important source of supply of oil in the

[1] The countries for which there are statistics of the production of electricity in the Statistical Year-book of the League of Nations (1930-31) are: Canada, U.S.A., Argentine, Denmark, Estonia, Finland, France, Hungary, Italy, Netherlands, U.K., U.S.S.R., Australia, and New Zealand.

[2] The *Statistical Year-book of the League of Nations (1930–31)*; Oil Conservation and Fuel Oil Supply (National Industrial Conference Board).

[3] " The Course and Phases of the World Economic Depression " (League of Nations), p. 60.

[4] *Recent Economic Changes*, p. 290; *Strukturwandlungen*, Vol. II., p. 184.

future. The remarkable developments since the War in the efficient utilization of fuel in power stations for the central supply of electricity will retard the development of water-power, especially as the remaining water-power sites will involve greater expense in development. The same will result from the more efficient utilization of the by-products of coal. In a country like England, which is rich in coal but poor in water-power,

> Gas is the obvious form for fuel; electricity that for motive power. One ton of coal will produce nearly 8½ million heat-units of gas, 9 hundredweights of coke, 11 gallons of tar, 25 pounds of fertilizer, and 80 pounds of ashes. The same weight of coal is transformed by a modern electric generating station into six million heat units of electricity, and 224 pounds of ashes. Gas is more efficient in one direction; electricity in another.[1]

Ways are also being developed of co-ordinating the power produced at different centres. Thus the colliery concerns in the Westphalian Syndicate have formed a company to utilize their surplus coke-oven gas for the organization of long-distance supply of gas throughout practically the whole of Germany, by means of high-pressure mains supplied from huge containers placed at convenient centres. Similar schemes have been recommended for South Yorkshire. Central power-stations have been connected in chains. This improves the average load, especially where diversified industrial regions are served, as the peak-loads for mining or industry and city lighting seldom occur simultaneously. By the substitution of base-load and peak-load stations on the same chain, the necessity of having both peak-load and base-load units in the same station is also obviated. It has been suggested at the Berlin World Conference that an international European network to connect central power-stations for the supply of electric power should be established, "which would use the differences in time and space of different countries to

[1] *Manchester Guardian Commercial* (Feb. 19, 1931).

attain economies in supply on a scale at present unattainable."[1]

There has been a change in the way in which industries obtain their power. Instead of power being generated and owned by business establishments themselves, it is being purchased from electric plants. In Germany, for example, in 1907, 75 per cent of the power utilized for machines was obtained from prime movers in the factory itself, only 25 per cent being delivered by electrical works. In 1925, 65 per cent of the total was obtained from central stations.[2] Seventy-four per cent of the mechanical power utilized in industries in the United Kingdom was obtained from prime movers in 1924, and only 26 per cent from electric motors driven by purchased electricity. In 1906, 66 per cent was obtained from prime movers and 34 per cent was purchased.[3] In the United States the percentage of energy purchased from central stations was 37 per cent of the total electrical energy in 1899, and 63 per cent in 1927. The total of all forms of power owned and generated within the factory has actually decreased since the War, as has also the number of electric plants operated in the country.[4]

Year	Total own power	Electric motors operating on purchased power	Per cent that electrical motors on purchased power is of total
1899	9,778,418	182,562	1.8
1914	18,409,041	3,884,724	17.4
1919	20,043,170	9,284,490	31.7
1927	19,896,819	19,143,744	49.0

The general significance of this development lies in the fact that it makes possible a new mobility and territorial differentiation in industry. In the nineteenth

[1] *Manchester Guardian Commercial* (September 18, 1930).

[2] *Handworterbuch, Erganzungsband*, p. 747.

[3] Fourth Census of Production, 1930. Preliminary Reports; Board of Trade Journal, Dec. 10, 1931—May 12, 1932.

[4] *Recent Economic Changes*, p. 126; *Annals of Collective Economy* (1931), p. 254.

century population was transferred from the country to the towns. Industry concentrated in the black area. In this flexible form power can be brought to the worker and distributed throughout a country.

The movement of popuation from the country to the towns has had its counterpart, since the War, in the shifting of manufacturing industries from the towns to the country. The advantages of the small town are low taxes, low values for land, low wages, and less freight congestion. In the United States, for example, between 1919 and 1925 the number of wage earners in industry decreased by 670,000. But whereas the towns lost 725,000, rural areas (including all communities with a population of less than 10,000 inhabitants) gained 55,000 wage-earners.[1]

Size of community	Number of Wage Earners 1919	1925	Per cent change 1919 to 1925
U.S. Total	9,050,829	8,380,674	- 7.4
Over 250,000	2,763,494	2,436,694	- 11.8
100,000—250,000	1,016,388	873,813	- 14.1
25,000— 100,000	1,637,786	1,461,653	- 10.8
10,000— 25,000	954,600	874,749	- 7.8
Remainder	2,678,561	2,733,675	+ 2.1

It also appears that, whereas the establishments in the large towns have decreased in size during the period, those in the small towns, and especially in the country, have, for such a short period, shown a remarkable tendency towards an increase. This is further evidence of the tendency towards greater similarity in industrial conditions throughout the country.[2]

Where agriculture is carried on intensively and the type of farming is such as to make continuous and fairly heavy demands for the use of current, schemes of rural electrification are economically feasible. Current can be supplied at relatively low rates, not merely for agri-

[1] *Recent Economic Changes*, p. 211.

[2] ibid., p. 213.

cultural purposes but also for general household use. The cost of transmission of electric power in the United States, however, is five times as great per head for the agricultural population as for the town consumer. With the movement of industries into the country and the greater mobility of population made possible by the automobile, the distinction between working conditions in industry and in agriculture, between conditions of life in towns and in the country, will again become blurred, as it was prior to the nineteenth century.

There are on the other hand the forces of tradition and inertia, as well as the many facilities afforded by an established industrial centre, which make for stability in the location of industry. These forces will probably exert the more influence as the relative importance of, and especially as the total number of workmen engaged in, industry decrease.

There is, for example, the remarkable tendency to-day for many industries, especially those supplying consumers' goods, to concentrate in the suburbs of the capital cities, in Greater London, Greater Paris, or Greater New York.

The growth of large towns has also received a fresh stimulus from the new developments in transport. For, whereas motor transport has facilitated the decentralization of industry, it has encouraged a further centralization in marketing. The automobile and metalled roads have greatly increased the trading area of consumers outside urban areas. Trade is passing from stores situated in villages and small towns to the smaller cities, and to a less extent from these to the metropolitan markets. The loss of the smaller towns has been in fashion articles, where customers require greater variety and a bigger assortment than these markets can economically offer. Whereas merchants in small towns are losing trade in women's apparel, men's clothing and jewellery, there has, for example, been no loss in groceries. The stores in the smaller towns have met this competition by greater specialization. The cities of medium size have benefited

mostly in the sale of cheaper grades of merchandise, whereas the sale of the better grades of wearing apparel has tended to shift to the largest cities. This movement has even affected deposits in country banks, as people prefer to do their banking where they do their shopping.[1]

As the proportion of the population engaged in business and in rendering professional services is growing rapidly relatively to those engaged in industry, where the absolute numbers in the leading industrial countries are actually diminishing, the forces making for urban centralization will probably outweigh those making for decentralization in the near future.

On the other hand the forces of inertia which make for stability in the location of industry seem, at least in America, to be losing in importance. It appears that those cities which have traditionally been the centres of particular industries are losing their favoured positions. These centres do not lose the industries but their dominance disappears. Although, for example, from 1899 to 1925 the slaughtering and meat-packing industry in Chicago more than doubled the total value of its products, the city fell during the period from 35.6 per cent to 18.8 per cent of the national total. Similarly Philadelphia, although the number employed in the rug and carpet industry more than doubled itself during this period, fell nevertheless from 45.6 per cent to 27.8 per cent of the nation's total. There are, on the other hand, only a few examples where certain industries have tended to concentrate in New York. But these are cases of gains at the expense of former favoured cities.[2]

There is, furthermore, the tendency in many countries for industry to spread more evenly over the face of the whole country. In Great Britain, for example, whereas the established industrial areas have been very depressed since the War, there has been a rapid industrialization in the southern section of the country. Seventy-two per

[1] *Recent Economic Changes*, pp. 331-341.

[2] ibid., pp. 214-5.

cent of the increase in insured workmen in Great Britain between 1923 and 1927 were employed in the south of England.

This development has been due partly to the desire to escape the payment of local rates which, on account of the prevalent unemployment, are very high in the north;[1] partly it has been due to changes in raw materials, to the development of electric power, and to the desire of the new consumption industries to be situated near the London market. In the United States there has been the movement of the cotton industry to the South and and of numerous industries to the West.[2] The same tendency towards decentralization is found also in agriculture. With the growth of scientific farming the conditions under which any particular crop can be grown are being diversified. It is not the cultivation of plants, formerly found only in the wild state, under similar conditions of soil and temperature, such as rubber, that is meant. But the cotton belt is stretching west in America, the wheat belt is moving north in Canada and into the arid regions in Russia, on account of improvements in the science and technique of farming.

One method by which the decentralization of industry has been obtained has been through the establishment of branch plants to supply certain areas. In a large country such as the United States, such plants keep down the cost of transport and give rapid service to traders who require quick delivery. They have been established there mostly in hitherto rural areas.[3] When established abroad they save also in import duties.

There has similarly been a tendency towards a greater international differentiation in industry. It has been brought about partly by new developments in power, partly by economic policy, and largely by the spread of European civilization over the whole world.

The increase in the consumption of coal has been

[1] This has been changed by the De-Rating Act of 1929.

[2] *Die Wirtschaft des Auslandes*, 1900-1927, pp. 13; 548-9.

[3] *Recent Economic Changes*, pp. 208-10.

greatest in Africa, Asia, and Oceania; of oil, in the United States. On the other hand:

> A large part of the world's water-power has been developed in countries or parts of countries lacking other adequate sources of energy. In Norway, Sweden, Switzerland, Italy, and Southern France, coal was lacking and had to be transported long distances. In the United States the chief water-power developments are in New England, in the Great Lakes region, in the South Atlantic States, and in the Pacific Coast States. In these areas local coal deposits are inadequate, and long freight hauls are necessary to import coal. The principal water-power developments in Canada are in the fuelless zone of Ontario and Quebec, where coal is largely imported from the United States.[1]

Japan is making good her lack of good coal by exploiting her favourable geographical conditions and her large rainfall, which is about double that of the world as a whole. The actual and the potential output of hydro-electric power in the various continents and the principal industrial countries were, in 1926, as follows:[2]

Continent or country	Potential (1,000 H.P.)	Developed (1,000 H.P.)
North America	60,650	16,780
U.S.A.	35,000	11,721
Canada	18,250	4,556
Europe	58,094	13,098
Norway	9,500	1,900
European Russia ...	8,425	275
Sweden	8,000	1,350
France	5,400	2,000
Spain	4,000	1,000
Italy	3,800	2,300
Asia	69,200	2,068
Africa	190,950	14
Central & South America	58,750	809
Oceania	16,650	243

[1] *Oil Conservation and Fuel Oil Supply*, p. 12.

[2] Federal Power Commission, Department of the Interior, U.S.A.

The development of their hydro-electric resources has given a great industrial stimulus to these countries. Whereas in Italy, for example, coal in 1926 cost 17 per cent more than it did before the War, electric power in Milan was only one-half its pre-War price.[1] Whereas in Canada between 1921 and 1930 the production of manutures increased greatly, the import of coal decreased by 10 per cent. The hydraulic turbine horse-power installed however, increased by 222 per cent.[2] In Japan the development has been as follows:[3]

Year	Electric power kilowatts	Proportion hydro-electric
1914	716,000	62.7 per cent
1919	1,133,000	70.6 ,,
1929	3,750,000	75.0 ,,

Many modern tendencies, as well as the general economic development of the world, seem to work in the same direction. All countries are coming to manufacture the coarser kinds of materials for themselves. The War greatly stimulated the process. The slump in the coarser section of the Lancashire cotton industry is a symbol of this tendency. On the other hand the manufacture of cotton has kept on expanding in India and in China even during the present depression. International trade is spreading more evenly between the different continents and countries. It is no longer dominated to the same extent by exchanges between industrial western Europe and the countries producing raw materials, and its organization is less centralized in Great Britain. The trade of the Pacific has grown in importance relative to that of the Atlantic.[4] The process is being facilitated by the growth of the manufacture of articles with inter-

[1] Urwigk, *The Meaning of Rationalization*, p. 50.

[2] *Manchester Guardian Commercial* (Feb. 5th, 1931); 1921—2,754,000=100; 1930—6,127,000=222.

[3] M. D. Kennedy, *The Changing Fabric of Japan*, p. 237.

[4] *World Economic Survey*, pp. 107, 145, 158.

changeable parts, as these parts can easily be made wherever conditions are most favourable. The establishment of motor assembly and partially manufacturing plants is facilitating the industralization of new countries. Economic policy, stimulated by post-War nationalism, as well as the general increase in the scope of government activity in economic affairs, are directed primarily towards developing the home markets at the expense of foreign trade. Domestic business in the leading industrial countries seems to be developing more rapidly than foreign trade. Thus in the United States, as compared with 1913, the average national income per year over the period 1922–1926 increased by 121 per cent, the average yearly bank clearings outside of New York (1922–1927) by 175 per cent, while exports (1922–7) have increased in value by only 81 per cent. Similarly the value of manufactured goods produced in the United States has grown much faster since 1919 than the value of manufactured exports.[1] The proportion of raw materials in world trade is decreasing rapidly. The new countries have definitely progressed from the stage of economic development in which they manufactured merely the simpler goods destined for immediate consumption to one in which industries producing capital equipment goods have become of leading importance. It seems, therefore, that the industrialization of these countries is not merely a temporary phenomenon due to the War but a process which is likely to continue.[2] The rapid means of communication by cable and radio, the great increase in travelling, the dissemination of knowledge, and the tendency towards the formation of a common culture throughout the world are contributing towards greater economic similarity everywhere.

[1] *Recent Economic Changes*, p. 859.

[2] *World Economic Survey*, pp. 21; 146.

CHAPTER V

ORGANIZATION

I. RATIONALIZATION

MOST of the structural changes that are taking place in economic organization to-day have been associated with the process of rationalization. Etymologically the word would mean nothing more than the application of reason to economic activities. It has, however, crystallized into a much more definite meaning. For the displacement of traditional and empirical by rational processes was one of the characteristics of the capitalist system. There are, on the other hand, irrational features in many of the changes often associated with rationalization.

In its narrowest meaning, rationalization is associated with scientific management and with industrial combination. It is essentially a method of reorganization downwards, an attempt made from within industry itself to adjust a capacity of production which has become permanently over-expanded relative to the demand. The object of combination is to facilitate plant specialization and standardization as means of reducing costs on the one hand and to reduce output and to control prices on the other hand. It is essentially an attempt made by the older industries to meet a structural change similar to that which befell agriculture during the last quarter of the nineteenth century, only more intelligently and with less drastic consequences to themselves.

It is hardly, however, in this prosaic connotation that rationalization has been advocated with so much enthusiasm as a panacea for all economic evils. The term is usually interpreted in a much wider sense to characterize all systematic attempts to eliminate the waste involved in traditional methods of production and distribution. Thus it includes, on the one hand, efforts that are made

to improve the technical efficiency and the profit of the individual enterprise by the application of scientific method, or attempts to eliminate waste through the adoption of standardized practices that are made by associations of manufacturers. On the other hand, it covers the attempts that are made to eliminate competition and to increase the profitableness of enterprises by combination and control of the market. The term has been used to designate the attempts made to stabilize general business conditions, or the efforts of governments to co-ordinate industrial activities with the ultimate object of organizing the national economy according to a definite preconceived plan. In the popular imagination rationalization is associated essentially with "*Planwirtschaft*".

Much of the waste that occurs in industry at a particular time is unavoidable. With a given state of industrial technique and market conditions, the theoretically optimum utilization of resources may be neither technically realizable nor profitable. As it is the object of the rationalizer not merely to reduce the money costs of production but also to control the supply on the market, the output which will maximize his total net profits will depend essentially on the nature of the demand curve. Mere mechanization is not rationalization. In Germany, with the post-War enthusiasm for the latest technical advances and the "*Flucht in der Sachwerte*", rolling mills were established which were more profitable than those they displaced only when fully utilized. It has been found cheaper sometimes to scrap expensive new plant and to return to the older methods because these were more economical under the prevailing market conditions.[1]

It is, at present, to a large extent unavoidable that with an ocean-going leviathan 25,000 pounds of dead weight have to be transported with every person carried, or that at 60 miles per hour about half the power of an

[1] Cf. *Manchester Guardian Commercial*, October 30, 1930; January 1, 1931.

automobile or train is used to overcome air resistance. But the waste of the world's coal and oil resources in order that ocean travellers, whose time is generally of little value even to themselves, may reach their destination a few hours before the average time, is a waste dependent on the organization of society, which can be obviated. The same is true, for example, of competitive oil production which wastes three-quarters of the product in the process. It is true also of the misdirection of resources which is the result of the unequal distribution of incomes.

The American Committee on Elimination of Waste in Industry has defined industrial waste as "that part of the material, time, and human effort expended in production represented by the difference between the average attainments on one hand and performance actually attained on the other."[1] Even according to this modest and "practical" criterion of waste, the economies that can be obtained from a better utilization of resources and energy are estimated by engineers to be enormous.

Great improvements have been made during this century, and especially since the War, in utilizing material more effectively and in salvaging valuable by-products. For example, in the coking of coal in beehive ovens, used during the nineteenth century and often still to-day, nearly one-third of the coal goes up in smoke. To eliminate this waste by-product coke-ovens were invented in 1880. But their adoption was slow before the War. In the Ruhr to-day almost every coal mine has been described as a "huge coal-using factory as well as a coal-getting undertaking", in which the head chemist shares the administration with the mine director.[2] It is probable that within a few years' time no coal in Germany will be sold in the raw state.[3]

A remarkable modern development is the efficient

[1] *Waste in Industry* (1921), p. 3.

[2] Meakin, *The New Industrial Revolution*, p. 45.

[3] Warriner, *Combines and Rationalization in Germany, 1924–1928*, p. 74.

utilization of energy with the growth of power-stations for the central supply of electricity. The consumption of coal per unit of electrical energy generated by central stations in the United States, for example, has decreased from 5.3 pounds in 1908 to 1.7 pounds in 1929, while the best plants used only 0.9 pound. The trend in the construction of central stations in America at present is to raise the average efficiency of generating power all over the country, rather than to construct occasional units of exceptional efficiency. Economy in the use of fuel has been obtained by the substitution of power purchased from large generating units for power generated in small, inefficient plants within the factory. Through the interconnexion of stations the peak and base-loads of different parts and different industries, for example in mines and towns, tend to neutralize one another, and to stabilize the demand for current.[1]

The uses to which reclaimed waste can be put are often remarkable. Tin cans, for example, are changed into tin tetrachloride used for silk weighing; cement mill fumes into potash salts used in the manufacture of fertilisers, glass and soap. The cuttings from the rubber industry are used for roofing; cotton-seed for nitrocellulose products; and wool waste in the manufacture of dynamite and linoleum. Californian waste fruit is changed into America's national drinks.[2] It requires a whole page merely to enumerate the products obtained from cotton-seed which was formerly wasted.[3] Much of the power of the new Ford works at Dagenham is to be supplied by refuse incinerators utilizing as fuel the refuse of London.[4] The waste trade is said to be the fifth greatest industry in England.[5]

In the iron and steel industry there has been a

[1] *Recent Economic Changes*, pp. 130-135. Tryon, "Conservation," *Encyclopædia of the Social Sciences*.

[2] Cf. list in *Recent Economic Changes*, pp. 121-125.

[3] Cf. Barnes, *Living in the Twentieth Century*, p. 128.

[4] *Manchester Guardian Commercial*, Dec. 4, 1930.

[5] Wells, *The Work, Wealth and Happiness of Mankind*, p. 215.

great increase in the use of scrap. In the American industry the capacity of steel-works and of rolling mills increased twice as fast between 1913 and 1928 as the capacity of blast-furnaces.[1] Between 1925 and 1929 the world output of pig-iron and ferro-alloys increased by 28.2 per cent, the world output of steel by 33.2 per cent. The output of the former in 1929 was 98,336,000 metric tons, of the latter 120,509,000 tons.[2] With the present rapid development of the electric furnace, which utilizes large quantities of cheap steel scrap, this source of material is likely to become of growing importance. In the American Steel Trust scrap constituted in 1926 from 20 to 22 per cent of the raw material.[3] In Germany in that year it already supplied one-half the raw material needed by the steel works.[4] In this way the use of material takes place in a circle in which production regenerates what has been used in consumption.

One of the chief sources of industrial waste is the variety in which many articles are manufactured. It is due, on the one hand, to the desire of the manufacturer to obtain a partial monopoly by the production of specialities. It is due, on the other hand, to the consumer's desire for individualistic expression, not merely in dress or the make of his car, but in the texture of his writing-paper, and the colour of his bed-linen.

This differentiation was encouraged even where individuality could be a gain to nobody. In 1870 in the German machine industry, for example, no two machines were made alike. Heavy expenditure was involved in continually changing the rolls of mills for the manufacture of new articles. The War greatly facilitated the process of standardization by the demand for large quantities of identical ammunitions. A concerted move-

[1] E. D. M'Callum, *The Iron and Steel Industry in the United States*, p. 87.

[2] *Memorandum on Production and Trade.* (League of Nations, 1931), pp. 52-53.

[3] *Strukturwandlungen*, 209.

[4] Schlenker, *Die Eisenindustrie der Welt unter besonderer Berücksichtigung des internationalen Eisenpaktes*, p. 7.

ment has been made since the War to encourage standardization by the combined efforts of governments, technical societies, distributors, manufacturers, and consumers.

The object has been to unify lines of product to fixed types, sizes and characteristics, and to reduce these qualities in the case of any particular line of product to the fewest possible number. When a group of manufacturers agree to produce only these few varieties, simplification is brought to the stage of simplified practice. Largely through the initiative of the United States Government 84 kinds of commodities had been reduced by 1928 to simplified practice. The degree of reduction in varieties was as much as 90 per cent, and more, in the case of such articles as bricks, beds, milk bottles, and certain plumbing materials.[1]

The elimination of variety is not necessarily prejudicial to artistic excellence. It depends upon the type chosen. A comparison of the houses in England and in continental towns would prove this conclusively. The tendency towards unification, which is inherent in all fashions, may have facilitated the process of mass production if the fancies were not too short-lived to install the necessary equipment. There is, of course, the danger that standardization may crystallize existing practice and retard the adoption of technical improvements. For if innovations can be introduced only by collective action it is in no one's immediate interest to initiate change. The danger varies with different articles. It is of a different order in automobiles or aeroplanes from what it is in nuts and bolts. The advocates of standardization recognize that it should be considered not as a stage to be completed but as a continuous adaptation to new experiment and new discovery in industry.[2]

The establishment of standards in finished products or of well-defined staple grades of agricultural commodities is as helpful to the distributor as the adoption of standard-

[1] *Recent Economic Changes*, pp. 116-118.

[2] Harriman, *Standards and Standardization*, pp. 208-9.

ized documents or cheques is to the clerical worker. The consumer gains from the guarantee of the quality of the product which he obtains as well as by the ease with which parts can be replaced. From the point of view of production the most direct advantage of standardization is that it enables articles to be manufactured continuously. The production of large quantities of uniform material obviates the necessity of continuous changes in the set-up of machines, and economizes in the use of capital equipment. No plant, says Ford epigrammatically, is big enough to make two articles.

