REPORT ON THE SUPPLY OF ELECTRICITY IN GREAT BRITAIN

P E P (Political and Economic Planning) is an independent non-party group, consisting of more than a hundred working members who are by vocation industrialists, distributors, officers of central and local government, university teachers, and so forth, and who give part of their spare time to the use of their special training in fact-finding and in suggesting principles and possible advances over a wide range of social and economic activities. By means of the fortnightly broadsheet, PLANNING, P E P keeps in continuous touch with a large number of men and women interested in social and economic reconstruction. The group has issued nearly ninety broadsheets on a considerable variety of subjects and has also published full-scale reports on the coal-mining, cotton and iron and steel industries, housing and building, retirement pensions and continued education from the age of 14. Details of these are given inside the back cover.

The present Report is the result of a study of the distribution side of the electricity supply industry under existing conditions, the most significant of which is that while the industry itself is regulated and controlled, its relations with its competitors are not. It will be followed by a more general survey of, and proposals concerning, the national fuel and power problem, on which P E P is at work. Here a word of warning must be given. Owing to the magnitude of the subject its study has inevitably had to be devolved in the first stage upon separate groups with the necessary technical qualifications to deal with coal, gas, and electricity respectively. The present Report is written from the standpoint of the electricity group. Its conclusions may be found to require some modification and adaptation when the problem of fuel and power is studied as a whole by a later group working from the wider point of view.

P E P issues this Report in the conviction that an essential step in tackling effectively the larger problems of inter-relations between different industries is that members of each industry should understand the general problems of their own industry, and should devise the necessary institutions to deal with them. This Report seeks to put down so far as possible in an orderly and coherent manner the main facts about the industry and the consensus of informed opinion about the next stages in its development.

P E P welcomes constructive criticism, inquiries and suggestions, which should be addressed to:

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P E P (POLITICAL AND ECONOMIC PLANNING)

REPORT

ON

THE SUPPLY OF ELECTRICITY IN GREAT BRITAIN

A survey of present-day problems of the industry
with proposals for reorganisation of electricity distribution

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I. INTRODUCTION AND SUMMARY

Origin of this Report—The Consumer's Needs—Development of the Industry—Growth of the Industry—The National Bodies—Distribution To-day—Finance of Extensions—Varieties of Undertaking—Credit Facilities—Tariffs—Standardisation—Other Factors—The Problems of Co-ordination—Proposals for Reorganisation

Origin of this Report

Early in 1932 P E P began to study public utilities in Great Britain, establishing a "Utility Services Group" for this purpose. The work of this group resulted in a report completed in May, 1933, which formed the basis of the fifth issue of PLANNING, June 20, 1933.

The complicated nature of the problems under examination induced the group to decide on the formation of three sub-groups, Transport, Electricity and Gas, which would study their separate problems independently, and, as far as practicable, keep in touch with each other's activities through a co-ordinating committee. A further group on Coal-mining was also started (its report was published in February 1936).

The Electricity Group was formed in April 1934 in order to examine the conditions and problems of the electricity supply industry, with special reference to the organisation of distribution, including among other aspects the existing legislation, various forms of control and operation, extent of development, types of tariff and commercial methods.

After one year's work an interim document was prepared which was the basis of PLANNING No. 52 published on June 4, 1935. This was a condensed statement of conditions in the industry and of the problems to be faced. On December 31, 1935, appeared PLANNING No. 65 outlining recommendations for the re-organisation of electricity distribution. This Broadsheet was the precursor of the present report which deals in greater detail with the conditions of the industry and with the group's proposals.

The Consumer's Needs

Successful development of electricity supply requires certain conditions. There must be in the first place a supply readily available, at cheap rates. There must be the necessary service and credit facilities, so that the cost of wiring, of appliances and of maintenance is not a heavy burden on the consumer. Further, there must be a method of charging which is reasonably simple to understand, and which, so far as possible, follows the same lines all over the country; the consumer must feel sure that he knows upon what terms he is going to pay. Finally, standardised voltage and frequency must enable appliances to be interchangeable, so that the consumer is not landed with useless apparatus and the manufacturer with inflated costs owing to having to supply an unnecessarily wide range of appliances for different voltages.

Development of the Industry

The sources of present conditions in electricity supply are analysed in the next section describing the growth of the industry. Electricity began as a luxury with limited uses. Gradually demand increased, and with the increase in demand costs and prices fell. This in turn led to a further increase in demand as electricity was brought within the reach of a lower range of incomes, and the process is going on cumulatively. From supplying an expensive illuminant—and this was the position not so many years before the War—the industry is now supplying heat, light, and power not only to the home, but also to the factory and the farm. It is not only supplying old wants in a new way, but creating entirely new wants, so that its economic significance has changed completely even in the last ten years. This has come about largely as a result of falling costs; cheap electricity plays a part in the life of a nation entirely different from that played by expensive electricity; the difference is one of kind, and not one of degree. As yet the limits of future development are not only not in sight, but are beyond conjecture.

Growth of the Industry

As the development of the electricity supply industry is fully dealt with in Chapters II and IV a brief summary will suffice to indicate here how the present position has arisen. Electricity started as an illuminant in towns, and therefore its earlier history is the history of small and localised undertakings, which proved expensive to work and totally unsuited to perform wider functions when the significance of electricity changed. The electricity supply industry was split up into municipal and company undertakings operating on a comparatively small scale; the inflow of capital was restricted; large-scale reorganisation was difficult; technical problems had been dealt with in a variety of ways and without regard to standardisation.

The wartime need for cheap power to operate munition works twenty years ago threw into strong relief the unorganised state of affairs—concentration in urban centres, hundreds of generating stations of varying capacity, voltage, frequency and generating cost; hundreds of supply undertakings charging every variety of rate.

The Electricity Supply Act of 1919 made provision for permissive co-ordination between supply undertakings on a regional basis, the central body under whose ægis this co-ordination was to take place being the Electricity Commission. For this purpose the country was to be divided into electricity districts, and economies were to be effected in respect of unified control in each district, under a Joint Electricity Authority, of the generating equipment and main transmission systems in that district. Other powers held by the Electricity Commission were of a licensing, judicial and supervisory nature. These were obtained largely through delegation by the Minister of Transport, the Minister who, in succession to the President of the Board of Trade, was made responsible for these matters under the 1919 Act.

The National Bodies

The Electricity Commission's major function is that of granting powers under statute to supply electricity. Further, under the 1919 Act, the power of local authority undertakers to borrow money for electricity purposes is made subject to the Commissioners' consent, and their consent must also be obtained before new generating stations or main transmission lines can be established or existing ones extended.

It was not long after the 1919 Act was passed, however, before the fact became clear that its aims regarding the co-ordination of electricity supply would not be attained if the achievement were to depend upon voluntary action, for in the great majority of districts the co-ordinating authorities which came into being had little more than advisory functions. This situation led to the setting up in 1925 of the Weir Committee whose recommendations were embodied in the Electricity Supply Act of 1926. The Central Electricity Board, established under this Act, performs for the whole country the co-ordination of generation and high-tension transmission which had been intended to be achieved on a regional basis under the 1919 Act.

The members of the Board are appointed by the Minister of Transport, and its work has been to carry into effect plans for electrical development prepared by the Electricity Commissioners. These plans are to concentrate generation in a small number of selected stations operated under the control of the Board. While the stations remain in the possession of the owners, the Board buys the whole output and sells it at an agreed price to the various distributors. It owns the inter-connecting Grid, through which power is supplied to the undertakings. The Board also has the task of standardising frequency, so that effective inter-connection can be carried out.

The Board is thus a co-ordinating body with no financial control over authorised undertakings. It has, however, power to force owners of generating stations to form part of the national supply scheme, and in the event of an undertaking refusing to operate a selected station under the Board's orders the station may be compulsorily acquired. The Board undertakes to buy at an agreed rate the whole supply of selected stations, and makes arrangements for any extensions, alterations or new construction which may be necessary.

Generation and main transmission have thus been dealt with. Schemes for nine regions have been carried into effect, and trading has begun in most of these areas. Electricity supply is available in bulk at uniform types of tariff to all authorised undertakings in each area, but the activities of the Board do not extend beyond the end of the transmission line.

Distribution To-day

Turning to the distributive side, the picture is much less reassuring. At March 31, 1936, there were, in addition to the Central Electricity Board, 626 authorised electricity undertakings in Great Britain, of which 247 were owned by companies, 376 by municipal authorities (including five joint boards), and three by joint electricity authorities. About 170 of the companies are associated with or controlled by some of the larger concerns or by a holding company, so that the number of separate companies ultimately owning or controlling undertakings does not exceed 80. The area and population served by the many different undertakings selling electricity to the public ranges from less than one square mile and a few hundred people to one area covering 5,000 square miles with a density of only 51 persons per square mile, and another of 45 square miles containing a million people. Areas vary also in respect of the wealth of the population, in the presence or absence of an industrial load, in the proximity to sources of coal, in the height of the local rates, the geographical disposition of the consumers, and a number of other similar factors bearing upon the cost of supplying electricity.

These numerous authorities record a considerable range of prices and variety of tariff systems for electricity supply. Some undertakings have a two-part tariff system, others have not. Some of the two-part systems have a fixed charge based on rateable value of the premises, others upon floor space, or upon number of rooms, or number of points, or upon some similar measure.