The production of articles with interchangeable parts has been made possible by the perfection of instruments for precise measurement. Without the means of accurate gauging, the mass production of complicated and delicate machines such as automobiles, typewriters, or sewing machines, would be impossible. The accuracy of the component parts is so great as to eliminate the necessity for any form of fitting. The piston of Watt's first steam engine fitted the cylinder to within the thickness of a coin. The best standard dimensional gauges used in industry to-day are accurate to the three-millionth of an inch.[1]

The value of standards naturally depends on the extent of their validity. For many branches of industry standardization has become an international necessity. Both the value to industry of the use over large areas of the metric and of the English systems, and the cost involved in having two different systems, are enormous. The saving made in the automobile industry by organized standardization was estimated in 1928 by the industry itself at 750 million dollars a year. The value of the savings in all industries in the States that can be attributed to this movement has been put as high as five billion dollars annually.[2]

The demand for novelty and variety, however, calls a

[1] *Recent Economic Changes*, p. 90; Harriman, op. cit., p. 119.

[2] *Recent Economic Changes*, p. 119. Such estimates are naturally rather vague.—Cf. *Industrial Standardization* (National Industrial Conference Board), Part II., Ch. xi.

halt to the mass duplication of articles immediately market conditions begin to favour the buyer. This has been especially evident in an industry with such an overcapacity as the manufacture of automobiles. Variety was introduced first where it involved little loss in the economies of mass production. Colour, for example, gives a high variety value with slight effects upon processing.[1] But recently there has also been a continuous change in types which involve heavy capital expenditure. Such developments will be a strong inducement to further amalgamation.

Modern methods of production and distribution make especially heavy demands on management. It is here where both the possibility and the responsibilty for waste are greatest. The American Committee on the Elimination of Waste in Industry estimated that over 50 per cent of the responsibility for the waste in the industries investigated by them could be attributed to management, and less than 25 per cent to labour.[2]

Much is being done to-day to increase the efficiency of the management and the administration. Scientific methods are being applied, on the one hand to the most detailed processes, on the other hand to co-ordinating them so as to give a better survey of all the activities of a business. Improvements in the means of communication have greatly increased the amount of work performed and decisions taken by the administration. Modern accounting methods enable the executive to obtain a rapid diagnosis of the conditions of the whole industry as well as the various branches. Costing enables post-mortem examinations of expenditure to be displaced by budgets drawn up in advance. Budgetary control, and especially the development of forecasting, makes it possible for business activities to be co-ordinated and planned ahead in anticipation of probable future conditions.

[1] Cf. E. H. Schell in *The Second Industrial Revolution and Its Significance*, p. 30.

[2] *Waste in Industry.*

The search for new ideas has been made more systematic. Before the War, with the exception of Germany, industry was still largely dependent for new ideas on the work of independent inventors or of university laboratories. To-day industrial research, both in universities and in many industrial enterprises, has become a recognized practice in all the leading industrial countries. Even firms which do not carry out independent research at least need adequately staffed laboratories, to advise the executive on the application to their particular problems of the discoveries that are put at their disposal by public institutions.

Research plays a leading part in the great modern industries requiring chemical processes. Synthetic nitrogen and liquid coal, for example, are the results of industrial laboratories. One combine in Germany alone spent about 30 million marks for experiments in the liquefaction of coal.[1]

In agriculture, on the other hand, research has been instituted almost exclusively from outside the industry itself. Synthetic nitrogen, scientific seed-selection and bacteriology are revolutionizing the conditions of agriculture as much as the use of the tractor, the combine and the automobile.

Research has been applied also to the organization of work, and especially to the human element of production. This factor has until recently been neglected, and the waste of labour is, even to-day, often still prodigious. An investigation of 9,261 typical peasant farms in Russia in 1924–25 showed that over 40 per cent of the available timeof a normal worker was wasted.[2] Ford, who was himself a farmer, believes that only five per cent of the energy that an Amercian farmer expends is utilized productively.[3] The waste in industry often differs only in degree. The methods of employing labour, even in the

[1] Hirsch, *National and International Monopolies from the Point of View of Labour, the Consuming Public, and Rationalisation* (League of Nations, 1926), p. 7.

[2] Haensel, *The Economic Policy of Soviet Russia*, p. 81.

[3] Ford, *My Life and Work*, p. 15.

highly rationalized motor industry, are extremely primitive and wasteful.[1] The labour turnover in this industry in America varied from 75 to 120 per cent in 1925. A 50 per cent turnover is considered normal for American industries.[2] In Russia the fluidity of labour has become so great that in " the summer months the country gives visitors the impression of a huge camp.[3]

The method of performing work and of remuneration are often as primitive. It was to do away with the waste involved in these two facts that Taylor instituted his investigations. The best conditions for performing the work are analysed. The seats, platforms, speed, or lighting, are arranged so as to yield optimum efficiency, and noise is, as far as possible, eliminated. Improvements in lighting alone have increased the productivity of workmen by as much as 42 per cent.[4] By psychoanalysis or by observation workmen are selected for the work for which they are best fitted. The optimum methods of performing a given work are analysed by means of time and motion studies. This new maximum performance becomes a new normal " correct " performance. The workmen are encouraged to adopt the methods by a large premium on wages for attaining this output. They are aided and supervised by qualified foremen. The foreman is no longer responsible for a particular area but for a particular activity. He ceases to be a boss and becomes a functional agent.

Taylor's psychological methods were often primitive. Modern mechanization is rendering much of his work obsolete and useless. The hardest manual labour is continuously being shifted to the two ends of production, to the winning of the raw materials and to the refinement of the finished product where adaptation to individual taste is required. In the latter, however, his methods are mostly not applicable; in the former, they are being

[1] Dunn, *Labor and Automobiles*, pp. 110-116.

[2] *Strukturwandlungen*, Vol. I, p. 289.

[3] *The Economist* (Russian Supplement), Nov. 1, 1930, p. 7.

[4] *Manchester Guardian Commercial*, Jan. 1, 1931.

superseded by mechanical devices. Whereas, for example, in 1913 only five per cent of the Ruhr coal output was obtained by mechanical means, in 1927 only 49.6 per cent of the output was got by manual labour and blasting.[1] The loading of iron ore, on which Taylor spent years of study, is to-day performed by magnets, the sorting of steel balls is done better and more economically by sorting machines.[2] Taylor's methods are suited mostly to the conditions of small and medium-sized establishments. "Psychotechnique cannot compete where nitrogen is won from the air and coal is liquefacted.[3]

But it is the new attitude which he adopted rather than the results which he applied which gives his methods their permanent value. He was the first to attempt to obtain exact knowledge of the conditions and processes of labour by the application of the scientific methods which had given such signal success in the case of the other factors of production. It was probably this attitude, rather than the "system" which he evolved, which Münsterberg had in mind when he described Taylor's methods as "the greatest improvement in industry since the introduction of the factory system and machine power."[4]

The careful preparation of labour plays a relatively unimportant part in establishments producing standardized articles on a large scale. In such industries a complete change has been brought about in the internal organization of the factory by the introduction of the conveyor system. The belt was introduced by Ford, who got the idea from the overhead trolleys used by the Chicago packers in dressing beef.[5]

As factories were organized formerly the production of each article was confined to a particular part of the establishment. The result was the continuous accumula-

[1] Warriner, *Combines and Rationalization in Germany*, pp. 192-3.

[2] *Handwörterbuch, Ergänzungsband*, p. 735.

[3] ibid., p. 727.

[4] ibid., p. 736.

[5] Ford, *My Life and Work*, p. 81.

tion and transport of material from one part of the establishment to the other. According to the new method of organization the men and machines are not grouped together according to kind, but are placed in the sequence of the functions they perform in producing the finished article. The men do not go to the work, but the work is conveyed to them automatically on belts. By the ordered sequence and regular rhythmical distribution of the work, standards of mechanical excellence and economies in production, undreamt of in the older industries, have been attained in the manufacture of some of the newer standardized articles, and especially in the case of automobiles.

The tasks have been so subdivided that each workman, aided by machine tools, has only a few mechanical movements to perform. All thinking and planning is transferred to the engineering and designing departments. The experience of the skilled labourer is displaced by scientific principles, and skill is transferred to the machine. The time required in the Ford works to become proficient in the different occupations was, in 1924, as follows:—

43 per cent of all jobs required not over 1 day of training.
36 ,, ,, required from 1 day to 1 week.
6 ,, ,, ,, ,, 1 day to 2 weeks.
14 ,, ,, ,, ,, 1 month to 1 year.
1 ,, ,, ,, ,, 1 month to 6 years.

The last jobs were those which required great skill, such as tool making and die sinking.[1]

Conditions in other industries were similar. In the Hudson Company less than five per cent of the workers were considered as skilled. In the Chrysler works about 75 per cent of the workers learned their jobs within a day or two. The only plants in which the percentage of skilled workers was much bigger were those making very expensive models such as the Rolls-Royce.[2]

[1] Ford, op. cit., p. 110.

[2] Dunn, *Labor and Automobiles*, p. 61.

In the early days of the motor industry the workmen were mostly skilled craftsmen. To-day the skilled mechanics—the machinists or the pattern makers—no longer produce cars directly; they make it easy for others to produce them. The number both of skilled workmen and of common labourers is diminishing. The typical auto-worker has been left by mechanization a mere machine tender with a job that can be picked up in a few hours.[1] Automobiles, typewriters, shoes, or sewing machines are no longer produced by skilled artisans but by semi-skilled operators, to whom the field of manufacturing has been "extended" by the new methods.[2]

Very different descriptions have been given of the nature of the work performed on the belt, varying from a comparison with a modern dance to the tortures of galley slaves chained to their oars.[3] The judgements seem often to be based more on the artistic temperament of the observer than on an appreciation of the attitude of the workman. Ford maintains that, terrifying as is the prospect of monotonous repetitive work to the creative mind, and (for example) to himself, it is welcomed by the vast majority of workmen. The average workman wants a job in which he will not have to expend much physical exertion; above all one in which there is no need to think. The sympathy of the artist is misplaced.[4]

On the other hand it has been asserted that the average workman is worked to death within five to eight years in the Ford plants. Many of the motor factories, it is said, refuse to engage men over forty or forty-five. As a Dodge worker expressed it, "the speed-up system is so terrific that after a man is ready for the hospital he is likely to be cast on the industrial scrap-heap to starve." The automobile industry has been described as a "young man's industry."[5]

[1] Dunn, op. cit., p. 59.

[2] *Recent Economic Changes*, p. 95.

[3] Dunn, op. cit., pp. 85-90.

[4] Ford, op. cit., p. 103.

[5] Dunn, op. cit., Chs. iv-v.

There is a little difference of opinion as to the effect of the conveyor on the output of the workman. The growth in the output of manufactured goods took place in many countries after the War with no, or only a small, rise, or even with a decrease in the number of workers employed. The rate of increase in productivity, in the years 1925 to 1929, was much greater than before the War.[1] The machine-producing industries expanded enormously. In the United States there was little increase in the output per person between 1904 and 1921, but an annual increase of 3.5 per cent during the period 1922–7. In Sweden the annual increase in the output per workman between 1920 and 1929 was 3.9 per cent; in Germany between 1925–1929 it was about 5 per cent. In the United Kingdom the output per workman in manufactures and mining increased by 10 per cent from 1907 to 1924 and by 11 per cent from 1924 to 1929.[2]

The advance was not the same in all the industries. According to the National Bureau of Economic Research, the percentage changes in different industrial groups in the United States during the period 1919 to 1925 were as follows:[3]

Industry	Productivity per man-hour (% increase)	Unit prime cost (% decrease)
Automobiles	139	56.5
Rubber tyres	142	- -
Petroleum refining	93	29.0
Cement manufacturing ...	52	29.0
Blast furnaces	66	18.0
Steel works and rolling mills	40	20.0
Cane sugar refining	69	64.0
Boots and Shoes	1	22.0

[1] *World Economic Survey*, p. 152.

[2] *The Course and Phases of the World Economic Depression* (League of Nations), p. 66; *Recent Economic Changes*, p. 454.

[3] *Recent Economic Changes*, p. 165.

Neither the output per workman nor the prime cost in any particular industry is, of course, a good criterion of the efficiency of the labourer, because these might have been attained by increased capital outlay. Nor are the wages paid in manufacturing industry as a whole a good standard, because they might have been paid at the expense of interest on capital. It has been asserted that whereas the investment of capital in American manufacturing industry has increased more rapidly than physical production, especially since the War, the average labour cost per unit of output has not fallen to any marked degree, while the relation between average labour and capital costs has remained the same. It follows that the rate of return on capital has fallen. The reduction has been more marked in the post-War than during the pre-War period. The conclusion is that the increased wages paid to labour have been at the expense of the investor. This has been possible because saving has become more effective relative to the demand.[1] The yield, both of corporation bonds and of common industrial stock, as well as the interest on time money, however, were higher in the United States during the period 1922–1928 than during the period 1890–1913. There certainly was a continuous decline after 1923, but the period is too short for general conclusions to be drawn.[2]

Changes in the output per workman over relatively short periods vary to a large extent with changes in the demand for industrial products. As demand lagged behind output, and still more behind productive capacity,[3] with a consequent fall in prices, the increased output per workman during the post-War period must have been due to improvements in organization and in equipment.

The advantages of the belt from the point of view of

[1] John Jewkes, "The Efficiency of American Manufacturing Industry," *Economic Journal*, Dec. 1930.

[2] *Recent Economic Changes*, p. 657.

[3] *The Course and Phases of the World Economic Depression*, p. 67.

the productivity of the workman are obvious. Fixed capital can be more fully employed, and stocks of material reduced. The intensity of exploition of sewing machines, for example, is said to be 14 per cent in homework, 17 per cent in small factories, and 41 per cent under continuous production.[1] In the Ford works the period of production from the arrival of the ore at the plant to the shipment of the finished car, which in 1920 was still 21 days, now takes exactly 30 hours.[2] Before the reorganization of the Ford works in 1927 it was estimated that the turnover of its circulating capital was from 20 to 25 times as rapid as in the average German enterprise. The economic significance of this fact can be seen from the estimate that, if the turnover of the circulating capital in German industry could be doubled or trebled, savings would be effected sufficient to pay the Reparations Debt.[3]

As each establishment becomes specialized, it no longer produces finished articles but parts. These parts can be produced wherever they can be manufactured most economically. Branch plants, manufacturing either parts or entire automobiles, are being established all over the world. Parts are assembled at special stations. The economies effected in this way are especially great in the automobile industry, because it is a very expensive process to transport assembled cars.

The heavy capital expenditure necessary for continuous production makes for technical stability. The cost of reorganization involved in producing a new model of an article is often enormous. When Ford, for example, stopped the production in 1927 of the model T, of which 15 millions had been produced, the plants were closed for nine months while the machinery for making the new model was designed and installed. The cost was estimated at 100 million dollars. The unemploy-

[1] *Handwörterbuch, Ergänzungsband,* p. 748

[2] Deutsch, Paul, in *Die Betriebswirtschaft* (Aug. 1931), p. 228.

[3] As fixed under the Dawes' Plan, *Strukturwandlungen,* Vol. I, p. 245.

ment in works associated with the Ford plants in the vicinity of Detroit alone numbered 60,000. Numbers of others worked short time.[1] Yet in spite of the cost, and on account of over-production, new models are becoming more frequent. It is therefore not surprising that the American Bureau of Labour Statistics found in 1929 that:

> The automobile industry shows the greatest instability of employment of any of the industries so far analysed by the Bureau. . . . Not only does the industry as a whole make a very bad showing, but irregularity and uncertainty of employment conditions are the rule among practically all the establishments covered.[2]

II. COMBINATION

The heavy capital expenditure and loss of flexibility involved in adapting a plant for continuous production make the change a great risk unless the market is assured. The process has been greatly facilitated by, and has partially inspired, the post-War tendency towards industrial concentration.

Financial combination does not necessarily imply an increase in the size of the individual establishment, that is of the single plant or factory. As contrasted with the nineteenth century, there seems to have been no marked

[1] Dunn, *Labor and Automobiles*, p. 107.

[2] Dunn, Article "Automobiles," in the *Encyclopædia of the Social Sciences*, p. 326.

tendency towards an increase in the scale of operation of industries in the twentieth century.

William Thorp, in a census monograph published in 1924, came to the conclusion that, as far as the United States was concerned, the tendency was for industry at the time to operate on all scales of production. Certain industries apparently were tending to be operated on a larger scale, but others seemed to follow exactly the opposite tendency. And these were by no means the industries which were losing in importance as far as the total number of wage-earners employed was concerned.[1]

The number of wage-earners per establishment in the United States increased from 39.0 in 1914 to 44.8 in 1923. Then it decreased slowly to 43.5 in 1927.[2] The other criteria of an increase in the size of establishments, the record of horse-power, and the value of product per establishment, show a clearer sign of growth. The horse-power per establishment increased between 1914 and 1927 by 63 per cent. That this tendency is general is shown by the fact that five-sixths of all industries showed an increase in horse-power between 1914 and 1925.[3] If the increase in the productivity of the average wage-earner in the United States is eliminated, then the same factory, which in 1904 produced 119,045 dollars at 1914 prices, should, in 1925, with the methods of production then current and without a change in the number of wage-earners, have produced 173,449 dollars at the same price level. It in fact produced 209,458 dollars. It appears, therefore, that the increased product which, in 1925, was due to the increase in the size of establishments was on the average 36,009 dollars, or about one-third that of the average establishment in 1904.[4]

Within the present territory of Germany the percentage

[1] Marshall, L. C., *Industrial Society*, pp. 862-6.

[2] *Recent Economic Changes*, p. 167.

[3] ibid., pp. 176–7.

[4] *Mergers in Industry* (National Industrial Conference Board), p. 189.

increase, between 1907 and 1925, in the different establishments and in the number of persons employed by them varied as follows:[1]

Number of persons per establishment	Percentage increase in the number of establishments	Percentage increase in the number of employed persons
—5	1.0	3.0
6—50	28.5	25.1
51—1000	29.4	34.6
1001 and more	77.2	80.1

The fact, however, that there is a tendency for industrial establishments to operate on a somewhat larger scale does not show that there is the tendency for industries to do so. For the scale of operation of establishments in every individual industry may be decreasing, yet the fact that certain industries, as for example the manufacture of automobiles, the scale of production of which is above the average, are increasing in importance may lead to a larger average establishment for industry as a whole.

Thorp finds for the United States, for example, a marked reduction during the period 1914 to 1925 in the number of industries operated on the smallest scale, and a tendency for them to concentrate round the group having 20 workers per establishment. The mode which was in the 25–40 group in 1919 moved back to the 16–25 group. There was also a slight tendency towards concentration round the group having 100 workers per establishment. There was, however, an actual decrease in the number of industries in the larger groups. Those industries which have on the average more than 100 wage-earners per establishment decreased from 77 in 1919 to 73 in 1923, and to 70 in 1925. "The trend depicted, therefore, is not one of general advance or general

[1] F. Zahn, in the *Handwörterbuch der Staatswissenschaften, Ergänzungsband*, p. 1015.

decline, but of the extremes moving in towards the middle, tending to centre about 20 and about 100 workers per establishment." [1]

The number of small establishments in industry, even in a country as characteristic of large scale organization as America, is remarkable. There were in 1923 no less than 90,000 establishments in the United States employing not more than five wage-earners per establishment. The number of establishments which averaged 1,000 wage-earners, on the other hand, numbered only 963.[2] A comparison of mere numbers, however, can easily lead to an exaggerated idea of the relative economic importance of the smaller industrial establishments. The establishments which employed more than 250 wage-earners in 1923 represented less than four per cent of all the establishments, but employed just over one-half of all the wage-earners.[3]

But if there seems to have been no very definite tendency for the scale of production in industry to increase during the post-War period, there was, on the contrary, a very definite tendency for the scale to increase on which industry, and business generally, are administered.

It is, of course, extremely difficult to unravel the financial bonds which connect nominally independent firms. But even if this fact is ignored the share of business done by the leading firms in the great industrial countries is astounding.

Investigations for the United States showed that of the 2,260,400 businesses in the country at the beginning of 1929 only 3.8 per cent were rated 75,000 dollars and over. These "major" concerns, however, did 86 per cent of the volume of the country's business. The distribution of these major firms among the different industries was as follows:—[4]

[1] *Recent Economic Changes*, p. 169.

[2] ibid., p. 168.

[3] ibid., p. 169.

[4] Marshall, *Industrial Society*, pp. 857-861.

Industry	Percentage of the total number of firms rated 75,000 dollars and more	Percentage of total business in the industry done by these firms
Raw materials	10.2	89
Manufacturing	13.9	93
Wholesaling	20.8	91
Retailing	1.5	59
Public utilities	7.1	87
Transportation	19.0	90
Service firms	1.3	81
Finance :		
Banks and Trust Cos.	40.0	91
Insurance	19.8	89
Investment houses ...	5.3	95
Weighted totals ...	3.8	86

The large corporation is playing an increasingly important role in the economy of the United States. Dr. Means estimated that the 200 largest non-financial corporations, with gross assets of over 80 million dollars, controlled in 1927 over 45 per cent of the assets of all non-financial corporations, receiving over 40 per cent of all corporate income and controlling over 35 per cent of all business wealth and between 15 and 25 per cent of the national wealth. Medium-sized corporations on the other hand were relatively unimportant. But small corporations with assets of less than four million dollars received over 28 per cent of all net corporate incomes. It therefore seems that the bulk of the non-financial business in the United States is done either by very large units, having assets of hundreds of millions of dollars, or by relatively small firms. Between 1909 and 1927, besides, the assets of the 200 largest non-financial corporations increased more than twice as fast as the assets of the other non-financial corporations. Their more rapid expansion was attained by reinvesting a larger proportions of their earnings, by securing a larger proportion of the new capital in the open market,

and by mergers. If the rate of growth of these firms from 1924 to 1927 is maintained during the next 20 years, it is estimated that, by 1950, 80.5 per cent of the non-financial corporate wealth of the United States will be in their hands.[1]

Similarly in Germany in 1929 there were 11,344 joint stock companies with a total capital of 23.7 milliard marks. Of these companies only 180 had a capital of 20 million marks or more. Yet the total capital of these companies comprised 11.9 milliard marks, or slightly over half the total.[2]

Combinations became prominent in Germany and in America during the last quarter of the nineteenth century. The extent of the concentration, to-day, varies in different countries and in different industries, although the movement is world wide. And as the process is not altogether a rational procedure, "styles change in mergers and acquisitions as in everything else."[3]

To what extent combinations have developed in the manufacturing, mining, and construction industries in Germany is shown by the following list giving the nominal capital of all corporations invested in concerns in different industries at the end of 1927. A concern in Germany means any financially interconnected group of firms.[4] The estimates of the gross output of different industries and the amount controlled by cartels and trusts in 1926, made by Dr. Warriner, are also added. By the output "controlled" is meant the output disposed of under non-competitive conditions:

[1] G. C. Means, "The Large Corporation in American Economic Life." *The American Economic Review* (March, 1931).

[2] *Statistisches Jahrbuch* (1930), p. 381.

[3] *Recent Economic Changes*, p. 185.

[4] Warriner, *Combines and Rationalization in Germany*, p. 14.