It would be dangerous and unfair to draw conclusions from differences in charges without a full investigation of the facts in each case. A rate which looks comparatively low may be excessive, while a much higher one may be perfectly justified in other circumstances. For instance, an undertaking enjoying a large demand for bulk supply can naturally show a much lower average price than one without this advantage. Wide differences in costs from area to area must inevitably remain, and if uniform rates were charged in all areas it would mean that some were subsidising others. It is, however, desirable to minimise as rapidly as possible differences in the basis of charge and to sell electricity on the same basis everywhere in order to facilitate comparison, and this would help towards equalisation of charges throughout the country.

Finally, differences of supply have their effect on the equipment manufacturer and the dealer, who must be prepared to turn out, and to keep in stock, similar equipment adapted for the use of different systems—for example, different voltages. The effect is to increase costs of production and distribution. A standardisation of systems should in turn make possible a decrease in the cost of producing equipment, and a consequent reduction in its price to the consumer.

The position of the electrical supply industry gives grounds for satisfaction as well as for criticism. To-day there are nearly £500 million invested in the industry, and the total revenue is estimated to be between £70 and £80 million. The consumption of electricity per head compares favourably with that of any European country apart from Switzerland, where the problem is an easier one owing to the abundance of water power.

We must recognise, however, that there is a great deal more to be done before the supply industry can be regarded as fully efficient. Owing to the variations in local conditions already mentioned, it is clear that there must always be *some* differences in the level of prices at which current can be economically sold to consumers in different areas. Moreover, while for certain uses such as domestic lighting electricity has a virtual monopoly in the area served, for other purposes it is in competition with gas, oil, coal and other fuels. Any scheme of reorganisation will have to recognise these facts. The aim of any such scheme cannot, therefore, be to equalise prices of current throughout the country. It should, however, see that factors which result in different prices and different service conditions as between supply areas are reduced to a minimum. In drawing up such a scheme it will be necessary to give consideration to the following points:

Finance of Extensions

First, there are several areas still without any electricity supply because the undertakings operating in them have not sufficient financial resources to undertake the necessary extensions. New capital is necessary in order to open up supplies in new districts. The provision of this new capital may raise special problems, which must be faced, though the position is very much easier since the existence of the "Grid" has done away with the problem of setting up expensive generating plant.

Varieties of Undertaking

The second need is for cheap current. In some cases badly designed distribution systems may be responsible for a high cost of current. There are several undertakings with a badly designed and inefficient system of supply (in one or two cases the units sold are only about 50 per cent of the units generated or purchased), and nothing short of a complete new lay-out of distribution would bring such undertakings into line with the more efficient ones. Then there are companies faced with compulsory purchase and without security of tenure beyond a few years. These cannot be expected to develop their undertakings in the best interests of their consumers.

Further, there are some undertakings, more often companies, which adopt a profit policy based on selling high-priced units instead of the more progressive method of selling a large number of units at low prices. Large holding companies, controlling widely scattered areas, are included in this category. The holding company is a potential source of financial abuse, not adequately supervised in the public interest by the Companies Act of 1929, and outside the regulating powers of the Electricity Commissioners. On the other hand, the defects of local authority control include in some instances the attempt to regulate development by means of joint committees which have powers over both gas and electricity undertakings, and the tendency to discriminate against electricity.

The development of the electricity supply industry is seen to be unbalanced, in the sense that, generally speaking, the Local Authorities have taken over the densely populated urban areas, leaving the companies to operate the less populous and less remunerative zones. There are also certain other factors which may keep prices up unduly. In a few areas there is overlapping, and consequent waste. Again, the engineer is sometimes hampered, particularly in areas where, for political or local reasons, there is strong objection to so-called municipal trading. Rates, also, may bear inequitably on some concerns; a recent analysis shows that electricity undertakings are called upon to pay in respect of local rates amounts which represent a charge varying between 2s. and 42s. per consumer. Again, contributions towards local rates relief may represent a heavy demand on moneys which would be more properly employed in financing new extensions.

Credit Facilities

Next comes the need for credit facilities and maintenance. There are comparatively few people who can afford to pay in a lump sum the initial cost of wiring and equipping their premises for an electric service, and all well-managed supply undertakings now offer facilities for assisted wiring and schemes for the hire and hire-purchase of appliances and for their maintenance afterwards. Such service is now expected and demanded in most parts of the country, but there are still some undertakings which fail to provide it. The development of hire-purchase finance in this country has been so rapid that no efficient company should have any difficulty in finding the money to provide consumers with such facilities, while a proper maintenance service is, of course, essential.

Tariffs

Then there is the need for uniformity in forms of tariff. Differences in charges and in methods of charging have already been mentioned. Maximum prices fixed before 1919 in Provisional Orders by the Board of Trade and since then in special orders by the

Commissioners are so high that at most they may limit to some extent the price of energy used for lighting purposes, but have little relation to the average price charged, which is usually far below the maximum. This method of control is therefore ineffective. At the same time it must be borne in mind that price reductions are not of themselves guarantees of efficient community service, since availability of supply and high standards of service are necessary to make low prices fully effective in increasing demand.

The basis on which tariffs are calculated varies from district to district. None of the methods of assessing the fixed charge in the case of domestic supply is ideal: hence the many different systems of charging now in force. The multitude of tariffs arouses criticism, and any plan for improving distribution would be incomplete if it did not provide for simplification in the method of charging for domestic supplies.

Standardisation

The standardisation of frequency is being carried out in accordance with the 1926 Act, and the cost is being met by a levy on the industry as a whole. Supply Authorities with direct current systems are under no obligation to change their system of supply to alternating current at the standard voltages. Modern development has, however, shown that the A.C. system of distribution is cheaper than D.C., and has on the whole certain other advantages. The change-over to A.C. is therefore gradually being carried out.

While the change-over is slow but progressing, there are some A.C. areas where the voltage adopted is 415 between phases and 240 between each phase and neutral, instead of the standard 400 volts between phases and 230 volts between each phase and neutral. It is desirable that all low-tension distribution systems should be standardised on the latter basis. Apart from the saving to the supply authority in the cost of distribution, standardisation should result in lower manufacturing costs for plant, motors and various types of apparatus. In fact, the possible advantages of standardisation from the consumer's standpoint would depend largely on the policy of the electrical equipment manufacturer. If standardisation were not used to reduce costs substantially in the group of industries making electrical appliances, and if such reductions were not passed on in the form of lower prices, the practical advantage to the consumer might be small.

At the same time it must be borne in mind that the consumer's primary interest is cheap current, and the heavy capital cost of the change-over has to be found in the last analysis out of the consumer's pocket. The problem, therefore, is to spread the burden of adaptation in such a manner that expansion of demand shall not be checked, because if demand is checked, reduction of costs and therefore of prices, is made more difficult. For this reason rapid and spectacular results should not be expected.

Other Factors

Among the sources of retarded development are insistence by some undertakers on a rigid 20 per cent return on rural extensions, and the demand for lump sum payments towards the cost of extensions. Finally there is a general lack in the industry of fundamental economic and marketing studies and of effective pooling of data about performance of equipment.

These are the main problems which any scheme of reorganisation must aim at solving. It is clear that by far the most important of them is making available to the

largest possible number of consumers a supply at the lowest price. Once current can be conveyed right through to the ultimate consumer at low rates, the problem of making a supply available in sparsely-populated districts is on the way to solution because an increased number of households will be able to afford electricity.

The Problems of Co-ordination

How then can cheaper supply be achieved? The case for large-scale operation, for the grouping or amalgamation of adjoining areas, for the regional or national operation of electrical distribution, has been stated ably and often by various writers. At the same time there are several factors which must be weighed very carefully in the balance. On the one hand, large-scale operation and control will do away with certain problems which arise from a multiplicity of undertakings, while public authority finance is much less expensive to the consumer than company finance. On the other hand, company control has a freedom of action which has not always been achieved by public authority control. The difficulty of co-ordinating adjacent areas is very real, and the danger has to be avoided of making an area so large that the personal touch of the responsible person in charge—vital to a public utility service such as electricity—is smothered by red-tape regulations and involved procedure emanating from a central controlling body. The theory that size of undertaking, as represented by units sold, is directly related to efficiency, is not proven. While it is recognised that under some conditions economies might be achieved by amalgamation to form larger units, such amalgamations do not represent the following out of a general principle, and, in practice, efficient operation is found as much in medium-sized as in large-scale undertakings. Here, the factor of management is most important.

It should be realised that conflicting elements do exist, and that the solution of one set of problems must not be allowed to give birth to greater problems in other directions. An acceptable plan must leave room not only for the uniformities and economies which large-scale operation may be able to offer, but also for the flexibility necessary to enable an undertaking operating in a locality to deal with its own specific problems. Some questions may be best dealt with on a national basis, others on a regional basis, others again purely locally, and any plan for the electricity supply industry must see that each question falls into its proper sphere.

Electricity supply is an industry of rapid growth, but of uneven development, and it has both the vitality and weaknesses of rapid growth. Progress in generation and transmission has been especially rapid in recent years and has been symbolised by the network of pylons sweeping over the countryside; but progress has been slower in the field of distribution proper. Yet the demand for electricity is persistent and increasing, and calls for cheap and sufficient supplies for domestic and other uses. There are difficulties which must be met, but once a satisfactory scheme has been evolved it must be carried through firmly.