Industry	Percentage of nominal capital of all corporations in the industry belonging to concerns (31-10-1927)[1]	Gross output of industry in 1926, milliard R.M.[2]	Output controlled by cartel and (or) trust.[2]
Potash	100.0	0.2	0.2
Enterprises connected with mining ..	97.7	.	.
Lignite	95.5	0.4	0.2
Coal	90.5	3.0	3.0
Works connected with iron and Metal production	88.5	.	.
Electro-technical ...	84.4	2.0	1.6
Generation and supply of electricity, gas, and water	83.6		
Production of iron and metals	82.1		
Chemicals	78.2	2.6	2.6
Building	54.8		
Fine mechanical and optical	44.4	0.9	0.5
Production of machines, instruments, and vehicles ...	41.8		
Rubber and asbestos	41.3		
Textiles	37.5	5.0	2.0
Food	37.2	2.7	1.3
Production of iron-steel and metal wares	32.7		
Musical instruments and toys	31.6		
Leather and linoleum	28.9		
Paper and paper manufacturing ...	28.1	1.7	1.0
Clothing	18.8		
Timber and carving	3.1	0.2	0.0

[1] F. Zahn, op. cit., pp. 1021-1051.

[2] Warriner, op. cit., p. 16.

Of the gross output of 35.0 milliard marks produced by the industries listed by Dr. Warriner, the output controlled by concerns amounted to 21.0 milliard marks. This corresponds exactly with Hirsch's estimate that, in 1926, three-fifths of German industrial production was controlled by organized companies or combines. In the Germany of the '60's of last century there existed only six cartels. In 1905 there were 385, of which 132, however, were in the brick industry. At the end of 1926 the number had increased to over 2,000.[1] Practically all industries were in cartels of one sort or another.

It was estimated that in the United States there were already, in 1904, over 300 combinations with a total capitalization of over seven million dollars. The American Bureau of Census estimated that in 1919 more than 20,000 establishments, employing at least one-third of the wage-earners engaged in manufacturing and producing an even greater percentage of the total product, were not independent enterprises, but parts of larger organizations which included other manufacturing establishments. The number of mergers recorded by the Bureau of Economic Research between 1919 and 1928 in mining and manufacturing amounted to 1,268. The number of firms which disappeared as a result of these mergers amounted to 5,991.[2]

The list of partial monopolies controlling American manufactures and raw materials is imposing.

> One corporation controlled by the Mellon family owns over nine-tenths of the bauxite resources, the raw material for aluminium utensils, on the American market. Another corporation owns nine-tenths of the world's nickel resources, while still another controls a majority of the iron ore reserves in the United States.

Two companies control over one-half the copper ore reserves of the country, while eight concerns, related

1 Hirsch, *National and International Monopolies from the Point of View of Labour* (League of Nations), pp. 9-10.

2 *Recent Economic Changes*, pp. 182-184.

with the railways, control 80 per cent of the anthracite coal deposits.[1]

In many spheres of the manufacturing field concentration has gone as far. Fifty per cent of the agricultural machinery made in the United States is produced by one corporation. Another, along with its affiliates, refines most of the country's sugar, while another supplies most of the sewing machines. The vast majority of the cash registers are manufactured by a single company.

> Two corporations (General Electric and Westinghouse) produce the major part of electrical machinery. Two corporations virtually divide between them the work of making the country's locomotives, and two dominate the manufacture of passenger and freight cars. Two firms handle over 50 per cent of the meat entering inter-State commerce; two practically monopolize the country's match business; two sold in 1930 nearly 86,000 million cigarettes, or about two-thirds of the total supply.

The automobile industry was concentrated in relatively few hands from the beginning. In 1912 more than half the American output was produced by seven enterprises. By 1917 ten firms produced 75 per cent of the total output, and by 1923 these ten accounted for more than 90 per cent of the aggregate output. In 1930 Ford produced 40 per cent, General Motors 35 per cent, of the automobiles manufactured in the United States.[2]

Fitzgerald comes to the conclusion that English industry, too, has become overrun with quasi-monopolist organizations, though it is still the looser type of organization that generally prevails. Thus the Lever Combine produces about three-quarters of the soap of the country, and controls an even larger proportion. The production of sewing-cotton is controlled by two big combines which do not compete. The Lancashire Cotton Corporation has, since its formation in 1929, acquired control of about

[1] Laidler, H. W., "Growth of American Monopolies." *Current History* (Nov. 1931.)

[2] Laidler, op. cit.; L. H. Seltzer, Article, "Automobile Industry" in the *Encyclopædia of the Social Sciences.*

one-fifth the spindles in the country. About two-thirds of the total ship-building capacity is controlled by ten firms. Nearly the whole of the manufacture of wall-papers in the country is controlled by the Wallpaper Trust, and most of the tobacco output by the Imperial Tobacco Company.[1]

Industrial concentration has gone especially far, in all countries, in the iron and steel industry. Here, too, it is a modern growth. Although attempts to control prices had been made in the United States, until within two years of the close of the nineteenth century the production of iron and steel was still in the hands of a large number of independent producers. After 1898 the position changed fundamentally. By the beginning of the century a large part of the output of steel was already in the hands of a dozen powerful consolidations. Amalgamations in the iron and steel industry accounted for about one-fifth of all the mergers and acquisitions in mining and manufacturing in the United States between 1919 and 1928. With the Youngstown-Bethlehem Merger completed, it and the United States Steel Corporation controlled over three-fifths of the total steel productive capacity of the country in 1931. Virtually 70 per cent of the production of iron and steel in the United States is now in the hands of three, and 80 per cent in the hands of four, concerns. By agreements and marketing devices it has become possible for these corporations effectively to control the market.[2]

In Germany, the raw steel output of the Steel Trust in 1927 was almost as great as that of the whole output of the industry in Great Britain, while its coal production was equal to just under one-tenth of the total British output.[3] The quotas of the Trust in 1926 for the various kinds of iron and steel products varied from 40 to 50

[1] Marquand, *The Dynamics of Industrial Combination*, pp. 1-9.

[2] E. D. M'Callum, *The Iron and Steel Industry in the United States*, Ch. iv; *Recent Economic Changes*, p. 185; *Manchester Guardian Commercial*, Feb. 26, 1931.

[3] Meakin, op. cit., p. 103.

per cent of the German total.[1] The rest of the German production is also concentrated to a large extent in the hands of a few big firms.

In Great Britain competition was still prevalent in the iron and steel industry in 1927, although 30 companies, which owed their size primarily to amalgamations, controlled about 80 per cent of the output. Their influence on the market, however, was not correspondingly great.[2] Since then the number of mergers in the industry is said to have been so great " as almost to have revolutionized the structure of the industry."[3]

The cotton and woollen industries have always been organized on a relatively small scale. But rayon, the newest arrival in the textile industry, is strongly centralized. The difficulties involved in manufacture, the necessity of scientific research, and the position with regard to patents, necessitate a large capital outlay for the establishment of firms with the most economical scale of production. It is now generally considered that only undertakings producing more than 6,000 kilograms a day, which involves a minimum capital outlay of £750,000, are able to meet the financial requirements of the industry. This has given some of the pioneer firms leading positions not only in their own but also in foreign countries. Thus Glanzstoff and its affiliated works are responsible for at least half the German output of viscose silk and 80 per cent of the cuproammonium silk. It also has numerous interests abroad, controlling, for example, 12 per cent of the American output. Courtaulds produce more than half the English output of artificial silk, and through the affiliated Viscose Company, New York, more than half the output in the United States as well. The Comptoir des Textiles Artificiels produces about 60 per cent of the French output, and has large foreign interests. In Germany the producers have tried to control the market by the formation of a viscose con-

[1] *Strukturwandlungen*, p. 96.

[2] Marquand, op. cit., pp. 6-7.

[3] *Manchester Guardian Commercial*, Nov. 27, 1930.

vention, and in Italy by the combination of the large producers into a syndicate.[1]

Concentration has not proceeded very far in those industries in which labour costs, relative to fixed charges, are high. Thus in the German food, clothing, building, and timber industries combines are negligible. And these industries employ nearly half the wage-earners in German industry.[2]

On the other hand, concentration has advanced very far in banking. Size, it has been maintained, stabilizes business and acts as an assurance to depositors, whereas the routine character of the work makes supervision easy. The process of concentration is still continuing.

In England and Wales banking is dominated by the "Big Five," which commanded in 1927 over 80 per cent of the capital and reserves of all the banks. These banks have also founded numerous branches and affiliated companies abroad.[3]

In Germany 73 per cent of the banks were organized in concerns at the end of 1927.[4] With the amalgamation of the Deutsche Bank and the Disconto-Gesellschaft in 1929, two-fifths of the total resources of German joint stock banks came under the control of one institution.[5]

The process of banking concentration has been especially rapid during the post-War period in those countries where large and increasing numbers of small banks existed before the War. Thus the number of commercial banks in Japan decreased from 1,420 in 1926 to 881 in 1929. The deposits of the five largest institutions amounted in 1929 to 33.5 per cent of all commercial bank deposits.[6]

[1] *The Economic Aspects of Several International Industrial Agreements* (League of Nations, 1930), pp. 49-56.

[2] Warriner, op. cit., p. 28.

[3] *Die Wirtschaft des Auslandes 1900-1927* (published by the Statisches Reichsamt), pp. 44-45 (see following page.)

[4] F. Zahn, op. cit., p 1051.

[5] *The Banker* (Nov. 1929), p. 198.

[6] Harold Moulton, *Japan*, p. 172.

Year	England & Wales		Scotland		Private banks	Joint-stock and private banks. England, Scotland, and Wales.	
	Joint-stock banks	Branches	Joint-stock banks	Branches		Capital and reserves	Deposits
	Numbers					Million £	
1900	77	3,757	10	1,075	19	101.2	734.3
1910	45	5,202	9	1,221	9	104.0	854.1
1913	43	5,797	9	1,240	8	103.0	962.3
1920	20	7,612	8	1,283	5	149.2	2,291.6
1925	18	8,873	8	1,563	4	161.4	2,075.5
1926	18	9,105	8	1,587	4	166.0	2,116.9
1927	17	9,381	8	1,612	4	167.4	2,165.3

The number of banks in the United states trebled between 1900 and 1921, reaching a maximum in that year of 30,000. Since then the number has declined by mergers and failures to 23,000 in 1929, and to 18,500 at the beginning of 1933. Owing to the large number of failures during the present depression the complete reform of the American banking system is contemplated. As a result of the amalgamations since the War one per cent of the banks in the country now control nearly one-half of the total bank resources. Systems of chain banks have been developed. These banks are nominally independent and have a separate corporate existence, but are controlled by other financial institutions. In 1928 there were 273 such chains, linking together over 1,800 banks with aggregate resources of over 13,000 million dollars or almost one-fifth of the total resources of all American banks. The chain-bank stands half-way between an independent institution and a branch. The number of branch banks in the United States increased from 60 in 1900 to 3,500 in 1929. As the establishment of branches throughout a State is allowed in only a few States, two-thirds of these branches were located within the city in which the main banks were situated. The power of some American banks can be estimated from the fact that the private house of Morgan, together with its financial allies, is said to be represented by directorships in corporations with net assets of about 74,000 million dollars, or more than one-quarter of all American corporate assets. The Chase National Bank has, by a series of mergers, increased its resources in March, 1931, to 2,500 million dollars, and become the world's biggest bank. It is followed closely by the National City Bank of New York and the Guaranty Trust Company of New York.[1]

Public utilities have always possessed a local monopoly. In the United States, though they for the most part belong to private companies, they have attained in some cases also a national monopoly. Thus the Bell

[1] H. W. Laidler, "The Growth of American Monopolies" (*Current History*, Nov. 1931).

Telephone System, with assets of 5,000 million dollars, is said to own three-quarters of the telephones in use in the country and to get seven-eighths of the income made in the industry. The Western Union does three-fourths of the telegraph business in the country, and the balance is practically all done by one other company. The control of wireless communication and the manufacture of radio apparatus is largely in the hands of the Radio Corporation of America.[1] In 1928 six concerns controlled just under two-thirds of the country's electrical power, serving just over two-thirds of the American population.[2] Since then concentration has gone still further. The National Bureau of Economic Research recorded no less than 3,744 mergers and acquisitions among public utilities between 1919 and 1927.[3]

In the field of distribution there was a tendency for the formation of chains of retail stores, and the combining of these chains into larger chains. In 1927 there were 878 grocery chains in the United States, including 67,000 stores. An investigation made by the United States in 1926 of 11 representative American cities showed that over two-fifths of the total grocery business of these towns was absorbed by chain grocery and *delicatessen* stores. The five-and-ten-cent chains did nearly 70 per cent of the trade in the novelty line. Chains have also developed rapidly in the drug, tobacco, and candy trades. There has also been, since the War, a number of important consolidations among department stores. Chains are estimated now to do about one-fifth of the retail business in the United States.[4]

Chains have also been formed in the organization of restaurants, hotels, newspapers, cinemas, and numerous other services. In the picture industry, for example, the theatres are being combined together under the control

[1] Laidler, op. cit.

[2] Marshall, *Industrial Society*, p. 873.

[3] *Recent Economic Changes*, p. 187.

[4] Laidler, op. cit.; *Recent Economic Changes*, p. 182.

of the film distributors and more and more of the film producers.[1]

Concentration has also gone far in the supply of transport services. Railways, shipping services, and especially the latest arrival, air transport, are all highly centralized industries. As a result of amalgamations, the British Air transport companies united in 1924 to form the Imperial Airways, the German companies merged in 1926 in the Deutsche Luft Hansa, and the Dutch companies in the Koninklyke Luchtvaart Maatschappy. In France there are still four or five important companies, none of which, however, operate on the same routes. In the United States there are many small independent companies still in existence, but most of the aviation services, both in manufacturing and in transport, are controlled by four major groups.[2]

The process of combination has not stopped at national frontiers. Already before the War international cartels were found in numerous articles. Since the War new ones have been formed and old ones made closer and more permanent. International agreements are found today in practically all the more important raw materials as well as in some of the standardized manufactured articles. These are found especially in the new industries.

These agreements usually cover a very large proportion of the output of the article controlled. The World Electric-Lamp Convention, for example, controls 90 per cent of the world output of electric lamps outside Canada and the United States. The Swedish Match Trust in 1928 controlled about 80 per cent of the world's match production. The Copper Producers' Association formed in 1926 controls about 90 per cent of the world's output. The tripartite agreement formed in 1929 between Chilean, German, and British producers of chemicals covers 70 per cent of the world's nitrogen production.[3]

[1] *Recent Economic Changes*, p. 182.

[2] S. Daggett, article "Commercial Aviation," in the *Encyclopædia of the Social Sciences.*

[3] *Review of the Economic Aspects of Several International*

The most important and best known of these cartels is the International Steel Agreement formed in 1926 between the iron and steel industries of France, Belgium, Germany and Luxemburg. The Czech, Austrian and Hungarian producers joined the association a year later. The cartel fixes the quotas of the participating countries. Each national group exceeding its quota has to pay a fine, whereas groups producing less than their quotas receive compensation.

A characteristic development of the twentieth century has been the growth of the artificial control of raw materials. Governments have come everywhere to play an increasingly important part in this control, and the effectiveness of the schemes for the restriction of output has depended very largely on their support. The tendency for government interference has been especially great where one country, but often also a restricted number of countries, produce a sufficiently large percentage of the output to obtain a monopolistic position. Many of the recent international agreements have either been formed by government initiative or received its support. This external aid has usually been essential to secure the necessary organization among a large number of small producers.

The following raw materials were subject to control in 1930 or just before it:[2]

> Camphor (natural), cinchona bark (for quinine), citrate of lime, coffee, cotton, currants, kauri-gum, mercury, nitrate, pearlshell, potash, pulpwood, quebracho, rubber, sandalwood oil, silk, sisal, sugar, sulphur, tin.

Of these, five were under control before the beginning of the century. Some of the controls, such as that of sugar and rubber, were given up before 1930, but have since been renewed. Since 1930 other articles, such as

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Industrial Agreements, 1930 (League of Nations).—The international nitrogen cartel now includes all the European and Chilean producers.

[2] Wallace and Edminster, *International Control of Raw Materials*, p. 13.

tea, have been added and the control of some, such as tin, has been extended. Many more articles are within the range of control.

> In general, the trend has been toward increasing number of controls; increasing experimentation with the idea; increasing participation by governments in the operation of control (usually only intensified by the development of outside competition); and increasing scope of control measures extending even beyond national boundaries.[1]

The control of the marketing of the staple agricultural products by co-operative societies with government support has made great progress since the War. The incentives to control here are especially great. For not only is the demand extremely inelastic, but the cost of marketing is mostly such a high proportion of the total cost that a very large reduction in the price demanded by the producer leads to a small or no reduction in the price charged to the consumer.[2] The greatest difficulty has been the large number of independent producers which makes the outsider a permanent guest. Examples of such associations are the Danish Dairy Farmers, the New Zealand Dairy Pool, the California Fruit Growers, the British Australian Wool Realization Association, and the Canadian and American Wheat Pools. These bodies control the marketing of their respective products.

[1] ibid., p. 15.

[2] Rowe, "The Artificial Control of Raw Material Supplies," *Economic Journal* (Sept. 1930), p. 408.

III. THE CAUSES AND EFFECTS OF COMBINATION.

The reasons for the growth of monopolistic tendencies in the twentieth century are varied. The process will be facilitated by factors which make it economical for the scale of production to increase. For the larger the typical establishment in a particular industry, relative to the aggregate scale of the industry, the greater the possibility that any one or a few establishments will market a large proportion of the total output. As, however, the size of the typical establishment seems to have decreased in most industries and to have increased only in a few, and as the tendency towards combination, on the other hand, seems to be universal, this fact could not have played an important part.

On the other hand, conditions in the twentieth century have favoured an increase in the scale of management. The improvements in the means of communication and of transport, the application of science to industry, and developments in the methods of accountancy have probably all increased the optimum scale of management. Only industries operating on a fairly large scale, for example, can bear the cost of industrial research. Even the forecasts or inventions put at the disposal of industry by public institutions need to be interpreted by experts to show their relevance to the problems peculiar to individual industries and establishments.

The argument used in favour of combination has usually been that it facilitates rationalization. When a large number of establishments are brought under one management plants can be specialized, the products can be standardized in order to enable articles to be produced continuously, and a much larger outlay can be made for industrial research.

The specialization of establishments has sometimes been attained under competitive conditions. It is found, for example, in the English cotton and the American boot and shoe industries. When, however, established firms have to be specialized in an industry where the

demand is not so stable and decentralized, but is concentrated in relatively few hands, and where capital costs are high, the incentive towards forming combinations is much greater. The risk of specialization is reduced when the market is controlled. Combination, in fact, has been described as a "revulsion against risk".[1] To build the plant for the production of artificial nitrogen the German iron industry had for several months to deliver about half its total output. Then, through an accident, one of the largest nitrogen plants exploded. Such risks can be undertaken only by firms with enormous capital and an assured market.[2] The advantages of specialization, on the other hand, are very great. In the steel industry, for example, the loss owing to the continuous adaptation of rolling mills to the production of different products, as well as a heavy capital outlay for keeping a diversity of rolls in stock, is eliminated. The continuous production of standardized articles such as rails, bars or plates, needs a very extensive and assured market.

Of the 70 to 80 larger amalgamations made in Germany between 1924 and 1928, each involving a capital outlay of over one million marks, at least half, it is said, were accompanied by some measure of reorganization. In most of the cases this did not amount to more than a reorganization of the clerical staff and sales departments. In some of the largest combinations, however, extensive changes were made by the closing down, specialization and concentration of plants.[3] Thus the Linoleum Trust has not only specialized its works but shifted the largest number to Bremen, which is the centre of import of the raw material.[4] In the case of the Chemical Trust also, the works have been specialized and the number of dyes, for example, reduced from 8,000 to 2,000.[5]

[1] Macgregor, *Economic Journal*, 1927.

[2] Hirsch, *National and International Monopolies from the Point of View of Labour*, p. 7.

[3] Warriner, *Combines and Rationalization in Germany*, p. 32.

[4] *Strukturwandlungen*, p. 97.

[5] Warriner, op. cit., p. 171.

One of the greatest advantages of combination, from the point of view of production, is that it enables the pooling of the knowledge and practice of a large number of hitherto competing firms. As the best practices of the industrial firms are thus made available to all, the efficiency of each would tend to be raised above that of the best managed of the formerly competing firms. Large firms, besides, have the great advantage that they have more funds available for research. It has been estimated that the proportion of expenditure on research to gross sales made by 11 representative individuals consolidations in the United States was about eight times as large in 1925 as that made by American manufacturers in general.[1] The amount spent by these mergers was, in dollars of uniform purchasing power, more than double as much in 1925 as in 1920.[2] "The fact that industrial research has expanded as rapidly as it has since the World War may justly be attributed in some part to the increased attention to technical research by consolidations, but to an even greater extent it reflects the power of their example."[3]

It has been maintained that size stabilizes business. Professor Taussig even states, categorically, that the only possible advantage of combination "seriously worth considering is the avoidance or mitigation of fluctuations in industry."[4]

American statistics for the pre-War periods show that amalgamations have had a moderating influence on short-time, and especially on seasonal, fluctuations in industrial activity, as reflected both in prices and in employment.[5] This would be expected, as fluctuations in a number of small concerns do not compensate for one another entirely, with regard either to capital outlay or to the dis-

[1] 1.35 per cent as compared with 17/100 of 1 per cent for all manufacturing corporations.—*Mergers in Industry*, pp. 112-114.

[2] *Mergers in Industry* (National Industrial Conference Board), p. 116.

[3] ibid., pp. 117-119.

[4] Quoted ibid., p. 121.

[5] ibid., Chs. vii-viii.

charge and employment of labour, as quite apart from the better supervision of the market by the large firms.[1]

It does not appear, however, that the combination movement has contributed to stabilizing cyclical movements. Mergers have indeed succeeded in maintaining a relative price stability. Thus it is maintained that in Germany, during periods of prosperity, increases in prices are always demanded by the smaller firms in the cartels, whereas the larger members prefer a greater stability.[2]

German statistics for the period 1925–1929 show a remarkable stability of regulated as compared with free prices.[3] "Free" prices from the German point of view, however, include such articles as rubber, the oscillation in the price of which was due largely to attempted British control. During the present depression cartellized goods have fallen only one-half to one-third as much as free goods. This is the more remarkable on account of the fact that cartellized goods in Germany are for the most part producers' goods, destined for investment as equipment, rather than for direct consumption. The fact that during the present depression, in contrast with all previous ones, producers' goods have, in all countries, fallen less in price than consumers' goods, is ascribed to organization of powerful national and international combinations in the capital-equipment industries since the War.[4]

Prices, however, have been maintained at the expense of employment. Thus it appears that, in the United States, the variability in employment is greater in those industries in which combination plays a larger part than in those in which it is of less importance. This may be due to the fact that the combination movement is greater in the more unstable industries. It also appears, however, that within the same industries, in terms of employment,

[1] *Recent Economic Changes*, p. 203.

[2] *Strukturwandlungen*, Vol. I, p. 345.

[3] Warriner, op. cit., p. 110.