Proposals for Reorganisation (as submitted to the McGowan Committee)

Our proposals set out five main lines of development. These are: (i) the appointment of a Committee of Investigation, (ii) the creation of an Electrical Development Authority, (iii) increased powers of the Electricity Commission, (iv) co-ordination and simplification of existing legislation, (v) removal of restrictions and anomalies.

The duties and powers of the proposed Committee of Investigation are broadly outlined. These include a study of the efficiency of supply undertakings throughout the country and recommendations for improving efficiency, which may involve adjustment of areas of supply, changes in ownership and control, or amalgamations to form new types of undertaking. Upon the recommendations of this Committee future changes in the organisation of distribution are to be based.

The setting up of a new permanent body, the Electrical Development Authority, is visualised in order to carry out important development work on a national scale. Its functions would include technical and economic research, central testing of appliances, central purchasing of supplies, publicity and propaganda, economic and statistical studies, and supervision of design of buildings. This body would finance rural extensions under certain conditions, and would advance money for the standardisation of systems and voltages. In instances where undertakings failed to take the necessary action it would carry out any co-ordination and amalgamation of undertakings, which the Electricity Commission might, in the last resort, determine on the recommendations of the Committee of Investigation. In the authority would be vested the rights of local authorities to purchase distribution orders.

Increased powers proposed for the Electricity Commission include the prescribing of model forms of tariff, the power to require any undertaker to equip showrooms, and powers to require changing of distribution areas on the recommendation of the Committee of Investigation.

The co-ordination and simplification of existing legislation would be achieved through codifying all the Electric Lighting and Electricity Supply Acts in one General Act, and incorporating in this Act amendments and new provisions to improve and clarify existing legislation.

Finally, the removal of restrictions and anomalies would be achieved through certain fresh legislation covering holding companies, company and local authority undertakers, and price and dividend control.

These proposals are believed to form an effective way of meeting complex difficulties. The danger in attempting such a scheme as the setting up of a national distribution authority to take over the functions of distribution is that such action would antagonise the supply industry as a whole, and that the most progressive undertakers would be alienated to make common cause with the least progressive. Further, the cost involved in acquiring assets would be a very large sum to set off against the theoretical resultant economies.

New methods of organisation should be designed to encourage the supply industry to use its resources and initiative to the fullest extent. It is believed that the combination of the Electrical Development Authority with the new legislation proposed and the work of the Committee of Investigation will secure the most favourable results from the industry.

Finally, let it be admitted that legislating without being oppressive, creating new controls over inefficiency without discouraging the efficient; co-ordinating by regulations without unduly antagonising separate interests; and bringing about conditions where a wider vision for the future of the entire industry may develop are difficult tasks which have no perfect administrative solution. But the attempt has to be made.

II. THE DEVELOPMENT OF THE ELECTRICITY SUPPLY INDUSTRY

The Birth of the Industry—The Electric Lighting Act, 1882—Development Difficulties—Progress from 1888-1908—The Arrival of Power Companies, 1898-1909—The Electric Lighting Act, 1909—Effects of the War—Committees' Proposals—The Electricity (Supply) Act, 1919, and Co-ordination

The Birth of the Industry

Michael Faraday's discovery in 1831 of electro-magnetic induction provided the foundation for the design and construction of electric generators, but a decade passed before the first commercially operated dynamo emerged, and it was not until the early 'eighties that the electricity supply industry took practical shape. Prior to 1880 there were several experimental lighting plants in operation; in 1847, Trafalgar Square was lit up by arc lamps, and some twenty years later, the dome of St. Paul's Cathedral was floodlighted to celebrate the wedding of King Edward VII (then Prince of Wales) to Princess Alexandra of Denmark. In 1879 a Select Committee of the House of Commons after hearing evidence from Tyndall, Siemens, Preese, Hopkinson, Thomson (Lord Kelvin) and other eminent scientists and electricians (all agreed that the only way to apply electricity to lighting was to have arc lights of large power, each supplied by a generator—the loss of light by sub-division they said was enormous) reported that no legislation was yet necessary; the time had not yet come to give general powers to private electric companies to break up streets. At that time both Swan and Edison were working independently on the "sub-division of the electric light" and the invention of an incandescent lamp with "a continuous conductor" as opposed to the arc lamp then in use.

Sir Joseph Swan is believed to be the first person to devise an electric incandescent lamp, but the practical application of incandescent electric lighting really began with the introduction of the Edison lamp on October 21, 1879. However, it was not until 1881 that the first public supply of electricity was provided in Great Britain. This was achieved through harnessing the power of the River Wey to light the streets of Godalming. On this occasion the power cables were laid in the gutters of the streets as there was no legal authority to lay them underground.

In 1882 one of the first successful installations with incandescent lamps was that installed at the Savoy Theatre by Crompton, and the electricity supply industry may be said to have originated in the period 1880/82. To fix a definite date is difficult, but during this period not only was the first public supply provided, but, in addition, Swan's incandescent lamp was patented and Edison operated his historic electricity supply station in London.*

*This was in the basement of No. 57, Holborn Viaduct, and the station supplied light from its dynamo to 92 lamps in the roadway and 745 in private premises.

While arc lamps had been in use prior to 1880, they were then too unreliable for steady internal lighting of buildings and offices. The development of Swan's lamp and Edison's design of a supply station made efficient steady lighting possible.

The period 1880/82 marked the beginning of commercial speculation in electrical enterprises. At this time the commercial supremacy of Great Britain, founded upon her basic industries during the third quarter of the nineteenth century, was being shaken by foreign competition. It was, moreover, a period of free trade, so the investing public turned from industries faced with foreign competition, either at home or abroad, and sought profits from the new electric lighting industry, which was to a large degree "sheltered." Swan's invention was soon followed by others, both genuine and spurious, connected with various aspects of electric lighting. Numerous companies were floated, some to sell, others to operate these inventions, and within the first six months of 1882 nearly £10 million had been subscribed for electric lighting companies, the number of which rose in two years from no more than half a dozen to close upon eighty.

However, the problems of the transmission of electricity had not yet been solved to enable electric lighting to be a sound commercial investment, and the boom was brief. It was followed by a costly slump, during which some £8 million of capital was lost.

The Electric Lighting Act, 1882

In 1882 the President of the Board of Trade, Mr. Joseph Chamberlain, introduced the Electric Lighting Bill. This passed into law as the Electric Lighting Act in August 1882. It was the first Act to control the conditions under which electricity could be sold for public supply purposes. Prior to that date powers to obtain capital, to dig up the public highways and to carry out other work incidental to the supply of current had been granted, in the case of private companies, in the form of Private Acts of Parliament, and in the case of Local Authorities, under the Local Government Acts. The technical developments which were taking place towards the end of the 'seventies gave rise to an increasing number of applications for similar powers, which, it was recognised, would have to be dealt with according to principles clearly defined and embodied in comprehensive legislation.

The main provisions of the Electric Lighting Act of 1882 are briefly summarised here. Statutory powers to supply electricity were to be obtained in either of two ways:

(a) by a licence granted by the Board of Trade for a period of seven years, subsequently renewable for a similar period;

(b) by a Provisional Order which had to be confirmed by Act of Parliament.

In order to obtain a licence it was necessary first to obtain consent to the application from the Local Authority in whose area of administration it was intended to supply electricity. If this consent were "unreasonably" refused, the Board of Trade could dispense with it by permitting a prospective entrepreneur to proceed by the method of Provisional Order. Even this procedure did not, however, mean complete immunity from Local Authority jurisdiction, for when powers to operate were given under this method, the property of the undertaker situated in the administrative area of a Local

Authority became, after a lapse of twenty-one years from the parliamentary confirmation of the order, subject to the option of compulsory purchase at a "scrapheap" price by that Local Authority. This purchase option was renewable every seven years, but it became evident that these provisions were too arduous to attract capital to the supply undertakings, and the twenty-one year period was extended to forty-two years under the provisions of the Electric Lighting Act of 1888. The period of recurring rights to purchase was increased from seven to ten years. Another provision of the 1882 Act limited amalgamations between undertakings to those which had the sanction of the Board of Trade.

The intentions of those who framed this Act were evidently to put the new industry under the wing of Local Authorities. This tendency is traceable to two main causes:

(1) the political view that monopolies should be controlled to prevent public exploitation;

(2) the technical views put forward by scientists in 1879 that electric lighting was in an experimental stage, with small prospects of commercial application. So much progress had been made by 1882, however, that these views were then out of date.

Looking back from 1936, it is difficult to say whether Local Authorities were, as a whole, inspired by the conviction that a public service should be controlled by public bodies, or by the fear that their local gas investments were in danger from electrical competition, but, whichever their motive, many municipalities obtained exclusive distribution rights within their administrative boundaries.

Development Difficulties

In the early days the developments of electric lighting were achieved by private enterprise; Local Authorities were cautious and refrained from risking, in a speculative investment, money which was raised on the security of the rates.

For a time serious progress was held up, as much by the technical difficulties of transmitting low voltage direct current over long distances as by the financial debacle of the earlier years, or by the discouraging effect upon private enterprise of the provisions of the 1882 Act.

First signs of development appeared towards the end of the 'eighties, when Ferranti equipped the Grosvenor Gallery Generating Station at Deptford, London, with relatively high voltage alternating current generators, and transmission became possible with the development of the transformer. With the resulting increased possibilities of reasonably sound commercial operation, Local Authorities began to take not only a more benevolent attitude towards the new industry but an active part in it. To this development the Act of 1888 contributed something, but not much. For, while it improved prospects for private enterprise, by extending the period of undisputed possession of their undertakings from twenty-one to forty-two years, it increased the power of Local Authorities to veto or to hinder, by making it necessary for private enterprise to obtain the consent of a Local Authority where application was made for a Provisional Order: a condition hitherto operative only in respect of an application for a licence.

Progress from 1888-1908

At the end of the 'eighties, apart from the unique and world-renowned Ferranti station at Deptford, the industry was still represented by a number of small buildings clustered around the Metropolitan area, and dotted sparsely about the provinces, filled with heavy machinery which supplied a few hundred lamps within a radius of not much more than half a mile of the "station." Twenty years later, however, the essentials of the geographical configuration of the industry as it exists to-day had been established. The slow-speed horizontal engine-driven generator was gradually replaced by Belliss & Willan's high-speed engines-direct coupled to their generators. The system was generally D.C. and the supply seldom extended beyond two miles from the generating station.

By the beginning of this century supply was being given in the Metropolitan area by Local Authority and private enterprise, and nearly all the large provincial towns contained the beginnings of a public supply network, generally in the hands of the Local Authority. At the same time, larger sections of the rural districts of the Midlands and the North, together with the smaller towns in those districts, were being covered by the operation of the newly-formed power companies, whose areas of supply in some cases ran into thousands of square miles and whose capitalisation could in most cases be reckoned in millions of pounds.

By the end of 1900, 639 Provisional Orders authorising supply had been granted by the Board of Trade, of which 119 had been repealed or revoked, and two had not come into operation. Of those in force, 354 were granted to or held by Local Authorities, and 164 were granted to, or held by, companies. With very few exceptions (e.g. London, Bournemouth, Northampton, and Newcastle-on-Tyne), the larger towns, particularly in the industrial areas, had their own electricity departments. From these data one can realise the magnitude of the development in electricity supply during the fifteen years that followed the passing of the Act of 1888.

Towards the end of this period the evolution of the steam turbine by Sir Charles Parsons started a new era. The reciprocating engine (triple expansion and the like) of Belliss, Willans and others with speeds of 500 r.p.m., were very soon to be replaced by turbines built by Parsons and other well-known makers with speeds of 1,000 and 1,500 r.p.m. (at a later period 3,000 r.p.m.). Up to 1,000 b.h.p. the reciprocating engine could hold its own with the turbine as regards efficiency, but with a rapidly growing demand for electricity which necessitated larger generators the turbine had no competition.

An almost revolutionary advance in the use of electricity was caused by the development of alternating current distribution. This system converted the industrial areas of the Midlands and the North into new and vast potential markets for electric current, and began the era of the industrial application of electricity for power. Technical improvements rendered possible generation on a large scale at high voltages, with distribution over wider areas. Costs were reduced, and the use of electric energy in industry became more practicable and more economical.

The advent of the power companies at the close of the last century marked the end of a period of development dominated by Local Authority undertakings, and introduced a period in which progress stood largely to the credit of private enterprise.

The Arrival of Power Companies, 1898-1909

Technical advance had, by this date, shown the possibilities of electricity as a mobile and flexible source of power which had no counterpart. It was recognised that the parochial evolution of electricity supply was putting fetters on this power, and a new type of undertaking was created, the power company.

In 1898 Viscount Cross presided over the Joint Select Committee on Electrical Energy (Generating Stations and Supply), whose recommendations enabled power companies to obtain private Acts giving them powers to supply over wide areas. As a result power companies were created for the purpose of giving supplies for power and in bulk to authorised undertakers. The name "power company" has no particular reference to the sale of current for power purposes, but is used to denote those companies formed with operating powers obtained through a Private Act of Parliament and not by an Order or Licence issued under the Electric Lighting Acts of 1882 and 1888. Unlike Provisional Order companies, they were not liable to purchase by Local Authorities. While their scale of operation was much more consistent with electrical and industrial development, the economic potentialities of a large-scale supply were to some extent limited by the existence of the local monopolies of municipalities in most of the large towns. By 1918 there were about thirty power companies in operation.

The rights obtained by these companies, under the Private Acts by which they were incorporated, represented a fundamental innovation in electricity legislation. In some cases, they included compulsory purchase of land, whether for the building of a generating station or for the laying down of mains in instances where the generating station was not situated within the area of supply. In other cases, permission was given for the incursion by a company into an area either already supplied by, or for which powers to supply had been obtained by, a Local Authority.

This new development was met by organised opposition on the part of Local Authorities, and the power companies were restricted to sparsely populated areas. Then for almost ten years a conflict was waged between the champions of private and public control of electricity supply, which affected adversely the efficient development of the industry. The conflict engaged not only the persons directly concerned in the industry, but others who were only indirectly affected and those who saw in these hostilities a political issue of great importance. One question after another was chosen as the battle-ground, and interest in the common cause of electrical development was submerged. In spite of this, considerable progress in electrification was achieved during this period.

The Electric Lighting Act, 1909

The passing of the Electric Lighting Act of 1909 marks the end of the first epoch of the history of the industry. This Act granted to all undertakers a number of the more important administrative powers hitherto held only by power companies, and in doing so, gave statutory recognition to the fact that the areas of administration of Local Authorities no longer coincided with the areas of supply of electricity undertakings. The significance of the Act of 1909 as a turning-point, is that it is the last to deal specifically with the statutory rights and duties of undertakers, as these affected individual operation. The electricity legislation of the subsequent twenty-five years is concerned almost

exclusively with co-ordinating the industry as a whole upon a national basis, and only indirectly with the rights of the individuals comprising the industry.

Just as the characteristics of the first twenty-five years' growth of the industry are a steady emancipation from Local Authority control, so the characteristics of the second twenty-five years are a gradual development of control, at first by regional bodies and then by a national body. Control in the first period was derived mainly from a desire to protect the public against exploitation by private monopolies; control in the second period is directed towards obtaining for the nation the benefits accruing from an industry operating at maximum efficiency.

Effects of the War

In so far as they are of significance to subsequent developments, the main effects of the War upon electricity supply are three:

(1) It proved beyond doubt the value of electricity as power and heat for industrial purposes;

(2) It caused tremendous expansion in the resources of those undertakings supplying current to areas concerned with the manufacture of food, munitions and war supplies of all sorts;

(3) The necessity in such areas of obtaining power at any cost resulted, in many instances, in the bringing into operation of plant which, under normal circumstances, would have been scrapped owing to its obsolescence or inefficiency, or used in patchwork extensions to stations originally designed for only small capacities.

This third factor would in itself have been sufficient to call for some co-ordinating activities, if the supply industry were to meet the demands placed upon it on the resumption of normal development after the War. But long before these demands became apparent, other circumstances were pointing to the necessity of some such measures. In 1916, the threatened shortage of generating plant led to consideration of the best methods of using existing equipment, the result of which was an attempt, sponsored by the Board of Trade, at voluntary regional co-ordination. The Board's circular urged supply undertakings to reduce their costs as far as possible, and to cut down their coal consumption by linking up their systems. The difficulties of finance, the varying frequencies and pressures and the lack of co-operation among the companies and adjoining authorities proved insurmountable and the attempt was unsuccessful.

The coal shortage that became apparent in 1917 compelled the Government to take further steps. These consisted of appointing, in the space of the next three years, three Committees, the first a sub-Committee of the Committee dealing with the Conservation of Coal while the second and third were Departmental Committees set up by the Board of Trade. The second was known as the Committee on Electrical Trades (1917), presided over by Sir Charles Parsons, and the third, the Electric Power Supply Committee (1918) under the Chairmanship of Sir Archibald Williamson (Lord Forres). The terms of reference of the last named Committee were "To consider and report what steps should be taken, whether by legislation or otherwise to ensure that there shall be an adequate and economical supply of electric power for all classes of consumers

in the United Kingdom, particularly industries which depend upon a cheap supply of power for their development." The Coal Conservation Committee entrusted to a small sub-committee, under Viscount Haldane, the task of surveying the general power situation and of making proposals for national co-ordination.

Committees' Proposals

According to the Williamson Committee, the supply of electricity which was spread over more than 600 districts, each a monopoly of a supply undertaking, should be concentrated in 16 districts with one authority in each district dealing with generation and main distribution. A board of electricity commissioners should be formed with full powers. Among other things it should be able to stop the extension or multiplication of uneconomic generating stations, hand over generation, transmission and main distribution in each of the 16 districts to a new electricity body appointed for that district, standardise frequency and voltage and decide the type of organisation which should be created.