[4] *World Economic Survey* (1931–32), League of Nations, pp. 128; 132.

cyclical fluctuations are most severe among large concerns, even though their earnings are more stable. It seems, therefore, to be the policy of combinations to stabilize prices by making the output more pliable.[1] For it is much easier for the combine to reduce production than to decrease costs. The prices of producers' goods have been maintained, during the present crisis, in the face of what would have appeared, in former depressions, as a catastrophic decline in production. The maintenance of high prices for producers' goods relative to consumers' goods, by reducing the possibility of the profitable expansion of business enterprise, is at present, it is maintained, one of the causes of fundamental maladjustment which is preventing economic recovery.[2]

Pools, controls and valorization schemes have been much less successful in maintaining price stability. For they have everywhere tried to maintain prices, but failed adequately to restrict production. The supply of agricultural produce is necessarily inelastic, as during a period of falling prices the individual farmer can hardly afford, in addition, to curtail his output. But control schemes, by the artificial maintenance of high prices during the period of prosperity, stimulated production rather than facilitated the adaptation of supply to structural changes in demand. Even during the present depression agricultural output has everywhere been well maintained. The result has been the accumulation of unprecedented stocks. Thus, in 1932, the surplus stock of wheat amounted to one-fifth, the sugar stocks to one-third, of the average yearly supply, while the coffee stocks represented fifteen months' consumption at present levels.[3]

The effect on the prices of raw materials has been disastrous. Even during the period 1925–1929 individual commodity prices on the London market seem to have been

[1] *Mergers in Industry*, Ch. VII-VIII; *Recent Economic Changes*, pp. 204–6.

[2] *World Economic Survey*, p. 133.

[3] ibid., p. 95.

more unstable than during the period 1901–1912. The pre-War period, however, included two business cycles. The distribution of prices, as well as the grouping of their values around the average, were about the same after the War as before it, but the mean deviation of changes in the prices of individual commodities from the average change in the price level was slightly greater. The variation in prices in 1930, on the other hand, differed from that before the War not only quantitatively, in the greater extent of the fall in prices, but also qualitatively, in the deviation of individual prices from the average and in their frequency distribution.[1] The fall in prices commenced almost a year before the boom came to an end, and has gone furthest in the case of raw materials. Especially the dumping of successive accumulations of stocks on an already demoralized market, as one after the other the control schemes broke down, has contributed largely to maintaining prices in their present depressed condition. The lack of balance and stability in the post-War market must be ascribed essentially to these monopolistic schemes, which have prevented the economic system from adapting itself to structural changes in its character.[2]

The evidence as to the superiority in production of the combine over the moderate-sized independent firm is not very conclusive. The National Industrial Conference Board, indeed, comes to the conclusion that, tested by the best available measure of actual operating efficiency, consolidations in America seem in general to have attained an appreciable superiority in production over the independent producers in their respective fields.[3] Statistical evidence, however, seems to show that the optimum scale of operation and production has been definitely passed in some industries in the United States. In the steel, flour-milling, baking, oil-refining and boot

[1] Wladimir Woytinsky "Die Preisbewegung der Jahre, 1901-12 und 1925-30," (*Weltwirtschaft*, Okt., 1931).

[2] *World Economic Survey*, p. 97; *The Course and Phases of the World Economic Depression*, p. 70.

[3] *Mergers*, p. .171.

and shoe industries, and in retail trade, the moderate-sized firms have, tested either with regard to costs, profits on investment or stability, been the most successful.[1]

Similarly, in Great Britain, middle-sized building societies, with a capital of £2,000,000 to £4,000,000, are in the strongest position.[2] Banking amalgamations in England and Wales have increased expenses and have reduced net profits.[3] The reverse has, however, been the case in the United States.[4]

But the vast majority of mergers formed during the post-War period, at least in America, seem to have been organized not by industrialists aiming at the increased technical efficiency of the firms combined, but by financiers who hope for an increase in the share value of the new combines. It has been estimated by Mr. Thorp that nine-tenths of the mergers formed between 1926 and 1930 in the United States have been brought about by financial institutions.[5] This is corroborated by the fact that the consolidation movement has been most active during periods of prosperity and shows a marked decline during periods of depression.[6] "The periods of most marked merger activity have coincided with periods of speculative activity, characterized by rising security prices and broadened security markets."[7] Such combinations, even though not technically very successful, do not easily unscramble and, at the worst, capital reorganization mostly takes the place of liquidation.

The expectations of the purchasers of shares, if not of the promoters, do not seem to have been justified. From a long record of the financial position of mergers in America, the National Industrial Conference Board

[1] *Recent Economic Changes*, pp. 188-206; M'Callum, *The Iron and Steel Industry in the United States*, pp. 174-6.

[2] *Manchester Guardian Commercial*, Jan. 29, 1931.

[3] J. Sykes, *Economic Journal*, Dec., 1925.

[4] H. Parker Willis, "American Banking Consolidations and Costs." *The Banker*, Nov., 1930.

[5] *Manchester Guardian Commercial*, Aug. 7, 1930.

[6] *Recent Economic Changes*, p. 183.

[7] *Mergers in Industry*, p. 26.

comes to the conclusion that mergers have not proved exceptionally profitable. Neither with regard to their earnings, nor from a record of the security values of mergers, do there seem to be any "inherent advantages in the consolidated form of organization which insure greater profitableness for the investor than is offered by many non-consolidated enterprises." As in the case of independent firms, there have been examples of mergers which have been conspicuous successes. But this is no more true of mergers than of business in general. Business mergers, it is clear, are no substitute for efficient management. Yet it seems to be a popular prejudice to regard the few outstanding examples of successful combination as typical of the class, whereas the successful private firms are rightly considered to maintain a unique position.[1]

It seems, therefore, an exaggeration for the National Bureau of Economic Research to maintain that the present mergers are unlike those formed at the end of the nineteenth century. Then, the motives for combination were usually either the formation of a monopoly or the profits of some promoter. The important incentives in the present period, on the other hand, it is alleged, are the desire for additional capital and economies in marketing.[2]

As mergers in America were, in the post-War period, often quickly followed by new financing it seems that an important motive for combinations was the desire for additional capital.[3] Size facilitates the acquisition of fresh capital resources. Thus, during the period 1922 to 1927, the 200 largest corporations in the United States secured 66.5 per cent of the new capital issued on the open market. More than half their growth as a group during the period is attributed to this fact.[4] For Germany, it has been maintained that the motive for the

[1] *Mergers in Industry*, Ch. iii-iv, pp. 170-171.

[2] ibid, p. 217.

[3] ibid.

[4] Means, *The American Economic Review*, March, 1931.

formation of concerns in practically every sphere of industry since the War has been the shortage of capital, and the formation of horizontal amalgamations as a means of long-term borrowing.[1] The extent of this shortage of capital can be judged from Hirsch's estimate that in 1926 a gross turnover of trade and industry equal to the pre-War value had to be financed with two-thirds the pre-War circulating capital.[2]

On the other hand, the large amount of profits held back by prosperous firms in the form of reserves and ploughed back into the business has caused practically an automatic expansion in many of the newer and more successful branches of industry. Big companies as a group apparently save a larger proportion of their net income than small ones.[3] Expansion by the reinvestment of profits has been especially evident in the manufacture of automobiles. Large accumulated resources have resulted in vertical and horizontal integration and to over-ambitious programmes of construction. Many automobile manufacturers have branched off into the production of other kinds of articles, such as tractors, electric refrigerators, radios, and aeroplanes. "Prosperity leads to overbuilding, particularly where capital at a low price is plentiful, and there seems plenty of evidence of increasing over-capacity in many American industries".[4]

The concept of surplus capacity is admittedly a difficult one, as supply, demand and price are interdependent factors. There has, however, been an obvious over-expansion of industrial plant when, for example, the total installed capacity of saw-mills in the United States was 117 billion feet per year in 1927, whereas the largest amount of lumber ever produced was only 46

[1] Warriner, op. cit., p. 32.

[2] *Strukturwandlungen*, I., p. 219.

[3] During the period 1922 to 1927 inclusive, 108 of the largest American Corporations saved 38.5 per cent of their net income. In the same period all American Corporations saved only 29.4 per cent of their net income.—MEANS, op. cit.

[4] *Economic Journal*, Dec., 1930.

billion feet. Between 1923 and 1928 the output of the wheat-flour milling industry was only 56 per cent of its capacity. The shoe factories in the United States had, in 1925, a normal capacity which was 80 per cent greater than the actual output.[1] In Europe in 1925 the iron and steel industry was working at only half its full capacity;[2] in America the percentage of output to capacity of the steel industry for the period 1926 1929 was only 86 per cent.[3] Between 1913 and 1927 the producing capacity of the British coal-mining industry increased by more than 10 per cent, whereas the demand for coal fell by over 10 per cent.[4] The bituminous coal industry in the United States "has for many years had an output capacity and a supply of labour at least 25 per cent greater than was necessary to supply its peak demands."[5] Five of the 200 makes of tyres are said to be equipped to supply the total demand.[6] The actual output of the American automobile industry in 1928 was only 58 per cent of its "practical capacity". Up to 1928, however, it was still producing for an expanding market. Conditions of production will have to be readapted and methods of marketing will probably change radically when its output becomes restricted to annual replacements.[7] When these are the conditions in some of the most prosperous industries during a period of prosperity, the conditions of industry in general could hardly have been better. The surplus productive capacity existing in manufacturing industry generally seems to have been on a considerably larger scale than during previous boom periods.[8]

The problem of industry to-day, outside Russia, is

[1] *Economic Journal*, Dec., 1930.

[2] Schlenker, op. cit.

[3] Jewkes, op. cit.

[4] Prof. J. H. Jones: "Organised Marketing in the Coal Industry," *Economic Journal*, June, 1929.

[5] Jewkes, op. cit.

[6] Marshall, *Industrial Society*, p, 1557.

[7] Dunn, *Labor and Automobiles*, pp. 53-57.

[8] *The Courses and Phases of the World Economic Depression*, pp. 64, 67.

no longer one of production but of marketing. The increased industrial capacity which has followed developments in technique and the automatic accumulation of capital has definitely created a "buyers' market".

On the other hand the demand for industrial products seems, with the present distribution of incomes, to have become relatively inelastic. The proportion of the wealth of Western communities that they spend on manufactured commodities has been reduced in favour of the consumption of services directly. Instead of the rapidly expanding market of pre-War days, in comparison with industrial output, has come the limited market and the overproduction, relative to the general price system, in practically every sphere of industry during the post-War period.

On the one hand the opportunities of promoters to make profits by amalgamation and the exercise of monopolistic powers increase with the inelasticity of demand. On the other hand, the existence of over-capacity induces combination as a method of self-preservation. In their greater power to control the market and to distribute the aggregate demand among the competing members lies the main characteristics of post-War combinations, at least in Germany. The increase in the number of agreements and even the extension of their scope are far less significant than the increased power of amalgamations to control the market largely on account of closer financial connection.[1] But the mere control of prices without the corresponding regulation of capacity has in many industries, on the other hand, increased the surplus productive power still more and further increased the instability of the post-War economic system.

Competition between industries for the consumers' wealth is tending to supplement and partially to displace the competition of articles satisfying the same needs. There are between 800 and 1,000 trade Associations in the United States which undertake the joint advertising of the products of the industries they represent. Com-

[1] Cf. Warriner, op. cit., p. 105; M. Saitzew, *Horizontal und Vertical in Wandel der Letzten Jahrzehnte.*

bination in any one industry or in any one country, again, encourages and practically induces combination in other countries as the only means of survival. Manufacturers are also combining to develop the export trade collectively.

During the War co-operation between employers was enforced by governments as a means of increasing supply. After the War, the practice stood them in good stead in decreasing output. The increased prestige of associations of employers who are represented in economic parliaments in some countries and consulted by governments in others, as well as the more favourable public attitude towards monopolies in practically all countries since the War, have increased both the desire for and the scope of combined action. Modern means of communication, by eliminating distance, have greatly facilitated the process of concerted action.

The effect of amalgamations on prices depends on such varied factors as the nature of the demand curve and the conditions of supply, the measure of monopoly attained, on legislation or on business mentality. Where increasing returns do not act strongly the home consumers have to pay for the surplus dumped abroad. A committee of the Economic Council in 1930 assessed the burden of this policy on German consumers of steel at 150 million marks a year. World market prices have usually not even sufficed to cover the bare cost of wages and material of exports.[1]

On the other hand, American price statistics over the period 1900–1925 of a large number of different industries, according to the prevalence of consolidations, show that, to a remarkable degree, "the extent to which prices have risen in these different groups of industries appears to have varied inversely with the presence and prominence of industrial consolidations." This may, of course, be due to the fact that consolidations have been formed in those industries in which there have been the greatest technical advances and consequent overproduc-

[1] *Manchester Guardian Commercial*, Jan. 1, 1931.

tion. The evidence, however, according to the National Industrial Conference Board, seems to suggest "that corporate combinations have exerted an important influence upon costs of production, tending to reduce them."[1]

In the case of the government control of raw materials, the object has usually been either to increase the profits of producers, to stimulate home manufactures, or to obtain public revenue. The success of the policy depends naturally on the conditions of supply and demand. Where one authority has effective control of the output and conditions of sale of the material, as in the case of Chilean Nitrate, the monopoly has for a long time yielded large revenues to the state and very generous profits to the mine owners. Before the War the nitrate industry supplied about half the Chilean revenue, and to-day still furnishes about a fourth of it. This income is secured for the most part by means of an export tax.[2] The profits of the mines, even after paying heavy taxes to the State, varied from 10 to 50 per cent. The policy has also been a success in a commodity such as coffee where a bumper crop, by exhausting the trees, is normally followed by short crops. The Brazilian defence of coffee seems to have maintained prices at a higher level than would have prevailed without government intervention but, up to 1928 at least, has moderated extreme fluctuations. Since then prices have slumped so much that by 1930 they were less than one-third of what they were in 1928. The control of rubber, on the other hand, far from stabalizing prices, greatly increased the fluctuations. For a time at least consumers were burdened with exorbitant prices. The policy is said to have cost the United States 550 million dollars between the years 1924 and 1926.[3]

Control has almost everywhere stimulated the produc-

[1] *Mergers in Industry*, p. 145; Ch. viii.

[2] Wallace and Edminster, *International Control of Raw Materials*, p. 26.

[3] Wallace and Edminster, op. cit., p. 272.

tion either of substitutes or of the same product in other parts. Thus the high prices for Chile saltpetre probably encouraged the growth of the synthetic nitrogen industry. Before the War Chile supplied over half the total world output of nitrogen products, in 1930 scarcely a quarter. The high prices of coffee have encouraged production not only in other countries but in Brazil itself. Between 1926 and 1928 production in Columbia increased by more than one-third, in Haiti by about one-fourth, and in Brazil the area increased by 25 per cent.[1] But the effects have been only to widen the boundaries of control, seldom to give up the policy.[2] This is seen, for example, in the case of the International Agreement with regard to nitrogen products, as in the English-Dutch rubber agreement of 1930.

IV. MARKETING

An over-expanded capacity has tended to shift the problems of industry from the sphere of production to that of marketing. One of the motives for combination in industry has been the gains to be derived in the field of distribution from size. The chain and the department store, for example, gain much from the publicity, bulk purchase, and selection offered to the purchaser that are obtained by integration. In the motor industry the larger firms can afford more wide-spread and effective advertising. They can also adapt themselves better to differences and changes in the taste of the public by making a more diversified line of cars. The sales organization plays an important part in the formations of combines. Effective sales propaganda requires a heavy expenditure which the independent firm is usually

[1] *The Course and Phases of the World Economic Depression*, p. 54.

[2] Wallace and Edminster, op. cit., pp. 268-275.

unable to make. Associations of independent manufactures have, however, been formed to advertise collectively. The strong combination making standardized commodities can often dispense with advertising altogether.

The difficulties of marketing have been increased in the twentieth century by the rapidity of changes in style and the receptivity of customs to new varieties of articles. The demand has shifted from articles technically perfect, which will last, to relatively cheap and pretty commodities which can be changed with variations in style. Competition in publicity and catering for taste have largely displaced competition in workmanship. Lack of adaptation to these changes is said to be at the root of much of England's post-War industrial difficulties.[1]

The result has been a great increase in advertising. In the United States it is estimated that between 1921 and 1927 the annual expenditure for advertising increased by 50 per cent. In 1927 the total expenditure amounted to 1,502 million dollars. Three-fifths of this amount was spent for advertisements in newspapers and magazines, one-quarter for direct advertising. Even the new democratic forms of entertainment, the radio and the cinema, have been mobilized quite extensively for this purpose. The increase in expenditure has been especially rapid for the newer articles, such as automobiles, radio sets, or electric refrigerators, and for entertainment. Advertisements have improved not only in quantity but also in quality—both technically and from the standpoint of business morale.[2]

Sales in the newer kinds of articles have also been stimulated, or perhaps rather advanced over a period, by the development of instalment selling. Three-quarters of the automobiles sold in the United States are said to be sold on the instalment system, and electric refrigerators, radios, furniture, farm machinery, and even expensive books are purchased extensively by this

[1] Cf. *Economic Journal*, Sep., 1930, p. 365.

[2] *Recent Economic Changes*, pp. 402-424.

method. Instalment sales represent from 13 to 15 per cent of the total American retail trade. It is doubtful if this percentage increased in the United States after 1923.[1] In Germany, on the other hand, instalment sales have grown rapidly since the War, although the percentage of total retail trade is still much smaller than in America.[2]

An elaborate financial structure has been built up to supply the credit. The interest charged on instalment funds by finance companies in the United States varies from 11 to 40 per cent. As these charges include numerous costs of administration they are not necessarily exorbitant. Professor Seligman says complacently that in the long run consumers will not pay more for commodities than they are worth, so that if the costs do not warrant the sacrifice they will not be paid.[3] But on account of the variety of confusing methods that exist of calculating finance charges, it has become extremely difficult for the purchaser to obtain a correct notion of the actual percentage paid by him on the balances that are outstanding. Thus it is a common practice to quote the interest charge on the unpaid balance when the sale is made, whereas, through the monthly payments made the balance outstanding is in fact being continuously reduced. The effects of the instalment system vary with the kind of commodities sold, the sort of people to whom they are sold and the nature of the facilities granted. Usually the smaller the down-payment and the longer the period over which the payments are extended, the greater is the percentage of goods that has to be repossessed. Finance companies are trying, by combined action, to standardize the conditions of the credit facilities given by them. By careful finance their losses are being continuously reduced.

Improvements in communication and in transport have had a greatly accelerating influence on the process of distribution. The increased regularity and depend-

[1] *Recent Economic Changes*, pp. 390-402.

[2] *Strukturwandlungen*, Vol. II, p. 107.

[3] Seligman, *The Economics of Installment Selling*, p. 283.

ability of transport services have developed the practice among both manufacturers and merchants of carrying smaller inventories of raw materials and of merchandise. The practice of hand-to-mouth buying has been encouraged further by changes of style, by the existence of excess producing capacity, and by new methods of inventory control. Retail merchants have now come to hold just sufficient stock to tide them over a few days and depend on the manufacturer, the wholesaler, and the transport system for the immediate delivery of goods when needed. The reduction in the size of the stocks of individual items has, however, often been counterbalanced by the increase in the number of items carried.

It is estimated that if the post-War development in hand-to-mouth buying had not taken place in the United States, it would have required over a billion dollars more of circulating capital to have handled the same volume of production, traffic, and trade, than was actually used for inventory purposes under the conditions prevailing in 1927.[1] The effect on transport of this development is seen in the great increase in the shipment of small quantities of goods. In Great Britain, for example, the number of consignments per ton of traffic handled seems to have been about three times as great in 1928 as it was before the War.[2] Manufacturers have adapted themselves by speeding up the process of production. Both they and the wholesalers have had to increase the number of their salesmen and the frequency with which these call on customers.[3]

The most important development in retail trade during the twentieth century has undoubtedly been the rise of the chain store. Its growth has been especially rapid since the War. In the United States there are estimated to have been 2,030 chains in 1914 with 23,893 units. By

[1] *Recent Economic Changes*, p. 360.

[2] Cf. Fenelon, *Transport Co-ordination*, p. 17.

[3] *Recent Economic Changes*, p. 350.

1930 there were 7,837 chains with 198,145 units. In 155 cities in the United States, with a total popuation of 19,360,952, chain stores now form 15.5 per cent of all retail food stores and do 30.12 per cent of all the trade in foodstuffs. In the larger cities with over 30,000 inhabitants, chains do about 48 per cent of all sales made by grocery and combination stores. Studies of 485 American cities with more than 10,000 inhabitants show that local chains do 19.44 per cent, and sectional and national chains 16.90 per cent, of the total retail sales made in these cities.[1]

Similar developments are taking place in Europe, although the movement has not yet proceeded as far as in America. During the War 23.5 per cent of the British consumers registered to obtain rations with 7,000 branches of chains, as compared with the 23 per cent who registered with 5,500 co-operative stores, and the 53.5 per cent who registered with 137,000 independent retailers. Eight chains in the United Kingdom are said to-day to include over 10,000 stores. The trade in frozen meat is controlled partially by the United Cold Storage Company with its 3,000 retail units. In the fish trade a company belonging to the Lever Soap Combine operates over a thousand branches. Chains are also developing rapidly in Germany. In Belgium the two firms Delhaize together control 1,500 stores. There are 80 national chains in France.[2].

An essentially European development which closely resembles the chain store organization is the Consumers' Co-operative Movement. The competition of the private chain is said to have been the most direct incentive, at least in Great Britain, for improvements since the beginning of the century in the organization of the consumers' societies.[3] The movement is especially developed in northern Europe. Individual initiative in the distribu-

[1] R. B. Westerfield, " Rise of the Chain Store ", *Current History*, Dec. 1931.

[2] *Strukturwandlungen*, 103-5.

[3] *Strukturwandlungen*, 103.

tion of food has disappeared almost entirely in Sweden and Russia. In Russia consumers' co-operative societies have become the organs for planned distribution under the supervision of the Commissariat of Supply. According to the provisions of the Five-Year-Plan, the share of consumers' co-operatives of the total distribution of the country is to increase from 57 to 76 per cent. The share of private trade during the period is to decrease from 25 to 9 per cent. The retail trade of the State-controlled organizations also is to become of gradually diminishing importance. Consumers' societies, by effective chain organization, are to modernize the Russian system of distribution. In spite of continuous accusations of the lack of adaption to the requirements of a planned economy and the want of militant enterprise, it has been found necessary to transfer continually more services from central institutions to the more pliable co-operative organizations.[1]

As chains and consumers' stores have expanded more rapidly than the volume of business transacted, their growth has resulted in the displacement of individual merchants. American investigations show that both the expenses of operation and the prices charged to consumers are considerably lower in the case of chain than of independent stores. From investigations made by the International Labour Office of retail prices in European countries, it appears that consumers gain substantially in purchasing from co-operative societies. Not only are the prices of these societies considerably lower and the quality of their goods better than those of private stores, but the profits are returned to the members by a dividend on purchases. During periods of inflation consumers' stores are the last to raise, and during periods of deflation the first to lower, their prices. Retail prices, besides, are lower in towns where co-operatives exist than in places where there are none, and the establishment of a consumers' store in a locality soon causes prices to decline.[2]

[1] The *Encyclopædia of the Social Sciences*, Vol. VI, pp. 323-330.

[2] League of Nations (International Labour Office): *Results of*

Co-operative societies gain from the loyalty of their members which enables overhead expenses to be reduced. Economies are effected both by co-operative and by chain stores through the elimination of credit and delivery expenses and the adoption of standardized methods. Chain stores in the grocery trade in America, operating their own wholesale warehouses, turn over their stock in less than half the time required by individual wholesalers and retailers.[1] Chains, on account of their bulk purchases, have been able to exert pressure on manufacturers to obtain special concessions in discounts, advertising allowances, and other rebates.

The growth of the chain store has raised numerous problems for the independent retailer, the wholesaler, and the manufacturer. Individual retailers have retaliated by the formation of voluntary chains. These have grown especially rapidly in the grocery trade where competition with chains has been greatest. Their importance is shown by the fact that there were in the United States in 1930 over 70,000 members of voluntary grocery chains as compared with 65,000 stores operated by centrally owned grocery chains.[2] Alliances of retailers have also become important in Germany since the War. Voluntary chains have been formed either in collaboration with wholesalers or independently. Their weakness consists mostly in the lack of central organization, which leads to outside trading and reduces their bargaining power. By co-operation, however, small retailers attain many of the economies of integration. They are helped by the experts of the organization to keep proper accounts and to modernize their stores both in appearance and in the services rendered to their customers. By painting their fronts alike members of a voluntary chain obtain the advantage of common publicity. They

Certain of the Inquiries for Instituting a Comparison between the Retail Prices in Private Trade and those of Distributive Co-operative Societies (1926).

[1] Converse, *Elements of Marketing*, p. 642.

[2] Ibid., p. 673.

have often learned to sell their goods as cheaply as the chains.

The independent retailer who has not joined these voluntary organizations has adapted himself by specializing in definite lines and by furnishing services which the chain store does not give. Chains have hitherto been a success mainly in the sale of goods requiring little personal service, which are sufficiently standardized to require little selling effort, and the demand for which is big enough to permit a large turnover at low margins. Chains have not been a success in the distribution of articles where style is required, and their importance decreases in large cities, probably on account of the large number of speciality stores.[1]

The development of the chain stores has also had serious effects on wholesalers. Since the War, they have been handling a smaller proportion of the trade specialized in by chains, on account of the direct purchases of these from manufacturerers at prices which are sometimes even more favourable than those granted to wholesalers themselves. The *Enquete-Auschuss* believes that the small wholesaler will soon be entirely eliminated from the trade of Germany.[2] In the United States the operating expenses of wholesale houses seem to have increased on account of the development of hand-to-mouth buying, which has forced them to send their salesmen more frequently over their territories. The contraction of trading areas on account of the shifting of business from the smaller to larger towns has had the same effect. Wholesalers have tried to adapt themselves by specialization and by restricting the area of their activities on the one hand, on the other hand by combining in voluntary chains with retailers and trying to bring pressure to bear on the manufacturers through combined action. As a result of the demand for cheaper prices on account of chain competition, several new kinds of wholesalers, such as the cash-carry, mutual,

[1] Westerfield, op. cit., p. 360.

[2] *Encyclopædia of the Social Sciences*, Vol. VI, p. 322.

and desk and telephone wholesalers, have developed. By standardization and the contraction of services they have been able substantially to reduce operating expenses.

Manufacturers have commonly adopted the practice of selling special brands of commodities directly to retail merchants. In the sale of a number of articles the conditions of distribution have been carefully determined. Thus in the sale of automobiles the manufacturer or the affiliated finance company controls the advertising of the retailer, the credit conditions which he gives to his customers, the appearance of his salerooms, as well as the price which he is allowed to charge for cars, replacements and repairs. The position of the dealer in the sale of numerous other articles varying from agricultural machinery to linoleum is not much different. His position has been reduced to that of an agent with little responsibility as to the fixing of prices at which he sells or purchases his wares. On the other hand chains often take the initiative in originating new goods. The manufacturers are called into conference for determining prices and the conditions of production. In such cases the position of a manufacturer is often that of complete dependence on the retailer.

The independent middleman is sometimes entirely eliminated either by large retailers, and especially chains, operating their own factories or by manufacturers selling directly to consumers. Many manufacturers have adopted the policy of selling their goods by mail or, where they sell a diversified line of goods, as in the shoe industry, by opening chains of retail stores. Both in the home and in export trade the sale of goods directly to consumers has gone furthest in industries making production rather than consumption goods. Purchasers are better organized, the individual sales are larger, price considerations are more important, and sellers are usually financially stronger in the former than in the latter trades. Thus the direct-selling to consumers has gone further in Germany in the iron and machine indus-

tries than in the textile industry.[1] About 90 per cent of the products of the German dyes trust, and probably 85 per cent of the total steel output of the United States are sold directly by the manufacturers to consumers.[2] In the sale of agricultural produce, co-operative societies have succeeded in largely eliminating the middleman. In the United States they now market from one-fifth to one-third of the various kinds of dairy products, and one-third of the grain sold in the country.[3] In Russia it was expected that 85 per cent of the commercial grain crop would be marketed by co-operative societies in 1931.[4]

There has been relatively little competition between chain stores and department stores. The chain store sells standardized goods at low prices. The department store specializes in style good and novelties. There is, however, some tendency for them to assimilate: for department stores to standardize their goods, and for chains to increase the variety of the lines held. The increase in the volume of sales of department stores in the United States during the post-War period has been much less than that of chains, partly owing to the fact that they were more developed before the War. In Germany the turnover of department stores was trebled from 500 million marks before the War to 1,500 million marks in 1926. Their share of the total German turnover amounted in 1926 to about 5 per cent. Their operating expenses are, in Germany, about equal to that of individual stores, but they usually win by purchasing directly from the manufacturer. The operating expenses of department stores in the United States increased during the post-War period. American department stores, as contrasted with the European, have relatively few branches. They have, however, not escaped the merger movement.[5]

[1] *Strukturwandlungen*, Vol. II, Ch. xxvii.
[2] M'Callum, op. cit., p. 190; Warriner, op. cit., p. 106.
[3] *Recent Economic Changes*, pp. 376-381.
[4] *Encyclopædia of the Social Sciences*, Vol. VI., p. 327.
[5] *Recent Economic Changes*, pp. 369-371; *Strukturwandlungen*, pp. 98–101.

The volume of sales of mail-order houses in the United States has also been affected by post-War developments in distribution. These firms reach their rural customers by the distribution of catalogues issued every six months. As these prices appeared less and less favourable with the heavy fall in prices which accompanied the depression of 1921, their sales declined rapidly. After 1922 they shared the loss of trade in the rural districts which accompanied the growth of automobile transport. People were less willing to buy from catalogues and could more easily travel to the larger centres to see for themselves the goods displayed. Local stores could often offer standardized products at practically the same prices. The mail-order houses adapted themselves by opening chain stores in the rural districts and by selling over the counters at their stores in the larger cities. This has enabled them partially to maintain their position.

In spite of the influence of the chain store it seems that the cost of distribution, in contrast to the cost of production, has tended during the post-War period to rise in relation to sales. There have been no improvements in methods of distribution corresponding to the rationalization that has taken place in industry. Manufacturers, faced with severe competition, have had to increase their expenditure on marketing more rapidly than their sales have expanded. Increased expenditure, both to them and to wholesalers, has resulted from the practice of hand-to-mouth buying. The expenses of wholesalers have been increased also by the changes in retail areas. But everywhere retail prices have risen more since pre-War times than wholesale prices. The high costs of distribution are ascribed partly to the purchasing policy of the public which involves among other things an unnecessarily large number of stores. It is generally maintained that for a one-man store in retail trade to operate efficiently in the United States it should have a yearly turnover of at least 10,000 dollars. In a sample distribution census of eleven cities taken in 1926 it was found that 47 per cent of the retail stores had annual

sales of less than 10,000 dollars. Twenty-eight per cent of the stores had sales of less than 5,000 dollars. The turnover per person employed in German retail trade in 1924 varied from under 8,000 marks in the sale of flowers to 36,000 marks in the sale of butter. This was a smaller amount than in pre-War times. The reduction in many of the marketing costs brought about by the chain store and the co-operative society has been neutralized, especially for the other forms of retail business, by the improved service now generally demanded. Goods now are usually delivered and orders called for, and an increased proportion of the sales is on credit. Customers are also more exacting with regard to the make-up of the establishments in which they shop, and this has involved extra expense for decoration and the display of goods. Wages have increased. In most countries they have increased more rapidly in transport, building and retail trade, than in manufacturing industry. Finally, trade associations to-day provide expert accountants who inform business men about elements of costs of which they were formerly unaware. It seems, however, that at least in the United States during the last few years, the tendency for expenses of operation in distribution to increase has been checked.[1]

The cost of retailing varies for different articles, for different kinds of stores and for different localities. Generally it is from one-fifth to one-third the selling price of articles. It is estimated that in Great Britain retailers take on the average one-quarter of the price charged to consumers.[2] The proportion of the gross retail margin on the selling price remains remarkably constant in different countries. In Germany, for example, it is almost exactly the same for the various forms of retail business as in the United States.[3]

[1] *The Course and Phases of the World Economic Depression*, pp. 102-3; *Recent Economic Changes*, p. 421; *Strukturwandlungen*, Vol. II., p. 92; Converse, op. cit., pp. 577-8.

[2] *Economic Journal*, Sept. 1929, p. 370.

[3] *Strukturwandlungen*, Vol. II., pp. 91 and 109.

It is an old complaint that trade is overcrowded. It runs through the ages from Flavius Josephus to Martin Luther and more recently to Herbert Hoover. It is considered intolerable that one-sixth of a nation's income should be spent, not in producing things, but "merely" in selling them.[1] The prejudice is usually inspired by the belief that trade, as Adam Smith would have said, does not fix or realise itself in any tangible object which endures after the labour is past. Tradesmen share with kings, professors and buffoons the characteristic that theirs are highly respectable professions, but alike unproductive. It appears, however, that the conditions which make such a large expenditure for the services of distribution necessary are at present remarkably similar throughout the western world.

[1] Cf. *Strukturwandlungen*, ol. VII., pp 84 and 96.

CHAPTER VI

POLICY

I. SOCIAL POLICY

By economic policy is meant the attitude assumed by a government towards the economic activities of a country and the means that it adopts to control them. The object of policy is to improve social welfare. But conceptions of welfare vary, as also do opinions with regard to the methods to be adopted to attain it. The emphasis to be placed on the interests of different sections of the community, and even the claims of different generations, vary with the times and give a different content and a changed significance to the activities of a government.

In the nineteenth century wealth and welfare were practically synonymous terms. Questions of distribution were ignored. The process was reduced by Pareto to a natural law, and income reflected merit. By no measures of economic policy could the absolute share of the community's income accruing to the poor be increased at the expense of the other sections of the community. It could be attained only by increasing the national dividend as a whole. If redistribution of income were effected, the same inequalities would after a short period reappear.

The object of leglislation was essentially to ensure the best conditions for producing wealth. These conditions were considered to consist in assuring free competition and in allowing free scope to private initiative. The inequalities thus produced were considered socially wholesome. What had made the inequalities of the *ancien*

régime unbearable was the fact that they were the product of privilege and not of services rendered by the recipients to society. The inequalities produced by industry were desirable in that they reflected merit and acted as an even greater stimulus to exertion and to enterprise. The inequalities of the *ancien régime* had their origin in social institutions, the new inequalities were the result of differences in character. They were therefore providential--the god being considered either as Christian or Darwinian, according to the prejudice of the privileged.[1]

These ideas have lost much of their force in the twentieth century before the advance of Socialist propaganda, with its insistence on human values and of equal opportunity for all. In the nineteenth century stress was laid on the development of personal initiative and on the accumulation of wealth. To-day the emphasis has shifted to ordered development and to humanizing conditions for all. Wealth is at best an inadequate criterion of the welfare derived from it, and the social value of an investment may differ considerably from the benefit derived from it by the investor. *Laissez-faire* individualism and the sense of personal liberty have faded with the growing sense of social solidarity.

This reversion from *laissez-faire* doctrines has been due largely to the more subtle appreciation of the influence of institutions, not only on the smooth functioning of the economic system but on inequalities of wealth and on differences of character. The conviction that economic forces are not the result of blind forces of nature has shown the necessity for corporate control, the sense of common dependence has awakened the desire for such control.

The distribution of incomes in capitalistic societies bears no analogy to the distribution of the physical and mental characteristics of human beings. In the case of the distribution of incomes, the large mass of incomes are found near the lower end of the income scale, and a

[1] Cf. Tawney, *Equality*, pp. 136-7.

relatively small number of incomes are above the average. With regard to the distribution of physical and mental characteristices, on the other hand, there is a fairly equal dispersion above and below the average.[1] Economic inequalities are, in fact, only to a limited extent due to capacities peculiar to the individual. They are the outcome largely of the inheritance, either directly of wealth or indirectly of the facilities for acquiring it. These environmental privileges, therefore, like genetic faculties, tend to be perpetuated.

Inequalities are to a large extent the result of social institutions fostered by former economic policy, and it is the function of social legislation to retrieve this by the equalizing of opportunity. Such an equality of opportunity is not assured by a mere formal equality which consists in the absence of disabilities. With the conception of the significance of institutions have come less formal and more positive notions of liberty. Real equality is a question of the presence of abilities. It consists in the equality of environmental conditions, of food, health, cleanliness and beauty. What the workman demands to-day is not freedom of wage contracts or mere formal equality before the law, but sanitary conditions of work and living, the right to work, and a minimum wage. He demands no longer merely freedom of speech and of conviction; these in fact are largely *bourgeois* values. What he demands is opportunities for education, for recreation, and for the ability in his surroundings to appreciate the aesthetic enjoyments of a civilized life; not the freedom to starve, but protection from the risks attached to his position as a worker.

The fact, besides, that people differ genetically, Socialists maintain, is not a revelant argument against attempts to equalize the facilities for making the best use of what facilities they may have. If some are already privileged by nature they require social props not more

[1] Pigou, *The Economics of Welfare*, Part V, Ch. ii.

but less. Inequalities are socially pernicious because they divide communities into warring factions, the one side to preserve the privileges which they possess, the other side to seize the advantages which they covet. Inequalities are morally ridiculous because of the vanity and snobbishness which they encourage and the tyranny of social subordination which is their inevitable result. It would lead to far greater contentment if economic legislation tended to emphasize, not the differences which divide different classes and individuals, but the common facts of humanity which unite them.[1]

The doctrine of equality has become the chief article of faith of modern democracy. It is accepted as the object of practical policy by every form of political creed, whether Conservative or Liberal, Fascist or Socialist, and however much they may differ in the means they advocate to attain it. To the working masses of industrial societies it has become an intolerant religion, having as its basis resentment on the one hand and the idealization of the masses on the other.

The methods to attain a greater measure of equality vary. In Russia almost complete equality has been obtained by the socialization of private property. The increase in the scope of public enterprise in other countries works in the same direction. In Central Europe a large measure of rural equality has been attained by the subdivision of large estates. Over the rest of the world, and especially in the great industrial communities of the West, the same object is being achieved more slowly by the extension of social services on the one hand and the methods of raising the funds to meet the increased expenditure on the other hand.

The increase in public expenditure is an old phenomenon. To-day, in a number of European countries, this

[1] Tawney, pp. 50-53. It is, on the other hand, also being recognised as a special function of the Government to furnish facilities to people with talent. This, however, as in Russia, does not necessarily imply economic inequality.

expenditure amounts to about 30 per cent of the national incomes.[1] Before the end of the nineteenth century, however, the increase, in so far as it was not due merely to the increase of population and wealth or to the depreciation of the currency, was caused by an increase for other than social and mostly for military purposes.[2] In the middle of last century, for example, over 90 per cent of the Government expenditure in Great Britain was for interest on the National Debt and for the maintenance of the Army and Navy.[3] Social services were regarded with contempt by the Victorians as "poor relief".

During the twentieth century, and especially since the War, there has been a great increase in all countries in the expenditure on social services. This increase has been much greater than the increase either in population or in wealth. The development has varied in different countries with local needs, prejudices and the distribution of political power. The result is a very uneven extension of the different services in the different countries. In Great Britain, for example, a national system of unemployment insurance has been very highly developed; but secondary education has, until recently, been regarded as the legitimate sphere of private charity. In America, on the other hand, the unemployed have, until the present depression, been left largely to charity, but a system of free secondary education is very highly developed. With the extension of social services, however, there has been a tendency towards more uniform conditions in all countries.

The total public expenditure on social services in Great Britain, if War pensions are included, increased from

[1] *Encyclopædia of the Social Sciences*, Vol. VI, p. 10.

Between 1913 and 1928-29, for example, the total expenditure of all public authorities increased from 15.7 to 27.6 per cent of the national income in Germany, from 15.5 to 21.8 per cent in Sweden, and from 8.5 to 15.3 per cent in the United States.--*World Economic Survey*, p. 247.

[2] Jèze, *Cours de Science des Finances—Dépenses Publiques*, pp. 67-8.

[3] Tawney, op. cit., p. 188.

£22,600,000, in 1891 to £338,500,000 in 1925. In this year it made up about one-eleventh of the national income. The distribution of these totals was as follows:[1]

	(Million £) 1891	1925
Expenditure under:		
The Education Acts	11.5	89.4
Acts relating to the Relief of the Poor	9.1	40.4
The Housing Acts	0.2	18.4
The Public Health Acts ...	0.5	9.1
The Lunacy and Mental Deficiency Acts	0.9	4.8
The National Health Insurance Acts	nil	32.5
The Unemployment Insurance Acts	nil	50.6
The War Pensions Acts	nil	66.5
The Old-Age Pensions Acts ...	nil	25.8
Other expenditure	0.4	1.0

Before 1911, except for recourse to charity or to the Poor Law, the unemployed worker had to rely either on his private savings or on trade union unemployment benefit. For unskilled workmen, however, no such provision existed. In 1930–31 the contribution of the State towards unemployment insurance alone amounted to £73,000,000.[2]

The public expenditure in Germany, on social welfare and housing alone, increased from 10 per cent of the total public expenditure in 1913–14, to 25 per cent in 1928–29. This expenditure formed 1.6 per cent of the national dividend in the former, and 6.8 per cent in the latter year.[3]

The expenditure on social services formed 13.6 per cent of the Netherlands budget in 1914; 32.4 per cent in 1930.[4] If the expenditure on the public debt and on

[1] *Britain's Industrial Future*, pp. 245, 423.

[2] Royal Commission on Unemployment Insurance (1931), pp. 26-27.

[3] *World Economic Survey*, p. 265.

[4] *Jaarcyfers Voor Nederland* (1930), pp. 342-6.

military pensions is deducted from the French budgets of 1913 and 1930 respectively, the public expenditure on social services formed 11 per cent in the former and 23 per cent in the latter year.[1]

In America, where the belief in private initiative and munificence is most ingrained, the provision of certain kinds of social services out of public revenue, especially those connected with labour legislation, has remained behind European countries. On the other hand, public expenditure on free higher education is on a lavish scale. It is estimated to have increased in little more than a decade by 350 per cent. The total expenditure for free social services by 48 States and cities with a population of over 30,000 more than trebled between 1915 and 1926. This expenditure represented 2.4 per cent of the national income in the former and 3.4 per cent in the latter year.[2]

Not only has government expenditure on social services increased rapidly during the twentieth century, but the funds to meet this expenditure have been obtained more and more from the wealthier sections of the community.

Characteristic of the development of the modern tax system has been the growth of direct as compared with indirect taxation. When the part of the national dividend taken by the state, in a community where incomes are unequally distributed, increases greatly, this fact by itself makes some degree of progression in the tax system necessary. The development of a system of direct taxation, however, is possible only with the growth of an efficient system of administration. Partly, the extension of direct taxes has been due to the better understanding of the nature of a tax burden and to the development of civic responsibility. Mostly, however, it has been due to the growth of democratic representation in parliaments—to the desire of the masses of poorer electors to spare themselves and to throw the burden on those who can best

[1] *Statistisches Jahrbuch*, 1930.

[2] *Recent Economic Changes*, pp. 13-22.

support it. Gladstone still maintained that there was some virtue in maintaining a balance between direct and indirect taxes, and as late as 1861 referred to them as two attractive sisters between whom, in bestowing his favours, he had to be "perfectly impartial". People's sense of discrimination has, however, developed since then. The proportion of indirect taxation in the British budget has fallen gradually from 73 per cent in 1840 to 42.5 per cent in 1913–14, and to 35 per cent in 1925–6.[1]

Income and Property Taxation ("Direct" Taxes) as a Percentage of Total Public Tax Revenue.[2]

	1913 (percentage)	1925 (percentage)
United States	10.6	64.3
India	6.7	21.2
Japan	30.4	34.3
Belgium	27.1	47.3
Denmark	29.0	42.0
France	28.1	44.1
Italy	39.7	39.2
Netherlands	32.7	47.2
Norway	17.8	40.9
Sweden	21.7	30.2
United Kingdom	47.7	58.8
Australia	9.7	27.2

Since the War, Russia has indeed reverted to the administratively easier system of indirect taxation. In a country, however, where demand has been standardized and a substantial equality of incomes obtained, the effects of indirect taxation on distribution are totally different from what they are in capitalistic countries.

Sir Herbert Samuel has estimated the proportion of their incomes that people in the different income groups have contributed in Great Britain to taxation during various years since the beginning of the century. His estimates were revised in 1927 by the Colwyn Committee,

[1] Sir Josiah Stamp, *Current Problems in Finance and Government*, pp. 206-222; Colwyn Report, p. 74.

[2] *World Economic Survey*, p. 252.

who added similar estimates of their own for the post-War period. The figures are given below:[1]

Taxpayers' annual income	Percentages of incomes paid in taxes. (Incomes, half from work and half from property)		
£	1903–04	1913–14	1925–26
50	9.5	8.8	—
100	6.8	6.6	13.0
150	5.7	5.6	12.7
200	6.0	5.3	11.3
500	6.5	7.1	8.4
1,000	7.8	8.3	14.4
2,000	7.4	8.4	19.3
5,000	7.5	9.6	29.5
10,000	7.6	11.8	40.1
20,000	7.7	13.0	48.7
50,000	8.0	13.6	57.7

The progression in the tax systems of Western countries has been the result of the increase in the rates of income taxes and of death duties. The rates of the income tax in the pre-War and post-War periods in the United States and in Great Britain are given below:—[2]

Income	Income tax rates in the United States in £. (unearned income)			
	1914	1925		
£	£	£	s.	d.
200	——	——		
400	——	——		
1,000	2	0	13	4
4,000	32	152	15	0
20,000	502	3,240	15	0
200,000	11,002	40,240	15	0

[1] Colwyn Report, pp. 94-5.

[2] H. B. Spaulding, *The Income Tax in Great Britain and the United States*, p. 41.

Income tax rates in Great Britain in £. (unearned income).

Income £	1913-14 £ s. d.	1925-26 £ s. d.
200	0 11 8	——
400	12 5 0	8 10 0
1,000	58 6 6	114 10 0
4,000	233 6 6	833 5 0
20,000	1,591 6 6	7,420 0 0
200,000	16,666 6 6	97,170 0 0

In Great Britain in 1928–9 only about 12 per cent of all legacies were over £5,000. But these contributed 95 per cent of all death duties. How high these duties have become is illustrated by the fact that an Englishman, at the age of 45, with three children under 16 and an income of £50,000 derived wholly from property, who wished to insure himself against death duties in 1925–6. had to pay a yearly premium of about £20,000.[1] The principle of least aggregate sacrifice in taxation seems to be displacing that of equal sacrifice. It follows naturally from Mr. Snowden's reflection that the State should look, not at what it takes from, but what it leaves, the taxpayer.

As the expenditure on social services is paid out of taxation raised mainly from the wealthier classes and spent mostly on the poorer classes, it must have a considerable effect on the distribution of incomes. Professor Clay estimated that the public expenditure on social services in Great Britain amounted in 1925 to 12.5 per cent of the total wages paid, or to 14.7 per cent if the contributions of employers under the Insurance Acts are included.[2] It is said that for every ruble (100 copecks) contributed by a poor peasant to the income of the Russian State in 1930, he got back 68 copecks in the form of social services. The industrial worker received for his ruble 57 copecks, the middle peasant 31, the town

[1] Colwyn Report, p. 81.