In this connection, the Committee discussed the possibility of forming local electricity boards which would take over the undertakings in possession of Local Authorities and even suggested, in certain districts, the introduction of public and joint ownership in the form of a mixed undertaking very similar to that ruling in Germany, where the methods of private enterprise would be combined with public responsibility. It also contemplated granting to Electricity Commissioners the power to fix maximum prices, to regulate dividends and decide terms on which capital should be raised. New central generating stations should be built of capacity sufficient to meet the existing requirements of the country, working through a comprehensive electric power distribution system, and to supply electrical energy at a minimum price for new processes and manufactures. The gist of all the Reports was, broadly speaking, the same, and the recommendations they contained were (with certain modifications) made effective in the Electricity (Supply) Act of 1919.

The Electricity (Supply) Act, 1919, and Co-ordination.

The Bill, in its original form, contained far-reaching proposals which were modified in its passage to the statute book, but those provisions that survived constituted a definite advance towards a rational ordering of the industry.

The 1919 Act, in its final form, made provision for voluntary co-ordination between supply undertakings on a regional basis, the central body under whose ægis this co-ordination was to take place being the Electricity Commission. This body was set up "to promote, regulate and supervise the supply of electricity" and to exercise other powers under the Electric Lighting Acts, delegated to it by the Minister of Transport, which had been transferred to the Minister from the Board of Trade. The organisation consists of a group of Commissioners (not exceeding five in number), appointed by and responsible to the Minister of Transport.

The Commission is thus a body of technical experts regulating all authorised undertakers, and having in some degree the status of a planning body for the entire industry. Possessing licensing powers to make Special Orders, it has considerable influence over

supply undertakers, and possessing judicial and supervisory powers, it can approve or modify—or even formulate—schemes for improving the organisation of the industry.

The Electricity Commission is a body responsible to the Minister of Transport and under Treasury control as regards expenditure, financed by a levy on the supply industry amounting at present to little more than 1d. per thousand units sold. The first of its functions is that of granting statutory powers to supply electricity. These powers take the form of Special Orders (to be subsequently confirmed by the Minister of Transport and approved by Parliament) superseding the Provisional Orders granted by the Board of Trade. These Orders are granted (confirmed by the Minister of Transport and approved by Parliament) to Local Authorities or companies, creating authorised undertakers and authorising them to give supplies within certain areas.

Under Section 20 of the Act the powers of the Minister of Health and the Secretary of State for Scotland and the London County Council in respect of consents to borrowing by Local Authorities under the Electric Lighting Acts were transferred to the Commissioners. Under this Section Local Authority undertakers cannot borrow money for electricity purposes without the Commissioners' consent and the volume of work in connection with loan sanctions is considerable. The consent of the Commissioners must also be obtained before new generating stations or main transmission lines can be established or existing ones extended. Their approval is necessary for bulk supply agreements between undertakings, for systems of supply or alterations in such systems, and for types of meters. They deal on behalf of the Minister of Transport with questions regarding the erection of overhead lines and regarding the maximum price which undertakings may charge; they have powers to collect financial and technical statistics from all undertakings, they make regulations for the safety of the public and for ensuring a proper and sufficient supply of electrical energy, and (under Sections 5, 6 and 7 of the 1919 Act) they have powers to authorise the formation of Joint Electricity Authorities and Joint Boards. Up to the present three Joint Electricity Authorities and five Joint Boards have been formed. The permissive powers conferred by the 1919 Act are, however, difficult to apply and no attempt has been made during recent years to add to the number of Joint Authorities or Joint Boards.

Further judicial powers were conferred on the Commissioners by the Electricity (Supply) Acts of 1926 and 1935, but no new powers have so far been given in regard to distribution.

Under the 1919 Act, for the purposes of regional co-ordination, the country was to be divided into electricity districts, and economies were to be effected by means of unified control in each district, under a Joint Electricity Authority, of the generation equipment and main transmission system in that district.

The Joint Electricity Authority or J.E.A. was a new type of body to be constituted, through the voluntary agreement of undertakers concerned, to co-ordinate and control the supply in an electricity district. It was a compromise for the District Electricity Board, envisaged in the original version of the Bill which became (after amputation) the 1919 Act.

The J.E.A. owns and operates the generating stations and main transmission lines in its area on a non-profit basis. It does not control the distribution operations of its

constituent undertakers, although it may, acting as an authorised undertaker, obtain distribution rights, with the approval of the Electricity Commission, for any area which is outside the powers of supply of existing undertakers. For example, the West Midlands and London and Home Counties Joint Electricity Authorities are exercising distribution powers. A J.E.A., therefore, may have the dual function of co-ordinating generation throughout its district and of supplying electricity direct to the public in part of its district.*

Before many years passed, it was clear that the aims of the framers of the 1919 Act would not be attained if the achievements were to depend upon voluntary action, for in the great majority of districts the co-ordinating authorities which came into being had little more than advisory functions. The reason for this can readily be seen. Before a body with coercive powers could be established in any district, inter-municipal jealousies had to be reconciled, the old issues between company and Local Authority enterprise settled, and the objections of engineers towards relinquishing initiative in the operation of their own undertakings overcome.

This 1919 Act, nevertheless, created the Electricity Commission to enquire into the possibility of re-organisation on a national scale, and, in 1921, the Commissioners stated that lack of co-ordination had resulted "in unnecessary expenditure of capital, wasteful consumption of coal and generally higher charges for electricity than would have been the case had there been larger areas of supply, a greater concentration of generating plant in larger units, and more economically situated power stations. These factors have reacted adversely on the application of electrical energy for power purposes in industry, and owing to the small size (in many cases) and relatively high running costs of public stations, manufacturers have been compelled in the interests of their business to adopt the unsatisfactory course of installing their own generating plant, thus extending the wasteful system of generation on a small scale in a multiplicity of small stations. Moreover, the adoption of many different systems of supply, frequencies and pressures, has involved the manufacture of corresponding types of electrical plant and apparatus, and thus deprived those concerned of the advantages that would have accrued, both in home and foreign markets, from concentration on the production of a few standard types."

The Electricity Commissioners found the task of rationalisation impossible at the time, as they possessed no compulsory powers of any kind and they realised that some element of compulsion would be necessary. There was general reluctance to accept the principle of Joint Electricity Authorities, and these bodies were formed only in London, the West Midlands, the North West Midlands and North Wales. It was essential, therefore, to educate the public into acceptance of the fact that electricity was a national industry supplying the country as a whole, that rationalisation in that industry meant lower production costs leading to lower prices, to a higher demand for electricity and consequently to greater prosperity for itself and other industries which it fed. The wider use of electricity in agriculture, in industry, in commerce and the home obviously meant increased activity throughout the country and greater employment. Rationalisation, in fact, became part of the national economic policy for the betterment of industry.

Accordingly in 1925 a committee known as the Weir Committee was appointed

* See Appendix 5.

which distinguished between the two functions of production and distribution, the first of which may be more easily rationalised although the second is its due complement, and recommended that a new central organisation—the Central Electricity Board—should be created to co-ordinate the production of electricity throughout the country, and to reduce the cost of generation by concentrating production in relatively few highly efficient stations which were to be interconnected by a main transmission system operating at 132,000 volts. They suggested that 58 selected stations were sufficient, 15 of which should be new, while 432 stations should be closed down. Reserve plant could thus be dispensed with, since stations were interdependent, some taking the base load, others the peak load. The Committee further considered that an indispensable factor in this scheme for national transmission was standardisation of frequency, which they proposed to make 50 cycles as this was the most usual frequency obtaining among generating stations at that time, and they provided for a certain amount of compulsion in the carrying out of their proposals. These were given legislative force in the Electricity (Supply) Act of the following year.

It is, therefore, to the recommendations of the Weir Committee, as embodied in the Electricity (Supply) Act of 1926, that the present organisation of electricity supply, as far as the generating side is concerned, is due. The Central Electricity Board, set up under this Act, performs for the whole country the co-ordination of generation and main-line transmission.

III. THE CENTRAL ELECTRICITY BOARD AND THE GRID SYSTEM

Composition of the Board—Status of the Board—The Functions of the Board—Finance—Budgeting—The Electricity Commissioners and the Planning of the Grid—The Scheme Areas of the Grid—The Transmission Network—The Construction of the Grid—Effects of the Grid—The Operation of the Grid—Trading and Development—The 1935 Act—Principal Economies Derived from the Grid—Standardisation of Frequency—Secondary Transmission Lines

The Electricity (Supply) Act of 1926 provided for the creation of a national organisation, the Central Electricity Board, to concentrate the generation of energy in a limited number of Selected Generating Stations, and to interconnect these stations, linking up the existing regional systems into a national "Grid," by the erection of a high-tension main transmission system.

Apart from technical considerations, the Act of 1926 is important because it created a new type of public Board which in constitution is neither a limited company nor a Government Department.

Composition of the Board

The Board consists of a Chairman and seven other members appointed by the Minister of Transport for terms varying from five to ten years, and subject to reappointment. No member of the Board may be at the same time a Member of Parliament, nor may any full-time member have any financial interest in any company supplying or generating electricity or manufacturing or selling electrical machinery or plant for use in generation and transmission. In his selection of members of the Board the Minister of Transport has paid attention to such special qualities as knowledge of industrial administration, and experience of finance and of the control of large manufacturing groups. Some attention has been given to interests involved in or affected by the national power scheme, such as labour, railways, local authorities and electricity supply companies.

Status of the Board

While the Electricity Commission is an administrative and judicial body, the Central Electricity Board is an executive and operating body. Although many of its functions and its problems may be similar to those of a planning organisation working under compulsory powers granted by the State, the Board was probably not intended to be a model in the public utility field for State planning or State ownership. The experts who signed the Ministry of Reconstruction reports, who drew up the legislation of 1919, who were responsible for the Weir Report in 1924-25, who elaborated the legislation of 1926 and who have since been active in carrying out the terms of the 1926

Act, saw clearly before them a definite problem of co-ordination, technical in nature and susceptible to treatment on engineering lines. They concerned themselves solely with the problem of making the most effective use of national power resources within the existing administrative and economic framework.

There are clearly points of difference, as well as points of resemblance, between the Central Electricity Board and a Government Department. On the one hand the Board is not immediately responsible to Parliament; it is not under obligation to submit detailed estimates of the cost of administration for approval by a Government Department, and it has complete discretion in the choice of personnel and the conditions under which its personnel works. On the other hand the Board is subject to a certain measure of supervision. It must submit an Annual Report to the Minister of Transport, which is presented to Parliament; it must obtain the consent of the Minister of Transport and the Electricity Commissioners to the issue of new stock and to the conditions under which such stock is raised, and its accounts are audited by auditors appointed by the Minister of Transport.

Parliamentary control over the activities of the Board is limited by the Electricity (Supply) Act of 1926. An ordinary supply undertaking, under present legislation, must obtain the approval of the Electricity Commission for raising capital for the construction of generating stations and for the erection of transmission lines, and the Board is similarly restricted. The Board can make its own arrangements with supply undertakers, fix its own tariffs (which are, however, subject to approval and confirmation by the Electricity Commission), and control its own administrative organisation.

The Functions of the Board

The Central Electricity Board, unlike the London Passenger Transport Board and the Metropolitan Water Board or the various Docks and Harbour Boards, is not a body trading with individual consumers. It has no direct control over the business of supplying energy to them, which is in the hands of the authorised undertakers. The selected generating stations are the property of the individual supply undertakings, which are under obligation to operate them in accordance with the instructions of the Board. The Board, in turn, guarantees operating costs, the capital charges on the stations (within certain limits relating to interest on capital) and, when new generating plant is required and installed under its direction, it must guarantee all the costs arising from the installation. It may also guarantee expenditure on main transmission lines or take over main transmission lines if they are essential to the efficient and economic operation of the Grid. While such a guarantee does give some power to the Board over the selected generating stations, the owners of these stations employ their own labour, purchase their own materials, and establish their own conditions of operation, as far as the disposal and grouping of the personnel is concerned.

The Board does not own the generating stations and has no control over the distribution of electricity to the public. Its function is to make production more efficient through concentration and co-ordination, the instrument of co-ordination being the main transmission system. It has powers to compel owners of generating stations to enter into the national scheme, and, in instances where an authorised undertaker refuses

to operate a selected generating station under its orders, it may acquire the generating station after a complicated Parliamentary proceeding. Before the Board may acquire the generating station it must give any Joint Electricity Authority in whose district the station is situated the opportunity of acquiring the station if the original owners refuse to operate it as a selected station. The Board has also the power to acquire land compulsorily for wayleave purposes.

The Board was established in the late spring of 1927. Its main duties under the Act are as follows:

(a) To concentrate the output of electricity for public supply systems in a limited number of generating stations ("Selected Stations"), chosen for their efficiency and low operating costs, and to control their operation.

(b) To effect the interconnection of the Selected Stations with one another and with the systems of authorised undertakers, by constructing or acquiring main transmission lines.

(c) To arrange for extensions and alterations of the existing Selected Stations and for the construction of new Selected Stations by authorised undertakers, as and when necessary.

(d) To standardise frequency throughout Great Britain, with a view to effective interconnection.

(e) To supply, either directly or indirectly, any authorised undertaker requiring electricity in any area in which the Board is ready to supply. The price to be charged by the Board (subject to special prices chargeable to owners of Selected Stations) is to be in accordance with a tariff drawn up by the Board, the tariff being fixed on a self-supporting basis over an approved term of years, with such margin as the Electricity Commissioners may allow.

Finance

The Central Electricity Board, as now constituted, is not an ordinary industrial company financed by the issue of ordinary or preferred shares or debentures, but a public body financed by the issue of stock which bears with it no voting rights. Principal and interest on the stock may, under the Electricity (Supply) Act of 1926, be guaranteed by the Treasury up to a total of £33,500,000, but no use has been made of this guarantee, since it was felt that the Central Electricity Board stock should not be sponsored in the market by the Government.

The maximum amount which the Board may borrow at the present time with the consent of the Electricity Commissioners is £60 million, and the amount of stock outstanding at the end of 1935 was £49.4 million. In February 1936 an issue of £3.5 million 3¼ per cent stock, 1974-1994, was made at par, being the eighth issue made by the Board since it began operations.

Each stock is redeemable by a cumulative sinking fund to be built up out of the redemption funds which the Board have to provide for amortisation. The capital expenditure of the Board is devoted to two main objects: general "Grid" purposes, to which £34.4 million has been allocated, and standardisation of frequency, to which

£15.6 million has been allocated. Interest on money borrowed for the latter work is recoverable from the Electricity Commissioners, since the cost of standardisation, with its scrapping of plant and equipment rendered obsolete and its replacement by new equipment, is a charge on the whole supply industry. The Board acts as an agent to raise the necessary funds and to pay undertakers for carrying out the work of standardisation entailed. The Commission recovers the money by a levy on the industry, and repays the Board. Details of the progress of standardisation of frequency are given at the end of this chapter.

All the stocks issued and the interest on them rank equally with one another as a first charge on the undertaking and on the net revenues of the Board. In accordance with the provisions of the 1926 Act the annual provision for the repayment of money borrowed may be suspended and the interest may be capitalised for a period determined by the Electricity Commission. The Board's income and expenditure for the year 1934 showed a credit balance of £86,101, and for the year 1935, £1,021,221, the total credit balance in the appropriation of revenue account at the end of 1935 being £1,111,643.

Budgeting

The Board derives its revenue from supplying energy in bulk to the authorised undertakers.

The trading provisions of the 1926 Act are so designed as to leave in the hands of the Board to meet the costs of the Grid, a part of the savings arising from the more extensive use of the selected stations which the existence of the Grid makes possible. The full effect of these economies can only accrue when the load on the public electricity supply systems connected to the Grid has grown sufficiently to absorb the spare plant capacity potentially brought into the revenue-earning category by the construction of the Grid. The annual savings thereafter will continue to increase with further growth of demand. In consequence, the Act requires that the Board shall so fix tariffs as to cover expenditure, including interest and sinking fund charges, with such margin as the Electricity Commissioners may allow, not annually, but over a period of years. Accordingly, in fixing tariffs the Board envisaged revenue deficits in the earlier years of trading, to be made good by surpluses derived from the larger volume of business in the later years.

The demand for electricity in this country is potentially so great that some loss may be incurred by the C.E.B. with safety in the earlier stages of development in order to ensure that a competitive price is charged. Estimating of potential demand over a period of years would show that on a long-term view, such a policy of low prices, even at the risk of some loss in the first years, is justified.

If the demand for electricity were stationary or only slightly increasing, it would be necessary for the Board to fix its tariffs in such a way that it could recover almost at once its capital and operating charges, but the demand for electricity is a rapidly increasing one and is not yet within sight of saturation, so that it is feasible to defer the earning of a surplus until after a few years of development in order to keep prices down to a minimum.

The Electricity Commissioners and the Planning of the Grid

In the discussions preceding actual construction it was generally agreed that the Grid could not be expected to be in full operation much before seven years from its inception. It might therefore be completed by 1934. Actually, construction began in Central Scotland early in 1928 and the last tower for the main transmission system was erected on the outskirts of the New Forest at the beginning of September 1933.

The programme for construction was not drawn up in detail, as provision had to be made for changes and modifications dependent on local developments. The Electricity Commissioners, in the supplementary particulars drawn up for each scheme, set out a preliminary time-table which might be realised, without, however, committing the Board to a definite programme.

The Electricity Commissioners divided the country into regional areas and made a survey of the generating stations owned by electricity supply undertakers in those areas, selecting the most efficient of the stations, scheduling a smaller number for temporary operation during a transitional period and scheduling the remainder to be eventually closed down, determining the type, direction and cost of the main transmission system linking up the Selected Stations, and estimating the growth of the demand for electricity over a period of ten years, in order to provide a programme of extensions of Selected Stations to meet the anticipated increase in demand.

The proposals of the Electricity Commissioners were passed on to the Central Electricity Board as schemes to be put into effect, subject to any modifications considered necessary. The Board consulted the supply undertakers concerned, and interested parties were allowed to make representations before the schemes were adopted. The schemes covering the different areas were published on adoption and carried into effect, one after another, in order to spread construction over a number of years and bring a more even demand to the electrical manufacturing industry. The first scheme adopted was that of Central Scotland in 1927 and the last that of South Scotland in 1931.