[2] *Britain's Industrial Future,* Liberal Inquiry, p. 245.

bourgeois 9, and the kulak 8 copecks. The average for the whole population was 41 copeks for the ruble.[1]

The effects of the increased expenditure on debt services after the War, however, have been to neutralize considerably the effects of progressive taxation on the distribution of incomes. Great Britain financed her War expenditure by means of loans to the extent of 72 per cent, as compared with only 50 per cent during the Napoleonic wars.[2] These loans were supplied predominantly by the wealthy classes, and the increase in post-War expenditure has been mostly a transfer expenditure to pay the interest on these loans. In 1913 the income tax and super tax yielded £47,000,000. The total debt charges for interest and sinking fund were only £25,000,000. During the post-War period the yield of these taxes has been only slightly larger than the expenditure on debt charges. Had the War been financed to a larger extent by means of taxes, the wealthy classes would have had to contribute substantially more to social services after the War.[3] The effects on the national dividend of a larger appeal to taxation would probably have been better.[4]

The growing power of the working classes during the twentieth century is reflected not merely in the scope but also in the direction and attitude of governments towards social legislation. The *laissez-faire* State acted on principle as a *pouvoir neutre*. Organized labour forced governments to adopt a more active policy: to limit the power of the employer over the means of production, to control hours of work, the methods of remuneration, and above all to organize a system of insurance to protect the worker against the risk attached to his functions in the industrial system.

The motives which inspired social legislation were, at first, not always disinterested. Bismarck's policy for

[1] Bruce Hopper, *What Russia Intends*, p. 165.

[2] G. Lachapelle, *Les Finances Britanniques*, pp. 275-6.

[3] Dalton, *Public Finance*, pp. 142-3.

[4] Cf. Pigou, *Public Finance*, Part III, Chapter i.

example was inspired, at least partially, by the hope of curing Germany of Socialism by inoculation. Such legislation developed slowly before the War, and very unequally in the different countries. The argument was used that social services could be extended only when the development took place simultaneously in all countries. For these services involved expenditure by industry, whereas the advantages through the improved efficiency of labour would accrue only after a period of time. They therefore hampered competition and were usually referred to as a "social burden". A strong international organization with official recognition, the resolutions of which would have some form of binding power on member countries and which could co-ordinate the efforts at social amelioration, was lacking.

After the War the economic and political power of organized labour had greatly increased. In all the industrial countries of Europe, Socialist parties formed either the government or an effective opposition. A great stimulus was therefore given to the realization of Socialist ideals. Even in the United States, although the legislation passed as yet is small and badly administered, a change has taken place in public opinion with regard to the justification of State and Federal policy as well as in the legislation itself, which seems to have opened a new epoch in the social policy of the country.

In a number of new constitutions drawn up after the War, certain Labour rights were embodied. They assured the workman such advantages as the right to work, or else to be supported by the State, an elaborate system of social insurance, and a share in the administration and control of industry. These privileges correspond to the political rights obtained by the *bourgeoisie* during the French Revolution. In Italy and Russia they were embodied in Labour charters. In countries where these rights were not established so theatrically, the same advantages were given effect by legislation.

Through the establishment of the International Labour Organization by the Treaty of Versailles in 1918, an

effective institution was set up for bringing about greater uniformity in social legislation.

In the preamble of the seventeenth division of the Treaty, it is stated that the object of the League of Nations is the maintenance of world peace, and that such a peace can be built on the basis of social justice only. In some countries, however, there exist conditions of labour involving "such injustice, hardship and privation to large numbers of people as to produce unrest so great that the peace and harmony of the world are imperilled." The failure of any one government, moreover, to enforce suitable working conditions hindered the adoption of remedial legislation by other countries.

By the establishment of the International Labour Organization the governments of a large number of countries have become members of a permanent organization. It is no longer necessary for them to co-operate casually for the solution of specified problems. The member States have agreed to meet regularly at conferences where the representatives of labour and of employers co-operate with government representatives to seek solution for labour problems on international lines. The governments have entered into definite contractual relationships, and have agreed to submit themselves to compulsory and punishable measures in case they do not carry out the agreements they have ratified. The casual conferences on isolated problems have made way for an attempt to realize a complete programme of social reform.

So far there have been relatively few ratifications, by governments which are members of the Organization, of the conventions adopted by the International Labour Conference. The number of countries ratifying the most important convention, that of establishing an eight-hour day in industry, have been very small, and those that have been made have practically all been conditioned, and will become operative only when similar ratifications are made by other specified nations. This is the more remarkable, as the existing legislation of a

number of member countries is in "partial conformity with the provisions of the Conventions."[1] It is also difficult to find out in how far the governments which have ratified Conventions have enforced these by passing the necessary legislation.

The importance of the work done by the Labour Organization, however, is not measured adequately by the number of countries which have ratified the various agreements. The value of legislation on an international scale besides is open to question. Each country has its own peculiar economic problems to which it must largely adapt its labour policy. It is obviously impracticable to transfer the social legislation of the leading industrial countries of the west to countries at a different stage of economic development and with a different standard of living. In the attempt to make the conventions so pliable or so generalized as to suit the specific conditions of the various countries, they may lose much of their moral force. The work of the Organization has been of great value in disseminating information concerning the conditions of employment, and especially with regard to the effects of legislation already in force. In this way it can help the individual countries to build up legislation to suit their own specific problems.

Even those countries which do not ratify the conventions tend to make their legislation conform to the resolutions of the Labour Conference. Countries which, for political reasons, refuse to adhere to the League of Nations, are nevertheless willing to belong to or to cooperate with the Labour Organization. The motive for equalizing the conditions of employment throughout the world is no longer merely to prevent unfair competition but to further the welfare of the working classes. It is being considered a moral stigma by governments, which are in the position to prevent it, to lag behind in the legislation for the protection and improvement of labour conditions. The Labour Organization has contributed

[1] *The Work of the International Labour Organisation,* National Industrial Conference Board, p. 131.

materially in bringing about these new morals in social legislation.[1]

The tendency towards the equality of treatment and the universality of the State's provision for workmen is well illustrated in the present-day development of the system of social insurance.

This is shown firstly with regard to the insured. The German system of social insurance, for example, was confined originally to workmen and to salaried employees whose income did not exceed a given amount, namely 2,000 marks. This amount was slowly increased. But originally it was intended to be a workmen's insurance scheme only. Now it includes all salaried men who contribute to pension schemes. The tendency is further to make the scope of all the different insurance schemes the same so that they would all apply equally to the whole body of workmen and salaried employees.[2] If the dependents of the insured are included, the German system of social insurance includes to-day almost two-thirds of the total population of the Reich.[3]

Similarly in Great Britain the National Insurance Act of 1911 made provision for insurance against unemployment only in a few selected trades covering two million workpeople. The Act of 1920 brought into insurance all persons between the ages of 16 and 65 employed under a contract service. Only those are excluded the nature of whose work, or the size of whose income, makes unemployment insurance unnecessary. Over 11,500,000 are now insured under this scheme, and, as provision is made for dependents, over 30 million people are directly affected by its provisions.[4]

There is secondly the tendency with regard to the

[1] Albert Thomas, article, "Internationale Arbeiterschutzgesetzgebung," *Ergänzungsband; The Work of the International Labour Organisation*. National Industrial Conference Board.

[2] Moldenhauer, article "Sozialversicherung," *Ergänzungsband*.

[3] F. Zahn, article "Wirtschaftsaufbau Deutschlands," *Ergänzungsband*, p. 1053.

[4] Marshall, *Industrial Society*, p. 647.

services rendered. The obvious tendency is one of expansion. The older German legislation represented the conception that the monetary compensation should be only a part of the worker's income, to prevent simulation, and to interest him in the restoration of his working capacity as quickly as possible. Financial considerations also supported this view. In present-day German legislation the tendency is to try to make the difference between compensation and earnings as small as possible. In sickness insurance, for example, the compensation is differentiated according to family conditions, and attains under certain conditions 75 per cent of the insured workman's wages. In the case of accidents insurance, the highest compensation for the family of the sufferer has been increased since the War from 60 to 80 per cent of his yearly wages. The greatest difference between compensation and earned income is found in the case of salaried employees.

Before the War, compensation in Germany was differentiated according to the contribution of the workmen. To-day there is the unmistakable tendency to equalize the compensation between the different classes. This means that the lower-paid workmen are receiving compensation partially at the expense of those who contribute more. Whereas before the War compensation was differentiated according to the wages and the contribution of the workman, to-day his family conditions are being taken more and more into consideration, the compensation increasing with the number of his dependents. The system of social insurance is being used as an alternative to or in conjunction with a system of wage allowances.[1]

There is, moreover, a tendency to throw the burden of the system of social insurance on the National budget. The tendency of unemployment insurance in Great Britain, for example, is to make the expenditure a part of the function of the central and not of the local governments, to put the cost on the general taxpayer, and not

[1] Moldenhauer, op. cit.

on the local rates. The obvious reason is that the larger the number of unemployed in a district the larger the rates, and the bigger the cost of production and the worse the effects on employment. Industry is frightened away, instead of being attracted to such districts. The contributions of the State in proportion to those paid by workmen and employers have increased rapidly during the post-War period. The present depression has in most cases destroyed what actuarial basis unemployment insurance schemes in the different countries may have had and "turned them rather in mechanisms for the redistribution of income."[1] The burden of unemployment says the Liberal Report, is a national responsibility.[2]

The preventive aspect of social insurance has also increased in importance. Originally the object was to ensure the workman the means of recuperation when the damage had already been done. The spending of funds on the prevention of sickness, for example, was allowed only under very limited conditions. Propaganda for the prevention - especially of tuberculosis and venereal diseases—has developed rapidly. To-day this preventive aspect is rapidly becoming the leading one in German Social Insurance, from the point of view both of emphasis and of the funds spent on it.[3]

The same tendencies are reflected in wage policy. The system of unemployment insurance counteracts the inelasticity of the labour supply, and ensures the workman a minimum standard of living. States tend to fix standard wages for different kinds of work which differ less than does the value of the work performed. Systems of family allowances have been introduced in several countries to vary the wages of the workman with the size of his family.

In determining wage conditions the State is reverting to the medieval idea that the first function of industry is to furnish the workman with a definite standard of living.

[1] *World Economic Survey*, p. 273.

[2] *Britain's Industrial Future*, p. 440.

[3] Moldenhauer, op. cit.

The rigid caste distinctions have, however, been largely eliminated. These social wages become the first lien which the price of the product on the market has to cover. Instead of the price of labour being controlled by the prices of manufactured products, the standard wage becomes a given fact to which the prices of goods have to be adapted. The standard wage is then very often modified by sliding-scale agreements to vary with the cost of living. In Great Britain it is estimated that the wages of 2,500,000 workmen are adjusted according to such schemes.[1]

This policy has its inspiration partially in Socialist ideas of the role of labour in the industrial system, partially in ideas that the modern industrial equipment is efficient enough to guarantee every worker a suitable living, and the unwillingness of workers to sacrifice themselves to a rapid economic development, the benefits of which they are not sure would accrue to themselves. For their theorists argue that the consumption of the *entrepreneur* as well as the efficiency of his organization are largely determined by the wages he has to pay.[2] Partly these ideas are motivated also by the belief that high wages create a good market.

It seems that the proportion of the national dividend accruing to the employed class has increased slightly since the pre-War period.[3] In the United Kingdom increases in the national dividend were, before the War, shared with "remarkable equality among the various economic classes."[4] After the War, even without the addition of social services, there was a distinct increase in the proportion of the national income accruing to wage-earners.[5] In the United States the share of the national dividend accruing to employees has increased relative to that of

[1] Selekman, *British Industry To-day*, p. 28.

[2] Cf. Maurice Dobb, *Wages*.

[3] *World Economic Survey*, p. 226.

[4] Bowley, *The Change in the Distribution of the National Income* 1880–1913, p. 26.

[5] *Britain's Industrial Future*, p. 16.

property.[1] Everywhere the increase in the wages of unskilled labourers seems to have been slightly more than that of skilled workmen.[2]

If the demand for manufactured articles and the supply of raw materials are both fairly inelastic, the leading industrial countries of the world can, by a concerted policy of raising wages, succeed in obtaining better barter terms for their own commodities in return for the products of non-industrialized communities. Thus the fact that manufacturing countries have, since the War, obtained their imports of raw materials and foodstuffs on more advantageous terms in return for their exports has been attributed partly to the increased taxation for social services, and especially to the increase in wages in these countries. The following table represents how many units of its exports each of certain representative States had to give for 100 units of its imports. Manufactured articles accounted for about three-quarters of the exports of the first three States in 1928. Raw materials in that year made up an equal proportion of the exports of the second three States:[3]

TERMS OF EXCHANGE IN INTERNATIONAL TRADE

Base 1913 = 100)

	1924	1926	1928
Importers of raw materials and foodstuffs			
Germany	105	95	95
Switzerland	92	94	97
United Kingdom	82	82	84
Exporters of raw materials and foodstuffs			
Argentine	136	137	—
India	117	112	105
Dutch East Indies	115	120	122

The improvement in 1928 in the barter terms of trade of

[1] *Recent Economic Changes*, p. 766.

[2] Cf. Statistical Year-Book of the League of Nations, 1930–31.

[3] *The Course and Phases of the World Economic Depression*, League of Nations, pp. 80-83.

countries exporting raw materials was due to the prevalence of control schemes towards the end of the boom. Since then, however, the above tendency has become greatly accentuated because the present slump in prices began—almost a year before the depression commenced—and has gone furthest in the case of raw materials.[1]

The effects of such a wage policy would naturally be to facilitate the industrialization of agricultural countries. Even in these countries, however, relatively high wages are maintained in industry by social legislation and by trade union policy, and the tax burden is being shifted from agriculture to manufactures.

The demand for the manufactured exports of any one country is, however, much more elastic than the demand for the manufactured exports of all countries combined. As the process of raising wage levels, relative to the efficiency of labour, has not proceeded equally far in all industrial countries, there has resulted, since the War, a discrepancy in a number of countries between the level of wages in sheltered and in non-sheltered industries. Thus for Great Britain the Balfour Committee estimated that, in industries subject to foreign competition, wages increased on the average about 60 per cent between 1913 and 1925, as compared with an average of about 100 per cent in sheltered trades.[2] In Denmark wages per hour in the second quarter of 1927 were 20 per cent higher in 11 typical home market industries than in 11 typical competition trades. In Sweden the earnings per hour for male workers were in 1928 as follows:[3]

	Dollars
Competitive industries	0.29
Sheltered home-market industries ...	0.34
All industries	0.30

[1] For the barter terms of trade after 1928, see *World Economic Survey*, p. 162.

[2] *Britain's Industrial Future*, p. 17.

[3] *The Course and Phases of the World Economic Depression* p. 86.

The fact that the exports of the United States are forming a smaller proportion of the national income has been attributed, at least partially, to the increase in wage levels, without an increase taking place in American industrial efficiency sufficient to neutralize the effect on costs.[1]

The same tendency towards equality is reflected in housing policy. In its efforts to ensure suitable living conditions for all the members of the community, the State has come to engage in building on a very extensive scale.

In the rapidly growing towns and cities of industrial countries the rent of houses before the War increased more rapidly than the incomes of the working classes. In Germany before the War the working classes paid up to one-third of their wages in rent for houses which were, in most cases, inadequate from hygienic and moral points of view. A workman in Berlin could generally afford only a one-roomed dwelling with a kitchen. For this he paid from 15 to 30 per cent of his income. Very often there was such a shortage that no houses could be obtained at all.[2]

In the western European countries the necessity for public intervention, either in supplying small houses or in removing the inadequacies of those which existed, had become recognized before the War. Except in England, and especially in London, however, the policy was confined largely to inspection. But the conviction had become widespread that an adequate solution of the housing problem could be obtained only by a comprehensive policy of State and municipal building.

This policy was carried out on a large scale during and after the War. Everywhere public authorities took the initiative in the execution of the plan. The United States has been the only great industrial country which has left the provision of houses exclusively to private enterprise. The work attained in this respect by the Netherlands Government " with regard to greatness of conception,

[1] Cf. Jewkes, *Economic Journal*, Dec. 1930.

[2] Fuchs, " Wohnungsfrage," *Handwörterbuch, Ergänzungsband.*

economic planning, and rational execution has been characterized as absolutely masterful." [1]

In most European countries since the War the housing problem has become subjected to the influence of political factors. Questions of house rent, of raising funds for public building in competition with private builders, or of subsidizing private enterprise have all become political problems. The financial aspect has to a large extent become mixed up with the charitable. The influence of politics is especially strong in Vienna, where the ambitious building programme of the city, as yet only partially completed and carried out for the benefit of the working classes only, stands or falls with the Socialist majority in the Municipal Council.

The efforts of governments to create greater equality and to humanize living conditions for all have not been confined to their own nationals. Race prejudice, even among Europeans themselves, but especially in their attitude to coloured races, was prevalent in the nineteenth century. It materialized in the exploitation of colonial peoples. These prejudices were justified by crude "Darwinian" theories. The intermarriage of white and coloured, it was maintained, invariably produces inferiority in the offspring. The superior race is the product of evolution, and it is natural that the weaker should be subordinated. Anthropological research has made the validity of these ideas extremely doubtful, but the prejudices largely remain.

The nineteenth century was characterized by the ruthless exploitation of coloured races, especially in Africa. Throughout a large part of the continent tribal lands were confiscated. European diseases, and especially venereal diseases, spread rapidly among the population.[2] At best the natives obtained in return little more than the maintenance of peace and a mere formal equality before the law.

[1] ibid.

[2] The French, however, on their first arrival found cases of syphilis as far down as Lake Chad.

Since the beginning of the century, and especially since the War, there are signs of a change in policy. The French have shown remarkable powers of intellectual sympathy and imagination in preserving native art and tradition as a background for their policy of assimilation. A Senegalese has been a member of a French Cabinet, and another has been ordained bishop of Notre-Dame.

In the policy of Great Britain towards her African and Indian dependencies a much more conciliatory attitude is evident since the War. In a White Paper of 1923 it is, for example, laid down that as Kenya is an African territory "the interests of the African Natives must be paramount, and that if, and when, those interests and the interests of the immigrant races should conflict, the former should prevail."[1] In a later report it is stated that the ideal of the British Government ought to be "to preserve all that is good in the arts and customs, the social and political organization, and the moral code" which the natives already possess, and to build up from that foundation. The reservation of adequate areas in which the native population can develop its own civilization is therefore considered to be the prime duty of the British Government.[2] European peoples have developed far from the naïve conception of the superiority of their own culture.

Soviet Russia has gone much further in spirit and in fact. The Tsaristic attempts to Russianize the dependent races has been abandoned. National diversity within the Union, in so far as it is linguistic or the expression of a desire for certain forms of administrative autonomy, is encouraged. National rivalries are considered to be the outcome largely of economic evolution, depending on differences in the industrial development of the different areas of the Republic. They can be abolished only by the deliberate policy of speeding up the industrialization of the more backward areas. Capitalist countries have

[1] (Quoted), *Report of the Commission on Closer Union of the Dependencies in Eastern and Central Africa (1929)*, p. 37.

[2] ibid., p. 46.

hitherto tried to preserve an economic hegemony over their dependencies. Colonial industries have been tolerated, but certainly not deliberately encouraged, unless they happened to supplement the industry of the " mother country ". The inequalities between the nations constituting the Soviet Republics, it is said in a resolution of the Twelfth Congress of the Communist Party in 1923, lie

> not merely in the history of these peoples, put also in the policy of Tsarism and the Russian *bourgeoisie* which tried to convert the borderlands into regions devoted exclusively to the raising of raw materials, so that they might serve as a basis for exploitation by the industrial regions. It would be impossible to liquidate this heritage, root and branch, in a year or two; but it is essential to eliminate it . . . by means of actual assistance to the backward peoples of the Soviet Union, with a view to promoting their economic and cultural development. This assistance must find its expression, first of all, in the adoption of practical measures for the development of industrial centres among the nationalities that were formerly oppressed.

This policy has materialized in the distribution of the new capital resources within the Union. The percentage of new investments falling to the more backward areas under the Five-Year Plan is continuously increasing. The policy is reflected also in ambitious schemes of electrification in the border republics and in the regional planning of new industrial areas. Thus the new cotton industry is to be located near the cotton fields of Turkestan, the Caucasian republics are to be rapidly industrialized, and new centres of heavy industry are planned for Central Siberia and other Asiatic provinces. The process of levelling up the economic development of agricultural areas not suited for industrialization is to be facilitated by the collective farm movement. These attempts constitute a striking contrast with habitual capitalist policy.[1]

The attention of governments has finally been drawn

[1] Maurice Dobb, *Soviet Russia and the World*, Ch. iv.

to the most fundamental of all problems—the conservation, the extension, or the limitation of their populations. Implicitly, rather than explicitly, the notion of an optimum population has been assumed. Several American and Scandinavian States, and Germany have also, by legalizing sterilization, begun to consider the quality of their populations.

With the rapid increase in population and the spread of Malthusian doctrines, the governments of Germanic countries have permitted and even encouraged the spread of propaganda for birth control. In spite of the alleged benefits of smaller populations, no government is likely to view with equanimity the economic and military consequences which a falling population entails. With the present fall in the birth-rate, therefore, measures to increase and to preserve the population may loom as large again as during the Middle Ages.

Already this policy has materialized in a quarter where, from a purely economic point of view, it would have been least expected. As Italy lacks raw materials, mineral resources, and capital, the Fascists maintain that her sole wealth lies in the labour of her people. It is therefore the object of the government to encourage the growth of as large a population as possible. "I affirm," Mussolini declared before the Chamber of Deputies in 1927:

> that the fundamental if not the absolutely essential datum for the political and therefore the economic and moral power of nations is their ability to increase their population. . . . If Italy is to amount to anything it must enter into the second half of this century with a population of at least 60,000,000 inhabitants.[1]

In several countries on the continent of Europe the bearing of children seems already to be regarded as a burden undertaken by parents for the benefit of the State. Family allowances are referred to as the special "indemnities" paid to workers on account of their families. Wages come to consist of two variables, one

[1] (Quoted), Warren S. Thompson, *Danger Spots in World Population*, p. 228.

for work performed directly to industry, the other for a function performed to the community, or to industry indirectly, in supplying it with future reserves of man power. In France *Caisses de Compensation* have been established which pay the workman the family allowances, and to which employers contribute in proportion to the number of workmen they employ. The burden of supporting the families is thus equally distributed.

This same attitude is reflected in post-War migration policy. Before the War migration, at least among countries settled by Europeans, was free. Emigration was considered a satisfactory method of freeing European countries from the pressure of a too rapid growth in population. In the new countries immigrants were welcomed or tolerated because they furnished a cheap supply of unskilled labour.

This changed after the War. Several countries, and especially the United States, began to control and to restrict immigration. The reported immigration into the United States varied as follows:[1]

Period	Reported Immigration
1901–07	6,219,000
1908–14	6,709,000
1923–30	2,992,000

The motive in America is to prevent competition with the native workman, and not to vary the ethnographic composition of the population too much. In France the object is rather to control the flow of immigration so as to stabilize national employment. Collective immigration, supervised and controlled by French and foreign authorities, has since 1908 largely displaced individual immigration.[2]

The attitude towards emigration, too, has changed. With the rapid decrease in the rate of growth of Western

[1] *International Migrations* (National Bureau of Economic Research), Vol. II, p. 89.

[2] ibid., pp. 221-5.

peoples it is likely to change still more. Since the beginning of this century the flow of emigration from Great Britain has changed more and more to countries within the Empire. Since the War it has become the definite policy of the government to direct migration, not according to the likes of the individual, but for Empire purposes. According to the Overseas Settlement Committee of 1923, "Empire settlement seeks to distribute the white population of the Empire in the manner most conducive to the development, stability, and strength of the Empire as a whole." The net annual emigration from Great Britain to British possessions and to foreign countries over different periods was as follows:[1]

Period	British Possessions	Foreign Countries
1894–99	17,122	36,281
1900–13	105,058	60,986
1920–24	95,748	38,325

In Italy, especially since the new policy of 1927, emigration has come to be considered as an evil which "in return for a handful of gold sent home later by the emigrant robs Italy, from the material standpoint, of all that she has spent on feeding and educating him and turning him into a producer; from the military standpoint, of a soldier; and from the population standpoint, of an element of youth and strength that will fertilize foreign land and give children to a foreign country." Permanent emigration has therefore been permitted only under very special circumstances and temporary emigration has been controlled so as to relieve Italian unemployment. Before 1927 reduced fares were granted on the railways and principal Italian shipping lines to emigrants only. Since then very large reductions have been made also for immigrants, and shipping companies have issued third-class return tickets at very low rates for Italians coming from the American continent. The government has also tried, by stimulating production at home, to

[1] *International Migrations*, Vol. I, p. 641.

obviate the necessity of its citizens seeking employment abroad.[1]

The effects of the change in the rate of growth of population in the various countries, as well as the attitude towards population and emigration, are already being reflected in foreign and especially in colonial policy.

II. INDUSTRIAL POLICY

The same break with *laissez-faire* doctrines, which characterizes social legislation, is found also in industrial policy. *Laissez-faire* assumes a fatalistic attitude towards economic phenomena. Economic control is deprecated, because the facts which constitute the business world are held to be too complicated to be controlled effectively by corporate action from above. Direct State enterprise is inadvisable, because action is much more effective where judgment and responsibility are decentralized than where the work is performed by a State department. It would be much better to leave the work of the business world to the practical men of business. The pursuit of wealth as a means of self-expression, or more prosaically as a means of acquiring property to transfer to one's family, is the greatest creative force in industrial enterprise. Competition assures that the benefits of economic progress are passed on to the consumer. It is a better method of eliminating the inefficient and of stimulating initiative, individuality, and self-reliance, than can be offered by any other economic system. Through the agency of competition price facts are reduced to a "natural" process by the invisible hand of private enterprise. The bracing effects of the struggle for existence are in this way transferred almost unimpaired to the economic world.

[1] Dr. A. Oblath, *International Labour Review*, June 1931.

It is true that self-interest will tend to induce business men, if they are wise and enterprising, to invest their resources where they can obtain the biggest profits. This will tend in practice to the general levelling of the returns from marginal resources invested in all industries. The income of a country cannot, however, be at a maximum unless the marginal net products of resources invested in all industries are equal. Therefore it is maintained that the " free play of self-interest " will automatically cause the resources of society to be so distributed as to yield a maximum income to society. At least it will yield a larger output than any that will come about " artificially " through State interference.

It does not follow, however, that because the income of society cannot be maximized unless the marginal net products of resources invested in all industries are equal that, therefore, the national dividend is actually at a maximum when these products are in fact equal. For business men may not be exceptionally gifted with regard to either intellect or enterprise. Their ignorance and inertia may, in fact, prevent methods of reorganization, and especially the investment of resources in new industries, which would have jerked the economic system from one relative maximum to another greater relative maximum. The State can facilitate economic development by the granting of bounties, through the protection of new industries, the dissemination of knowledge, or by the direct provision of economic services. The theoretical possibilities of " legitimate " State action are almost unlimited.

But even if the above argument in favour of unrestricted private enterprise were correct it would not imply that State interference is unnecessary. The marginal net products which self interest tends to make equal are those which accrue to the individuals responsible for investing the resources. Every investment, however, tends to have effects other than those that can be appropriated by the individuals responsible for it. Railways, for example, in addition to rendering

transport services for which they are paid, depreciate the value of urban property and increase the value of the rural possessions along their route. These costs or values, however, do not appear in their budgets. In the economic activities men are held to seek their own interests rather than those of society. Business men, in addition to being neither exceptionally intelligent nor enterprising, may not be socially enlightened either. When, therefore, self-interest tends to make the value of marginal "private" net products of resources in all industries equal, it does not follow that it makes the marginal "social" net products equal. These other effects may be either beneficial or harmful. A large sphere for State action therefore exists, either to limit or to encourage the investment of resources.[1] None but certain theoretical economists and prejudiced politicians have been blind to the action which the State has always taken in this sphere.

The value of *laissez-faire* as a practical maxim of government is of course determined by the nature of the facts to be controlled and by the efficiency of the controlling agency. When industry was organized on a small scale, an almost automatic adaptation to price facts took place through the process of trial and error and the selective action of bankruptcy. Deliberate control of the economic system was almost entirely lacking. Concentration in industry has considerably modified this self-regulating process. The decisions of leading business executives have become of much greater relative importance. The larger scale on which industry is operated, its greater susceptibility to the influences of currency and the growth of corporate action among both employers and employed have brought about to a much larger extent efforts at conscious control from within industry itself. This has necessitated more active government intervention. The development of an efficient civil service and the growth of semi-public bodies which put their informa-

[1] Cf. Pigou, *The Economics of Welfare*, Part II, Ch. iii.

tion and experience freely at the disposal of the government have enabled it to control industry more effectively.

The methods of control vary from mere publicity to prohibition, from the control of credit by central banks to the direct planning of industrial activity.

The scope of control varies in the different countries. In English-speaking communities there is a profound faith in the curative power of publicity. If, for example, anti-trust laws fail to maintain competitive conditions, it is merely necessary to "apply the corrective force of public opinion to the practices of corporations."[1] If the labourers in an industry are dissatisfied then the returns on the capital invested in the industry should be published, so that they can be reassured that they get their "fair share" of the product. The publicity of the accounts of joint-stock companies is needed to assure the shareholders that they are not being despoiled of their property. Finally, there is needed for each industry

> generalized knowledge about the industry as a whole, and about various sections of it—its output, the prices obtained in home and foreign markets, the cost of raw materials, the amount of capital involved, and the average rate of interest paid on it, the number of employees, and the total cost of wages in the industry.

"These and other facts" are needed in order to enable everybody to live happily in a "society where action is individual and knowledge and opportunity are general—in an atmosphere of publicity, mutual trust, and economic justice."[2]

Other countries, more modest or more cynical, have preferred direct methods of State regulation. But even in America, where the belief in private enterprise and in free competition is most ingrained in the popular imagination, public intervention has been resorted to in the case ol industries "affected with a public interest". These industries are considered to have certain peculiarities which limit the effectiveness of free competition in

[1] Keezer and May, *The Public Control of Business*, p. 85.

[2] *Britain's Industrial Future*, pp. 63, 218-9.

protecting the interests of all concerned. The criterion of what constitutes a "public interest" is of course purely empirical, depending on the prejudices of the legislature or the judiciary. Thus the list of industries which have been declared to be so affected includes not only industrial monopolies or public utilities but also hotels, ice companies, cotton gins and laundries.[1]

Even the staunchest Anglo-Saxon believers in the efficiency of private enterprise desire the control of public utilities. These are industries such as railways, the supply of power, light and water, on which a substantial measure of monopoly is conferred, and which are, from the nature of the services rendered, in a specially favourable position to exploit the public. These are therefore controlled by commissions which require them to provide adequate facilities without discrimination at reasonable rates. The value of these public utilities in the United States was estimated in 1926 at 46 billion dollars, or about 13 per cent of the country's total wealth. The steam railroads alone had an aggregate capitalization of about 20 billion dollars.[2] In Great Britain the "public concerns" which are not run directly for profit, or the profits of which are controlled by the Government, amounted in 1926 to over £4,000,000,000.[3]

Between the attitude of these countries and a Communist State like Russia, where the State controls the whole economic life of the people, there are many intermediate stages. These differ from the relatively lethargic attitude of France to the paternalism of Germany. Here subventions, import licences, prohibitions of investment, and the control of credit and prices have reduced capitalism to a caricature. In Italy, Fascism has not abolished private property, but the privileges and duties attached to its possession have changed fundamentally. The conception of property, as reflected, for example, in the right of

[1] Cf. Keezer and May, op. cit., pp. 6-7.

[2] M. C. Wallersdorf, *Economic Journal* (1926), p. 586.

[3] *Britain's Industrial Future*, Bk. 2, Ch. vi.

the goverment to take over the administration of badly cultivated farms, is no longer that of a "natural right" but rather that of a trust held for the public benefit. At every stage in the process of industry the Government interferes, regulates, and controls. Both in its attitude and in its practices Fascism bears a remarkable analogy to the corporate activities of the medieval town or the despotism of the mercantilist era. It has little affinity with the indifference of pre-War liberalism.

In all countries, however, the tendency seems to be towards the same ultimate type, however diversified the pattern and colouring may be. There are certain spheres in which the practices of all governments are already agreed.

There is firstly the practice of directing the course of trade. Everywhere it has become almost an unwritten law that public contracts are the preserve of the home industry. The idea has become prevalent that every purchase from a foreign country is a favour bestowed, and that for every purchase there should be a corresponding sale.

The most modest effort to control the course of trade is that attempted by the British Empire Marketing Board. It involves the annual spending of £1,000,000 on propaganda, with the object of persuading the British consumer "to convert his hitherto haphazard spending into the discharge of a responsible act performed with a view to the consequences involved." This "voluntary preference" has since been converted into a forced one by a comprehensive system of protection with Empire preference. This complete reversal of the commercial policy of Great Britain is the more significant because, since the introduction of Sir Robert Peel's budget in 1842, she consistently maintained and propagated a free trade policy.

The new methods of economic nationalism have brought the world back to Mercantilist times. The War left many legacies of restriction of commercial intercourse. "Requisitions, controls, priority systems, prohibitions

of import or export, price fixation, Government monopolies and enterprise all reinforced the effect of tariff barriers." Besides the survival of many of these War-time practices nationalist zeal manifested itself after the War in the imposition of additional restrictions on trade. Everywhere the new industries which had sprung up during the War, as well as old "key" industries, have been protected. The new European States have erected tariff barriers to protect and foster industrial development. Especially the continuous increase of restrictions on the import of agricultural produce, to protect farmers against the fall in the value of their products, have wrecked all efforts at greater international co-operation.

The League of Nations has tried to foster international trade by encouraging unilateral tariff action, bilateral treaties and multilateral conventions. Bilateral agreements, especially, are regarded as one of the most promising methods of securing a reduction in tariffs, paticularly when they include causes for "most-favoured-nation treatment," because reductions in duties accrue not only to the contracting parties, but to all the countries which had bargained for the most-favoured-nation treatment.

These attempts have been largely wrecked, for the present, by the financial difficulties which have come with the depression. Especially the necessity of instituting drastic control of foreign exchange to safeguard currencies have led to severe restrictions on imports. Considerations of the balance of trade have obtained an importance which they had lost since Mercantilist times. In their most extreme form these controls have led to the formation of "clearing agreements" designed to equalize imports and exports between pairs of countries. International trade, however, is seldom bilateral and these expedients have merely helped to break down the complicated means of the exchange of goods that had been built up through years of international co-operation.[1]

Owing chiefly to restrictions of the supply of foreign

[1] *World Economic Survey*, Ch. X.

exchange barter contracts have become a common occurrence. Chambers of commerce and public companies have tried to obviate the difficulty of obtaining the means of payment abroad by entering into contracts to exchange directly their own products for those of foreign countries. Agreements have, for example, been formed to exchange British coal for Finnish and Swedish pit-props, for Greek currants and tobacco. Brazilian coffee has been exchanged for Italian seaplanes, American wheat and German coal; Canadian aluminium for Russian oil; Chilean nitrate for American wheat; and German machinery for Egyptian cotton. A modified form of barter exchange is that between Persia and Sweden, where the government in the one country and a specially instituted company in the other opens credits in their respective currencies for equal amounts to enable the exchange of their respective products. The London Chamber of Commerce have even suggested the establishment of clearing houses in the different countries to facilitate the exchange of goods and the adoption of an international barter unit to be known as "Bartex." These expedients reflect the extent to which the international gold standard has broken down during the present depression. It is doubtful whether these contracts produce an increase in world trade or merely direct it into different channels. For the difficulty of the profitable distribution by public companies of the bartered commodities, acts as an additional incentive to the restriction of competition. Thus the direct sequel of the agreement between Brazil and the United States Farm Board was the placing of an embargo by the Brazilian government on the further importation of wheat, with detrimental effects on the Argentine. The next step was to impose an embargo for eighteen months on the import of foreign flour, to the fury of the millers in the United States.

Owing to these restrictions on trade as well as to the success, in many cases, of organized groups of producers in maintaining domestic prices, there has resulted a remarkable disparity, during the present depression, in

the level of prices of domestic goods and of the exports which have to be sold on the world market. The extent to which home markets have been segregated is reflected in the following table:[1]

Percentage Decline in Prices of Domestic and Imported Goods (January, 1929, to January, 1932).

	Domestic goods	Imported goods
Germany	21	49
France	25	54
Czechoslovakia	22	35
Sweden	22	37

As imports and exports have everwhere been sacrificed to maintain domestic prices the result has been an unprecedented fall in world trade. To-day everyone is agreed that a concentrated policy of tariff reduction and currency inflation is the necessary preliminary to economic revival, but each country prefers to see the prescription adopted by its neighbours. If, on the other hand, the present progress of restricting world trade is maintained, says a League publication, "there will very soon be no uncontrolled and unregulated trade at all and little that is controlled and regulated."[2]

Closely associated with the desire to control the direction of trade is the desire to control the course of investment. According to the liberal belief in the harmony of international interests, it was accepted as "natural" that the owner of capital should invest his capital as he pleased, whether at home or abroad, in search of maximum profits.

Funds can, however, be invested abroad in enterprises which are competitive as easily as in those which are complementary. The War has shown how easily foreign investments, especially those loaned to governments, can be destroyed. The awakening social conscience has

[1] *World Economic Survey*, p. 135.

[2] ibid., p. 156.

shown how profitably they can be spent at home. "It is a fallacy", says the Liberal Report, "to assume that the national wealth is more truly increased if the fruits of British Savings embodied in British labour are used to embellish the city of Rio de Janeiro than if they are employed to demolish the slums of South London, or to build motor-roads through the Midlands."[1] Savings should be invested first in the industries which increase British efficiency, and only after all reasonable domestic requirements have been provided, should the surplus be made available to public bodies abroad.[2]

Much more unabashed has been the control of foreign loans in France. These loans have, in fact, been granted only in return for political and commercial advantages to the home country.

To-day Liberals agree with Socialists in the need for "direutional saving". Not merely the distribution of investments between foreign countries and the home market should be controlled, but control should also be exercised over the scale on which it is desirable that the community should save as well as over the distribution of the savings so as to make them socially most productive. With this end in view the Liberals in Great Britain have advocated the establishment of a Board of National Investment which would co-ordinate the investments of all the public departments and, in conjunction with the Bank of England, control the issue of loans to foreign governments on the British money market.[3] Investment should no longer be left to the discretion of the private individual but should be considered a national responibility.

There are certain industries especially in which the marginal social net products of investments are considered to diverge considerably from the marginal private net products. This is particularly the case with agriculture. It is held to be an industry for which the social benefits

[1] *Britain's Industrial Future*, p. 45.

[2] ibid., p. 110.

[3] ibid., pp. 111–5.

derived from it are not adequately measured by the returns to those engaged in it, for, in addition to the direct money profits, it contributes to a specially large extent to the health, social stability and utility of the community.

In the nineteenth century agriculture was given up with the easy fatalism which characterized the *laissez-faire* policy of the century. "If you had to constitute new societies, you might on moral and social grounds prefer cornfields to cotton factories, an agricultural to a manufacturing population," said Peel, "but our lot is cast and we cannot recede."[1] Agriculture, says the modern English Liberal, is "an industry which should peculiarly be an object of national concern and attention, the last industry which ought to be left to its fate with the lazy phrase, 'If it is not paying better let it go'."[2]

In Italy especially the Fascist regime has drawn its strength largely from rural society and has always shown a special predilection for agriculture. By its price, credit or electrical policies the government tries to stimulate agricultural production and to render rural life both more profitable and more agreeable. It has tried to increase the number of small landholders and to restrict the movement of the rural population to the industrial centres. "There is a type of urbanism," says Mussolini, "which is destructive, which renders our people sterile. It is industrial urbanism. . . . This explains to you why I do everything to help agriculture, why I proclaim myself a convinced ruralist. This explains to you why I no not want industries around Rome."[3]

It is, however, also being realized that with an inelastic demand for agricultural products it is a waste of money to put people on the land at the expense of the government, when the inevitable result is to drive others from it. If, through the development of agricultural technique,

[1] Harbron, *Amphion*, p. 90.

[2] *Britain's Industrial Future*, p. 319.

[3] Speech before the Chamber of Deputies, May 26th, 1927. (Quoted) Thompson, *Danger Spots in World Population*, p. 228.

the supply of agricultural produce increases more rapidly than the growth of population, then the proportion of a population engaged in agriculture decreases, however regrettable that may be considered to be from a social point of view. The Chamber of Commerce of the United States has already recommended that the bringing into cultivation of additional areas for agricultural production should not be carried out at public expense unless it can be demonstrated that this would be to the economic advantage of the nation.[1] For the only uay in which the proportion of the population engaged in agriculture can be increased in the Western world would be to revert to a system of self-sufficing peasant economies. This seems, however, to be incompatible with the mentality of Western peoples. It is, besides, being recognized that a small agricultural population does not necessarily mean a small population living under rural conditions.

The difference between marginal social net products and marginal private net products is especially great in the case of investments which yield their returns only at a future date. In the distribution of resources over a period of time the individual gives an irrational preference to present returns.

The rapid development since the beginning of the nineteenth century has been made possible by the exploitation of the world's accumulated natural resources. The world has been living on its capital, and its patrimony has often been ruthlessly wasted. The dissipation of natural resources has been especially great in the United States. The abundance of land led to reckless methods of tillage and grazing which resulted in the impoverishment and erosion of the soil. Forests were often considered a nuisance to be destroyed. The exploitation of the mineral and coal resources was equally wasteful. The waste in the mining of bituminous coal in America is said to average 35 per cent, of which 20 per cent is

[1] *Recent Economic Changes*, p. 555.

avoidable.[1] The waste in oil is even greater and is more serious. Great losses have resulted from competitive drilling and the consequent premature waste of gas, as well as from the encroachment of salt water, the loss from evaporation owing to the lack of adequate storing facilities, and the waste of using oil as a substitute for coal instead of as petrol, on account of the ridiculously low prices which result from "flush production" and overproduction.

The policy of conservation is directed towards the conscious determination of the rate of discount in the utilization of natural resources, in opposition to the discount which results from the mere adaptation of *entrepreneurs* to immediate price facts.

The conservation movement began in America towards the end of the nineteenth century with the realization that the country's natural resources are not inexhaustible. It began with the conservation of fish and forests. The movement found its chief support from lovers of nature and from military circles who were concerned about the future supplies of coal, oil and helium gas for the army and navy. Steps were also taken to protect the public domain against future looting by private interests. The resources obtained by the State in this way were, however, largely marginal, representing what private interests had ignored.

Several States in America have, since the War, passed legislation to control the production of oil. The Federal Oil Conservation Board was created in 1924 with the object of formulating the problems involved in the conservation of oil and co-ordinating the efforts of private interests in the industry and of the public authorities. The American Petroleum Institute recommended at the beginning of 1929 that the production of crude oil in the States in 1928 should be considered as the peak of requirements for the following years. The output of petrol could easily be increased by extracting more of it

[1] F. G. Tryon, "Conservation," *Encyclopædia of the Social Sciences.*

from crude oil up to the maximum of 60 per cent practicable with the processes then in use.[1]

The danger to the near future of a shortage in raw materials can easily be exaggerated. It depends essentially on the trend of demand in the future and especially on the course of civilization in the East. If the population of China and India become Americanized and each individual consumes only one-tenth the average American consumption of metals their demand could only be provided at a tremendous increase in prices. On the other hand the coal resources of the United States, with the scale of use as it is at present, will last for another thousand years or more, those of Great Britain for another five to seven centuries. The supply of oil is much more limited. But with reasonable economies in use and with scientific methods of production, either from crude oil or from coal, the world's oil reserves will be sufficient to last for a very long time to come.[2]

So far, in fact, the efforts of conservationists in preserving raw materials have been negligible as compared with the work achieved by chemists and engineers by means of the improvement of technical processes. Through the technique of cementing wells against the infiltration of salt water and the increased depth to which wells can be sunk, large additional supplies of oil are being obtained. The processes of cracking and hydrogenation convert a much larger percentage of the heavy oils into the lighter and more valuable products. By the liquefaction of coal, oil can already be obtained at prices virtually at a par with those ruling in the market to-day. Almost 100 per cent of the high-grade products is now obtained from the treatment of shale oil.[3] By means of the greater efficiency of boilers, by economies in the distribution of power, or by the increased use of scrap, remarkable econo-

[1] *Oil Conservation and Fuel Oil Supply;* National Industrial Conference Board, pp. 127–8.

[2] Thom, *Petroleum and Oil,* p. 215; Samuel Coal Commission, 1925.

[3] *Oil Conservatism and Fuel Oil Supply,* p. 129.

mies have been effected in the use of the other important raw materials.

One of the most characteristic psychological developments of the post-War period is the changed attitude towards industrial combination. Before the War trusts were spiritual outcasts, especially in English speaking countries. Their apologists resorted to arguments which were half acceptances of the charges against them.[1] In America the Untermeyer Commission in 1911 formally dissolved a number of great trusts including the Standard Oil Company and the American Tobacco Company.

This legislation remained almost entirely ineffective. "Over a period of forty years the administration of the Federal Anti-trust Acts has resulted in an insignificant number of penal sentences, the collection of only a few million dollars in fines and the confiscation of a few cartons of cigarettes illegally shipped in inter-State commerce".[2] Already in 1914 legislation was passed in America to modify the Sherman Act. Rather than directly prohibit trusts, the Federal Trade Commission was set up to control them and to prohibit unfair methods of competition. The Webb-Pomerene Act of 1918 legalized combination for export purposes. To-day trusts are tolerated and even admired so long as they do not develop into complete monopolies. In Great Britain the Balfour Committee considered that monopolies are not dangerous "if combined with British character," and thought that no special Tribunal is required to supervise the monopolist tendencies of rationalized industry.[3] Even the Liberal Party to-day maintains that "under modern conditions some degree of monopoly is, in an increasing number of industries, inevitable, and even quite often desirable in the interests of efficiency".[4]

[1] Cole, *The Next Ten Years of British Social and Economic Policy*, p. 91.

[2] W. H. Hamilton, "Competition", *Encyclopædia of the Social Sciences*, p. 147.

[3] *Economic Journal* (June, 1929), pp. 295–7.

[4] *Britain's Industrial Future*, p. 459.

The modern faith in rationalization makes it appear almost as natural that industry should be controlled and the market divided fairly between producers, as it was to the Liberal that combinations are conspiracies against the public. The public has come to regard trusts tolerantly either because they admire things big, or because the ownership of large-scale industries is to-day much more diffused than it used to be, or because the financial methods of combinations have become more respectable. Everywhere they are seen to be the pioneers in the development of industrial research and in the adoption of the latest improvements in industrial technique. All political parties support the combination movement. The Conservatives hope that these powerful organizations will be a stronger bulwark against Socialist encroachment than unorganized individual enterprise. Socialists, on the other hand, believe that combinations produce the necessary preliminary conditions for the complete nationalization of industry. In the words of a German socialist "the great industrialist, as the servant of capitalistic tendencies, is even against his will a powerful revolutionary who prepares the way for socialism as few others are able to do".[1]

The changed attitude towards amalgamations is due also to the belief that they help to produce a greater measure of economic stability. Economic policy since the War has been directed to a growing extent to eliminating undue fluctuations in industry. It has been recognized that this is largely a monetary question, and the attitude has been reflected especially in the policy of central banks.