The Scheme Areas of the Grid

For the purposes of the Grid construction programme the country was divided into ten main regional areas, namely, North Scotland, Central Scotland, South Scotland, North-East England, North-West England and North Wales, Mid-East England, Central England, East England, South-East England, and South-West England and South Wales. For each of these areas, except North Scotland, regional schemes were so designed that they would connect into each other to complete the national plan.

In the selection of the areas attention has been devoted to their outstanding industrial characteristics. Thus, North-East England covers the shipbuilding, marine engineering, iron and steel, chemical and coal mining industries of the North-East coast and hinterland. The North-West England scheme covers Lancashire with its textile industries, coal mines, iron and steel plants, shipbuilding and the engineering works in the vicinity of Manchester, as well as Cheshire with its great chemical works concentrated round Runcorn and Widnes, the Mersey estuary with its shipbuilding, paper, grain-milling and seed crushing industries, its tanneries and soap works and also North Wales

with its scattered slate quarries, textile mills, coal mines, chemicals and artificial silk works in Flint and Denbigh. Mid-East England includes woollen textiles, coal mining, iron and steel, paint and chemical manufacture, timber importing and wood working. The Potteries are in the Central England area which also includes great engineering and electrical manufacturing industries, metals and automobile construction, artificial silk and hosiery mills, confectionery, breweries, and boot and shoe factories.

The South-West England and South Wales scheme covers the coal mines, iron and steel and oil refining plants of South Wales, confectionery, tobacco and paper-making works in and around Bristol, the tin mines in Cornwall and wide stretches of agricultural territory. It includes also the Admiralty docks at Plymouth, and the great port of Southampton, and runs as far north as Oxford with its automobile industries. South-East England, which has recently become one of the most industrialised sections of Great Britain, is notable for an enormous number of small industries supplying articles in general consumption or materials required for building construction of all kinds. It has, however, four important single industries—paper, printing and book-binding, cement, and electrical cable manufacture, as well as the Port of London. Scotland as a whole has very large shipbuilding yards, iron and steel plants and coal mines, while it has a number of less important industries such as chemicals, oil-refining, cotton and woollen textiles, paper, and printing.

The Transmission Network

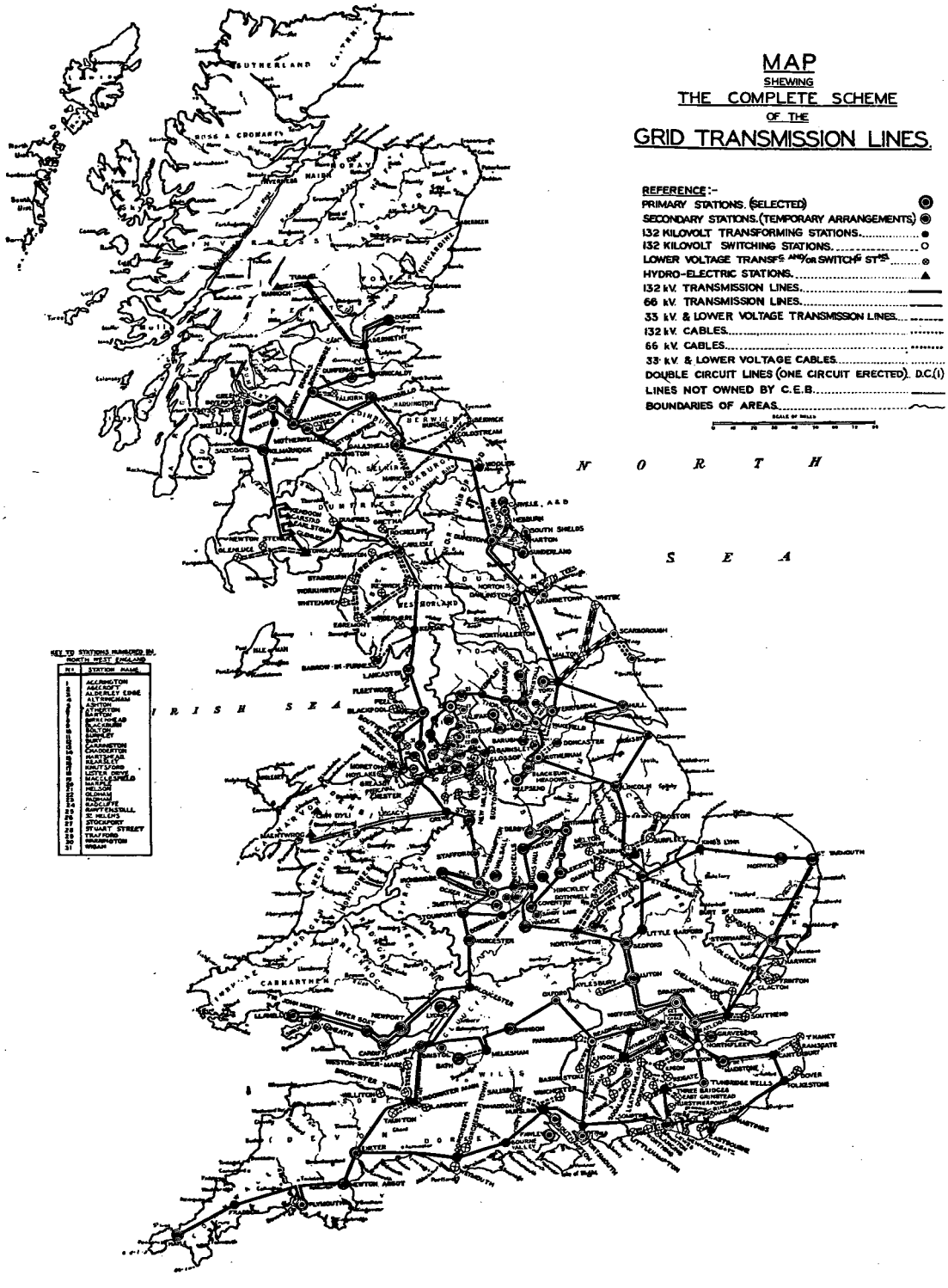
In planning layout and construction of the main 132 Kilovolt and secondary 33 Kv. (66 Kv. in the London area) transmission lines, much care has been devoted to making interconnection of the various systems complete so as to make the supply of electricity in all areas as free from interruption as possible. The main 132 Kv. transmission lines are interconnected throughout from Dundee, in the north to Hayle, near Land's End in the south-west, with many ring mains in between. The routes of these lines are shown in the sketch-map on the opposite page.

In the Grid network there were at the end of 1935 approximately 4,075 miles of transmission lines, including 2,880 miles of primary lines operating at 132,000 volts, and 1,195 miles of secondary lines operating at lower voltages, mainly at 33,000. The primary lines include 15 route miles of cable and the secondary lines, 102 route miles of cable laid within the London area. In the system there are 27,650 towers.

The Construction of the Grid

Generally speaking, the construction of the Grid was carried out in advance of the programme, although some adjustments were necessary. The cost of constructing the Grid has been approximately £27 million, and is within 2½ per cent of the original estimates. Construction occupied nearly six years and was responsible for intensive activity in a wide and varied range of industries. Industrial ramifications extended notably to coal mining, iron and steel manufacture, cable-making, electrical engineering, cement and pottery industries, building and contracting, and the effect of the Grid contracts upon employment, directly or indirectly, has been to produce 240 million man-hours of work.

MAP
SHEWING
THE COMPLETE SCHEME
OF THE
GRID TRANSMISSION LINES.



Upwards of 150,000 tons of steel were required, the major proportion being used for the fabrication of the transmission towers, which now march across the country from the Grampians to the South Coast, and from East Anglia to Land's End. Approximately 12,000 tons of Scottish aluminium produced by hydro-electric power, were used in the overhead lines.

It was believed in some quarters that the cessation of construction work on the Grid would lead to a sharp increase in unemployment in the electrical engineering and cable-making industries. However, the incidence of the economic slump would, in any case, have caused a severe recession in the market for generating plant and heavy electrical equipment. Previous slumps in 1922 and 1926 showed that supply undertakers are no more immune to crisis psychology than the ordinary industrialist. The introduction of a measure of planning in electricity supply just before the last trade crisis may actually have prevented a collapse in new generating plant business. It is probable that the demands of the Board on the manufacturing firms for materials and equipment in connection with the construction of the Grid during the critical years 1931-33, added to the restraining effect of planning upon fluctuations in the market for heavy generating plant, brought the whole electrical manufacturing and ancillary industries safely and prosperously through the slump.

Effects of the Grid

The effect of the Board's operation itself after completion of construction has been to cause such an immense acceleration of demand for electricity that the capacity of new generating plant placed on order since the beginning of 1933, namely about 24 million kilowatts, representing a total value of about £28 million, was greater than the total cost of the Grid, and so there has been on the manufacturing side of the industry no period of increased unemployment but a steady uninterrupted improvement in employment. The capacity of all generating plant scheduled as extensions to public supply stations under the control of the Board since it was constituted, was about the middle of 1936 in excess of three million kilowatts and had a total market value not far short of £35 million.