Disgust has often been expressed with a monetary system which links the currency of the world with vicissitudes in the value of a metal. Under the automatic functioning of the gold standard central banks are preoccupied merely with maintaining their gold reserves. The creation of credit is thus independent of the flow of services offered for money incomes, and of the propor-

[1] (Quoted), Dawson, *Industrial Germany*, p. 147.

tion saved and thus materializing in fresh services. The result is oscillations in price which mean either a forced levy and additional savings imposed on the public, or a falling price level which dissipates the savings of some by the increased consumption of others.

The relation between the credit superstructure and the gold basis has been modified in the twentieth century by the development of central banking. National banking systems have been better co-ordinated. This co-ordination has, however, made the functioning of the international gold standard more inflexible. Between the principles of central banking and the principles of the gold standard there seems, in fact, to be a fundamental conflict.[1]

Before the War the functioning of the gold standard was to a certain extent automatic, especially in Great Britain, and owing to the dominant position of London in international finance the world was, in a sense, on the sterling standard. Banking systems were, to a large extent, loaned up to the practical limits set by their reserves. Gold movements were therefore accompanied by changes in the bank rate, which were followed by the transfer of funds, and more slowly by changes in price and in income levels. International debts had been incurred over a long period, and trade channels and capital movements were organized to adapt themselves to existing conditions. The export of capital represented the surplus of developed European communities loaned to open up the large undeveloped resources of new countries. The loans were predominantly in the form of long-term investments for productive and constructive purposes. The development of the resources of the new countries supplied the means of liquidating the debts. Capital movements and the flow of goods were therefore complementary. The relative flexibility of wage rates and the comparative absence of restrictions on trade facilitated the transfer of commodities. Gold movements,

[1] J. H. Williams, in *Gold and Monetary Stabilization*, Harris Foundation Lectures, 1932.

as a result, remained small and were followed by their own correctives.

Since the War the gold standard has to a much greater extent become a managed currency. The efforts to maintain stability have brought about a greater rigidity in the economic system. The development of central banking has created a surplus of reserves above ordinary requirements. Open market operations on the part of the central bank, and rediscounts on the part of the commercial banks, may completely neutralize the effects of gold movements. This breaks down the necessary connexion between gold movements, bank credit, and prices. The growth of the fixed debt charges, both of governments and of industry, make adaptation to a falling price level more difficult. Price agreements, control schemes, and the opposition of labour organizations to wage reductions, reinforced by social services and central banking policy, make prices less flexible and impede adjustments in the balance of payments through movement of goods. Whereas, however, there has been the desire to dissociate internal credit policy from the preoccupation with reserves, the creation of new capital indebtedness on a vast scale, as a result of War debts, has required a much greater flexibility to the transfer of funds. The difficulty of making these transfers has been greatly increased. For they represent the export of capital from countries where it is urgently needed to countries where it is relatively abundant. Tariff policies have further restricted the movement of goods. Creditor countries refuse to accept other means of payment for their debts than gold, the effect of the import of which on their price levels is neutralized by central banking policy. The inflow of gold has therefore lost its automatic power of restricting further imports. The burden of adjustment has thus been thrown on the debtor countries equipped with smaller free reserves. In these countries, however, adjustment to the outflow of gold has been hindered by the desire to maintain price and income levels. The gold standard has, therefore, been left a highly mobile factor in an economic system which has

otherwise become extremely rigid. Such conditions are not favourable for bringing about a distribution of gold reserves which will enable debtor countries to maintain their currencies on the gold standard.

Up to 1929 the effects of these conditions were neutralized by the export of capital, partly in the form of long-term loans from the United States to Germany, and in the form of short-term credits from France to England. Between 1924 and 1929 Germany borrowed more than twice as much abroad as she paid away in reparations.[1] As a result of these credits, and owing to the unstable financial and political conditions as well as to the deliberate encouragement of the gold exchange standard, there accumulated an enormous short-loan fund on the international money market. The Bank for International Settlements estimated that the total of these short-term holdings amounted at the beginning of 1931 to 10,000 million dollars.

To prevent the competition for gold and to bring about greater economic stability, the Genoa Conference had, in 1922, advocated the policy of co-operation among central banks and the general adoption of the gold exchange standard. Before the War this standard was looked upon as a temporary makeshift for poor countries. It was regarded as feasible because it was unusual and because, outside the gold exchange countries, there was a great gold standard world on which these countries could depend. The Genoa Conference, on the other hand, recommended that gold should be concentrated in a small number of centres. The remaining central banks should limit themselves to foreign exchange reserves held on deposit account in these gold centres. In this way an anarchic demand for gold would be avoided and its value would be protected against a continuous upward tendency. The Conference also advised that credit should be regulated not only with a view to maintaining currencies at par with one another, but also with a view to preventing undue

[1] *World Economic Survey*, p. 39; " The War Debts," Supplement to *The Economist* (November 12, 1932).

fluctuations in the purchasing power of gold. For this purpose the discount policy of the chief central banks should be co-ordinated.

The abnormal amount of short-term credits on the international money market has, however, during the post-War period been a cause of great monetary instability. By neutralizing the effects of changes in the discount rate on the price structure, these credits have contributed to making the gold standard still more inflexible. For when the central bank puts up its discount rate to restrict credit, balances flow in from abroad; and when it lowers its discount rate to increase credit, these balances go out again. This large short-loan fund has, during the last few years, facilitated unprecedented fluctuations in gold movements. By inducing a large number of countries, and especially an important gold centre like London, to abandon the gold standard, these credits have been an important source of economic instability during the post-War period. To-day the gold standard is effectively maintained in less than half-a-dozen countries.

The attempts to maintain economic stability by the manipulation of credit have therefore not been very successful. Cheap credits faciliated control schemes which prevented adaptation to structural changes in demand, and created a very unbalanced price-structure. During the period of prosperity it has been easier for central institutions to control the amount of credit than the purposes for which it shall be used. It is, besides, comparatively easy for a central bank to prevent the quantity of loans from rising above a certain limit, but it may be impossible, during the period of depression, to prevent the volume of outstanding loans from falling beneath a certain limit. For there are two parties to each loan transaction, one who lends and one who borrows, and conditions often arise when, owing to lack of confidence, the lowering of the bank rate causes no effective revival of lending. The adoption of a policy of stabilization on such an extensive scale, however, represents a new conception of public duties on the part of central banks.

It is a belief widely held that as the initial speculative stages in the industrialization of countries are passed the amplitude of business cycles is continuously reduced, and that these fluctuations in business activity will, with the lapse of time, completely disappear. Many thought that, with the co-ordination of the policy of central banks during the recent period of prosperity, this phase had already been reached. The experience of the two post-War depressions, and especially of the present one, however, does not substantiate this view. The evidence of the best indices of the amplitude of business cycles shows that the present crisis is more severe than any of the pre-War depressions.[1] Fluctuations in the production of pig-iron are considered to reflect particularly well the intensity of depressions. The output of pig-iron in six important producing countries dropped:

by	8	per cent	from	1873	to 1874
,,	10	,,	,,	1883	to 1885
,,	23	,,	,,	1907	to 1908
,,	43	,,	,,	1920	to 1921
,,	64	,,	,,	1929	to March, 1932

The relative decrease in the value of world trade between 1929 and the spring of 1932 has been unprecedented , as is seen from the following table:

Decrease	from	1873	to 1874	5	per cent
,,	,,	1883	to 1884	4	,, ,,
,,	,,	1907	to 1908	7	,, ,,
,,	,,	1929	to 1932	60	,, ,,

The percentage fall in wholesale prices in the more important countries has been as follows:

[1] For statistics which follow see, *The Course and Phases of the World Economic Depression*, Ch. vii; *World Economic Survey*, p. 92.

	United Kingdom	France	Germany	U.S.A.
1873 to 1875	14	10	13	7
1891 to 1893	5	4	18	7
1907 to 1908	8	7	6	4
1929 (first half) to 1931 (first half)	28	24	17	24

Since the abandonment of the gold standard by Great Britain in the second half of 1931 there has been a further collapse in gold prices. The effects of the present depression are not only more intense than of any previous one but are felt more in every sphere of economic activity and in every country of the world.

It seems, besides, that the force required to jerk the economic system out of the present depression is to a certain extent lacking. In the past, periods of prosperity have, on the whole, lasted slightly longer than periods of depression. But during periods of a secular fall in prices the depressions have been prolonged. That there are as yet no signs of recovery is therefore to be expected. Even the unprecedented severity of the present depression may be ascribed partially to abnormal financial and political conditions. But in the past periods of prosperity have always been associated with the adoption of some outstanding industrial invention. At present housing, road and electric schemes are the only developments that offer great scope for expansion. It seems however that, owing to the structural changes in demand, a revival will be brought about essentially by an extension of services. But there is this difference. Economic revival in the past was brought about by the decisions of *entrepreneurs* furnishing goods for obtaining which the public was willing to expend greater effort. The services which can be expected to cause a revival at present are, on the other hand, supplied predominantly by relatively lethargic public bodies. The consumption of these services has often no direct association with the expenditure for their

provision, and may therefore lead to no extra exertion on the part of the public. The present situation requires not only the exercise of more initiative on the part of governments, but also, it seems, the deliberate planning of the course of economic development.

The effort to maintain price stability is merely one manifestation of the more general tendency to bring more management into industry. The example of the War had shown what could be done by systematic planning even under unfavourable conditions. If a country's resources can be mobilized for war they can be mobilized for peace. Millions of people had learned to obey. They had come to believe that coercion and obedience may be better sources of action than self-interest and individual initiative. The existence of a large amount of permanent unemployment along with the pressing need for services shows the waste of unco-ordinated effort. Even Liberals have tired of the passive attitude of waiting for something to turn up: for conditions to rehabilitate themselves. The formulation of policies of reconstruction and of national development has become the fashion since the War.

The co-ordination of economic activities through the mechanism of prices in the open market is being more and more controlled in capitalist societies by industry itself and especially by government action. These, however, are mere palliatives in comparison with the co-ordination of services that can theoretically be obtained by the socialization of all a country's resources. Only in Russia has the endeavour to control economic forces been carried to its logical conclusion by the attempt to regulate the whole economic system of the country according to a definite plan.

The chief instrument in the attempt to establish a purposive economy in the Soviet Republics is the State Planning Commission, the Gosplan. This body came into existence in 1921 as an advisory body to the Council of Labour and Defence. Serious attempts have been made since 1924 to organize the economic life of the

country according to the plans that it formulates. During the first few years, however, attempts to regulate the economic system from above were continuously frustrated by the spontaneous and unforeseen reactions of individuals to price facts. " Errors of calculation " and " disproportions " were prevalent.

These " infantile disorders " were probably inevitable during the period of transition which followed the introduction in 1921 of the New Economic Policy. The N.E.P. afforded the breathing space necessary to consolidate the national economy and to build up an administrative system. It afforded to State enterprises the opportunity and the inducement " to learn to do trade." [1] It was a policy of retreating to gather strength for future advance: *reculer pour mieux sauter.*

The State Planning Commission in the meantime did the necessary preliminary work of mapping the country into economic regions, with a view to localizing industries in the most suitable areas and to developing the means of transport and of electrification so as to co-ordinate the supply of resources. More important was the compilation of " control figures ". These were a combination of statistical information and forecasts of the yield of every branch of the national economy, together with directions as to the objectives to be followed in industrial development. Their more immediate practical importance consisted in indicating the amount of subvention and the loans that had to be granted to State industry.[2] These figures differed from the forecasts made by numerous institutions in capitalist countries only in one important respect: they were usually less reliable.[3] Between 1925 and 1928, however, great improvements were made in the gathering of statistics and in the technique of planning. The Gosplan ceased to be merely a body for co-ordinating flans that were developed by other bodies,

[1] Lenin, quoted in the *Annals of Collective Economy* (1931), p. 273.

[2] Haensel, *The Economic Policy of Soviet Russia*, p. 116.

[3] ibid., p. 117.

and became more and more the body for initiating economic policy in accordance with government directives. With the formulation, in 1928, of the Five-Year Plan the machinery of the Russian purposive economy began to take definite shape.

The general course of policy with regard to the industrialization of the country is laid down by the Communist Party. The State Planning Commission, from the economic and statistical data at its disposal, formulates the general objectives of policy in accordance with the directives of the Party. The preliminary draft plan is then passed on to the subsidiary planning organizations, where it obtains definite concrete form. These elaborated programmes are finally submitted to the Central Planning Board of the Gosplan for final synthesis. When the Plan is adopted by the Council of Labour and Defence it becomes an executive order.

In addition to the various departments of the Gosplan which plan the output of agriculture, industry, the supply of transport services or the distribution of consumers' goods, there are various subordinate planning organs for the constituent areas of the Union. Each of the Commissariats concerned with economic affairs, besides, has its own planning department which collaborates with the Gosplan. This department co-ordinates the planning of the constituent corporations, the work of which in turn is based on that of the planning organs in each individual factory. The same applies to the co-operatives. The work of co-ordination is supplemented by planning brigades in the individual works. The number of those taking part in the work of drawing up the Five-Year Plan has grown continuously, until it includes in many cases the whole body of workers in the individual factories who take part in discussing the directives of the superior planning organizations and make suggestions for their alteration. The success of the Plan depends largely on their support.

The Plan determines the distribution of the country's resources for the production of the different kinds of

services. It lays down the rate of development of the various branches of the national economy as well as the tempo of the whole economic system. It, at the same time, controls the process of distribution and of consumption. The Financial Plan especially regulates the whole system of government finance. It therefore includes in its scope not merely the national and local tax systems, but the control of social insurance funds or the credit granted by the State bank to industry as well. Planning organs have also been established in the Commissariats for Public Health and Education, and in the municipalities for determining the development of such services as education, the protection of health or scientific research. Every year the scope of the planned economy is extended so as to include in its formulation the activities of every sphere of the economic life of the nation.

Planning is not merely a temporary phase of the Soviet system but a continuous process. The execution of the second Five-Year Plan has already commenced. Plans are divided into current and perspective, both forms being permanent and running parallel. The object of the perspective plans is to lay down the objectives of social and technical development over fairly long periods such as 10 to 15 years. Only in this way can the necessary directives for co-ordinating the work of reconstruction in the individual spheres of the national economy be obtained. They furnish the necessary basis for the annual plans of the economic system, just as these do for the monthly and daily programmes of the individual business units.

The object of Soviet policy is the rapid industrialization of the country. For it is a part of Marxian doctrine, as it is of the systems of certain economic historians, that each economic order is characterized by a peculiar industrial technique. The handicraft system characterizes *bourgeois* capitalism with its individual establishments, decentralized administration and wide distribution of power, as the modern technical processes inevitably lead to the development of trusts, which prepare the way

for nationalization. Communism, therefore, has to be built on a revolution which is no less technical than it is spiritual.

By the mobilization and control of the country's resources Russian communism hopes to change the country from a primitive agricultural into a highly industrialized State, at a rate which far exceeds that attained by any of the great industrial countries during the periods of their most rapid economic development. The Five-Year Plan involves the annual investment in new capital resources of 30 per cent of the national income. Between 1928 and 1933 the national income is to be doubled, the income per individual to be increased by about 80 per cent and the income available for consumption by some 50 per cent. This means a rate of development which is about six times that of the normal economic development of the world.[1]

Soviet planning differs in scope from planning in capitalist countries. Here budgetary control has facilitated the control of factors within the individual establishment. The process of concentration is increasing rapidly the sphere of the individual business. Co-ordination between independent firms and between different industries, however, is obtained only through the price system, except in so far as this system is modified by government control or by public enteprise.

Communism, on the other hand, has succeeded in co-ordinating in a unified plan the activities of different firms, of different industries and of every branch of the national economy. This, however, does not make it less, but more, necessary that the individual establishments should conform to their programmes so as to preserve the balance of production in the pre-arranged plan. Rationalization within the individual business seems hardly to have been attained as yet within the Soviet system. Ordzonikidze, the head of the Supreme Economic Council, after investigating why the tractor factory

[1] Dobb, article "Gosplan" in *The Encyclopædia of the Social Sciences*, Vol. VI, p. 711.

at Stalingrad was not producing one-twelfth the estimated output, gives the following frank, but not very flattering, description of the internal organization of the establishment:

> Complete absence of accounting; factory buildings filled with waste products and the courtyard piled with filth and damaged products; complete absence of control over the coming to work of the workers; foremen and engineers not at their posts; uncontrolled starting and stopping of conveyors, absence of suitable care for equipment, an absence of persons responsible for the correct course of production in individual departments.[1]

The co-ordination of economic services is comparatively easy for a patient, passive population consuming standardized goods. As there is a chronic shortage of everything the problem of marketing does not exist. If a surplus should exist in any one branch of production the government monopoly of foreign trade makes it easy for the excess to be dumped abroad. In the capitalist countries of the West industry provides not merely for the primitive calculable wants of subsistence but supplies also the more capricious demand for luxuries, a demand which can, however, be satisfied only by an elaborate mechanism of a relatively fixed character..[2] This has greatly increased the difficulties of economic organization. The demand for manufactured goods has, besides, become relatively inelastic on account of the increased prosperity of the population. The problem of industry is to market the output. In Russia, on the other hand, industry does not as yet supply the most pressing needs of the population. In a country, however, in which there is a chronic " goods famine " planning is comparatively easy. It takes the form, not of the minute determination of the production of every branch of the national economy, but of setting up numerous goals for attaining the maximum output. The final plan is, there-

[1] Quoted in Wells, *The Work, Wealth and Happiness of Mankind*, p. 509.

[2] Cf. *World Economic Survey*, p. 26.

fore, not a rigid programme but rather an attempt to give a certain concrete formulation of a tendency towards maximum expansion. Perhaps the greatest value to Russia of a co-ordinated plan, therefore, is its psychological effect. " It gives a concrete aim and a unifying slogan to the whole mass of the working population ".[1] It supplies an end for the fulfilment of which the Russian population is willing to undergo sacrifices comparable with those suffered by the populations of the belligerent countries during the Great War. The effects of this policy are already remarkable.

The successful planning and control of economic activities is a question largely of administration. Modern economic legislation is making more and more exacting demands on the ability of the government. Experience is showing the inadequacy of the parliamentary form of government adequately to deal with the economic functions which are devolving on it.

The system of party government, where one party tries to govern and the others to prevent it from governing, is quite foreign to the demands of industrial legislation. Parliament inevitably degenerates into a place for idle verbiage—into what the Germans have contemptuously called a " redeparlament ". The system of territorial representation fills parliament with lawyers and farmers representing a strange intellectual melange of legal casuistry and rural ignorance. Men who can contribute expert knowledge of the problems of industry or of culture generally to social legislation often refuse to undergo the degradation of an election, and if they are elected they may have to refuse their co-operation because the party they represent does not happen to be in power. The party system leads to an endless succession of governments, often irrespective of merit, a wasteful and ridiculous process because it does not enable the government to obtain the experience necessary for the execution of its functions.

The result of such a system of representation has been

[1] Ossinsky, *Annals of Collective Economy* (1931), p. 276.

the devolution of more and more power on the government, which rules through departments and by commissions. On the hand, there has been a movement to supplement or to displace territorial representation by functional representation, for the institution of a parliament elected by citizens grouped in professions. In Russia geographic representation was displaced after the Revolution by a system of soviets, or councils, of workers' representatives. In Germany the principles of a Federal Economic Council were embodied in the Constitution of Weimar, and the first economic parliament called together in 1920. In Italy territorial democracy has been displaced by the corporative State, and the place of parliament taken partially by a National Council of Corporations. In a number of countries appointed economic councils to advise the government have been instituted.

There are serious difficulties to be faced in supplementing, and still more in supplanting, territorial by functional representation. The first is the problem of differentiating the various functions. Even within industry itself there is the difficulty of adequately representing similar but competitive services. Are transport and retail trade, for example, to be regarded as single functions, or are railway and automobile services, chain and individual stores, to be separately represented? The partisan legislation being introduced in territorial parliaments by the clash of interests of these functions shows the necessity for careful discrimination.

A similar problem is that of allocating due weight to the services to be represented. The value of the various functions is by no means always adequately represented by the number of people employed or the money value of the services produced by the profession. As no objective criterion exists the decision is easily determined by the power of conflicting interests within the State. The danger of such a process depends on the power conferred on the functional body.

The scope for partisan representation in a functional

council is represented in the constitution of the Russian Soviets. In Germany, on the other hand, an attempt was made to secure equal representation between employers and employed, between the producing, the distributing and the other functional elements, as also between the different industries in the Empire. The Assembly presents "a very fair picture of the whole German nation as grouped in its pattern of smaller economic and social communities."[1] Similarly the National Council of Corporations, far from being a body representing merely economic organizations, is a synthesis of the most varied interests and ideas of the national life of Italy. Even the Italian representative of the International Labour Bureau will be given a seat at the meetings of the Council.[2]

The work of differentiating the various functions and of inaugurating an economic council is greatly facilitated by the modern tendency to organize in corporations, whether these be trade unions, scientific associations or cultural societies. Industry, too, is becoming professionalized. The various functions are clearly distinguished and definite qualifications are demanded for their performance. Thus there have arisen institutes of bankers, of architects, of engineers, together with numerous trade associations and federations of industry. The tendency to organize in associations is especially developed in Germany. In 1928 about 60 per cent of the German salaried and official classes were organized. The percentage for the "cultured middle classes" was about the same. The proportion of the non-agricultural workmen belonging to unions, however, declined from 80 per cent of the total in 1920 to just over 40 per cent in 1928.[3] This decline was due to the unfavourable employment conditions that have existed since the War, and is probably only temporary. Even those individuals

[1] Finer, *Representative Government and a Parliament of Industry*, p. 122.

[2] *L'Organization Syndicale et Corporative Italienne*, p. 153.

[3] *Handwörterbuch der Staatswissenschaften, Ergänzungsband*, p. 982.

who are not members of associations regard these as representing their interests. The process of elections can therefore be dispensed with and these corporations can be requested to delegate members directly to a functional council.

The most serious problem is to determine the scope of functional representation. Is a corporative council to have executive or merely advisory powers? Is functional representation to supplant, to supplement, or to be fused with territorial representation? If the two methods are to be combined, in what proportion are they to be united?

In no country has a functional body obtained supreme executive power, because nowhere are the class interests and services which distinguish the different professions considered of more importance than the ideas, beliefs and sympathies which are independent of corporate activities. The distinction has been most nearly effaced in Russia. But even in Russia, and still more in Italy, corporative councils are merely the instruments of the dominant political party. The German constitution lays down that all bills of fundamental importance which deal with social and economic legislation shall, before being introduced, be submitted by the Federal Government to the Federal Economic Council. The Council also has the right itself to propose such legislation. It is not, however, a mandatory body, and can exercise no legal sanctions. In other countries these councils are merely nominated bodies.

Functional representation is an attempt to rationalize the highest and one of the least efficient services rendered in society. For the leisured, generalized, loquacious services of the parliamentarian are being substituted the experience of functional agents. It is in many ways one of the most characteristic developments of the twentieth century.

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