When the Board was constituted and began its work, electricity for public supply was produced in more than 500 generating stations belonging to authorised undertakings; the total number contemplated when the scheme of reorganisation is complete is 144. At the end of 1935 there were 132 Selected Stations having a total of 6.75 million kilowatts of generating plant installed. The rated output of the 144 stations selected for operation under the National Power Scheme ranged from about 10,000 kilowatts in the smallest to 390,000 kilowatts at the Barking Station of the County of London Electric Supply Company, while several of the other Selected Stations are designed for an output of between 200,000 and 350,000 kilowatts. The steam-raising plant at Barking consumes over 1,100 tons of coal a day, and about 500,000 tons of water are put through the condensers every 24 hours. The largest installation of transformers is also at Barking where there are four of 60,000 and six of 30,000 kilovolt amperes, while at the new Clarence Dock Station in Liverpool the first 75,000 kVA. transformers have been installed. In area and number of switches, Northfleet, in the South-East England scheme, is the largest 132,000 volt switching station in the Grid.

In addition to the 126 stations selected for operation in the nine scheme areas, provision was made for the erection of sixteen new Selected Stations. Ten have been built—these are Clarence Dock, Liverpool (1931); Ironbridge, Shropshire (1933); Battersea (1933); Tir John North, Swansea (1935); Fulham (1936); and the five hydro-electric stations of Tongland and Glenlee (1935), and of Earlstoun, Kendoon and Carsfad (1936), all in Galloway. The remaining six stations are to be located in East Scotland, West Scotland, South-East London and at Manchester (Carrington), Little Barford, and Fawley, on Southampton Water. All of these have been planned for large scale production; for instance the output capacities for which they are ultimately planned include the figures of 200,000 kW. at Ironbridge in the Central England Area; 480,000 kW. at Battersea; 350,000 kW. at Clarence Dock, Liverpool; 240,000 kW. at Tir John North, Swansea; and 310,000 kW. at Fulham. These generating stations embody the most up-to-date plant and equipment for fuel handling, steam-raising, condensing, generating and control, as well as for the prevention of atmospheric pollution by smoke, grit and combustion gases. In addition, two stations have recently become selected stations: Watford and Grimsby.

One of the results of the Grid has been to afford an important outlet for the water power resources of the country. A large quantity of energy from the hydro-electric stations of the Grampian Electricity Company in the Highlands of Scotland is fed into the Grid at Abernethy in the Central Scotland Area, while the selection in South Scotland of five hydro-electric stations of the Galloway Water Power Company establishes a direct association with the National Power system, provision being made for the output to be fed into the Grid primary line between Carlisle and Kilmarnock. The Grid is also linked up at Crewe with the hydro-electric stations in North Wales.

Through the interconnected transmission system, which is capable of expansion whenever the demand renders it necessary, an abundant supply of electricity is made available alike for industrial requirements in the great cities and urban districts and to many outlying country areas which would have otherwise been without supply.

In the selection of the most efficient generating stations for operation in each area the Board has, with the approval of the Electricity Commissioners, departed from the Weir Committee proposals on finding that improved results could be obtained by a rather broader selection of a greater number of stations than the Weir Committee contemplated.

While the main purpose of the Grid was to interconnect Selected Generating Stations and to give supplies to the owners of these stations (and to a larger number of other authorised undertakers who do not own a Selected Station), the Board has also attempted in constructing the Grid, to touch at as many points as possible for main distribution purposes. In the completed schemes there are 280 Grid points (with a total capacity of 8.86 million kVA.), from which supplies are given to authorised undertakings. Although power companies and Local Authorities had already constructed important transmission systems, these were in the main isolated from each other and required some interconnecting link. This has been provided by the national transmission system.

Under the Grid plan the base load is carried chiefly by the larger stations where production is most economical. Some of the small stations retained may only be run

during peak periods, and shut down during week-ends when the industrial demands are low, or during the summer months when lighting and heating demands are small. The programme of eliminating entirely the smaller uneconomical stations continues, according to circumstances and operating experience, until the scheme functions at maximum efficiency with the minimum number of generating stations in operation.

The Operation of the Grid

In determining selection of generating stations, a classification into three groups was made:

Base Load Stations

These are the most modern and most efficient generating stations in the country, equipped with plant of a type to ensure efficient production for a number of years without important modification or renewals.

The base load stations are loaded as close to full working capacity as possible consonant with a satisfactory margin of safety and reliability, so that the maximum economies resulting from continuous production in great quantities—i.e. high load factor operation—can be realised. A considerable proportion of the output of these stations may go to supply the systems of the undertakings owning them, but the remainder is exported to the Grid for transmission to other undertakings so that the entire scheme may benefit from the economies realised.

Two-shift Stations

These stations are generally smaller and less efficient than the base load stations. They may be operated only for two-thirds of the maximum time and are normally closed down during the light load period at night, during week-ends, and in certain cases during the summer. Where conditions of load require it, they may be operated continuously over extended periods or kept in readiness to be switched into the system in the event of any interruption in output from the base load stations.

Peak Load Stations

These stations are normally only required to operate at times of peak demand during the early part of the evening during the winter months; they may act as special reserve stations in the event of very rapid increases in demand over extended periods, but their main function is to deal with extremes of demand, such as those caused by a "cold spell," which, otherwise, would make necessary excessive reserve plant in base load and two-shift stations.

Central Control Rooms

The efficiency of the Grid system is dependent upon the exercise of effective control over the operation and loading of the Selected Stations. This has been provided for by the establishment of a strategic point in each area of a fully equipped Control Room connected by private telephone lines with all the generating stations and Grid points in the area. Most of the stations run to a pre-arranged programme, but the Control Engineer at each Central Control Room must keep in mind the necessity of ensuring a constant supply and of utilising the most efficient stations to the best advantage.

These Control Rooms are the nerve centres of the Board's organisation and are linked to the outlying stations by a radial system of telephone communication circuits hired from the Post Office for the exclusive use of the Board.

In order to ensure speed and accuracy in the transmission of vital information to and from the Control Centre and the outlying stations, the ordinary telephone equipment has been supplemented by apparatus for the automatic transmission of certain important indications over the same circuits as the telephone messages. By a combination of switchboard, dials, light signals and telephones, Control Engineers in these nerve centres are kept in constant touch with the working of each generating station, and with the fluctuating state of demand through the various switching stations, and the import and export of electricity at the stations is continuously recorded.

Trading and Development

The output of all the Selected Stations is purchased by the Board, the price payable being, unless otherwise agreed, the cost of production ascertained in accordance with the Rules set out in the Second Schedule to the 1926 Act. After general trading has begun in any area, all authorised undertakers in the area (including the owners of the Selected Stations), who require electricity for distribution to the public have the right to demand a supply, directly or indirectly, from the Board. Supplies given directly by the Board are normally chargeable at the Grid Tariff for the area, but the owner of a Selected Station has the option of repurchasing so much of the electricity produced at the station as he may require, at the cost of production (adjusted according to the load factor and power factor* of the supply) with the addition of a proper proportion of the Board's expenses in providing, maintaining and operating the Grid.

The Act also provides that the owners of any existing Selected Station shall not pay more for the total supply taken at the station than the cost they would have incurred including the provision and maintenance of adequate spare plant (had there been no Grid scheme), in generating a similar supply under conditions of independent operation.

Undertakers owning generating stations which are not Selected Stations are protected against having to pay more than they would pay under conditions of independent operation for their supplies of electricity. No such undertaker can be compelled to close down his station and buy his supplies from the Grid unless the cost of the Grid supply can be shown to be less than the cost of production at the station, excluding the capital charges which he will still have to meet. Since the Grid Tariff has to provide for capital charges on the Selected Generating Stations and on the Grid, it follows that it is only the non-selected stations with unusually high production costs which can be closed down compulsorily under this test.

At the great majority of non-selected stations, the works costs (excluding capital charges) are lower than the Grid Tariff, but the total cost of production (works costs plus capital charges) is in excess of the Grid Tariff. Many of those stations still have some economic life, and it is to the mutual advantage of the owner and the Grid system

* Power factor in an alternating current circuit is the ratio between apparent power and actual power. The difference arises from the phase difference between the two waves of pressure and current, the effective value of A.C. power being the resultant of integrating pressure and current values over a full cycle.

if arrangements are made for the Board to supply the owner of the station with the whole of his requirements and for the station to be operated under the directions of the Board for peak load and standby purposes, the Board paying an appropriate rental for its use. As the outstanding capital decreases, that rental can gradually be reduced and ultimately it will be to the advantage of the owner of the station to purchase the whole of his requirements from the Grid under the Tariff and shut down his station. Recognising this position, the Board entered into a number of arrangements of this nature, and, by the Electricity (Supply) Act, 1935, the Board were empowered to continue those arrangements and to make further similar arrangements.

The 1935 Act

The most interesting feature of the 1935 Act is a Clause that gives effect (in part) to a recommendation made in 1931 by the Weir Committee on Main Line Railway Electrification. It empowers the Board (subject to certain restrictions) to give supplies directly to any railway company for traction purposes at prices to be agreed, provided that the Electricity Commissioners are satisfied that no financial loss will result to the Board. The Clause, by enabling the railway companies to negotiate direct with the Board for the supply of energy for traction purposes at a number of points, removes a serious obstacle to railway electrification.

The control of the Selected Generating Stations, in order to ensure the highest net efficiency in any interconnected area, may have rendered it impossible to run an individual Selected Generating Station Unit under the most favourable conditions as far as that unit is concerned, although the results of operation by the Board as spread over all Selected Stations in an interconnected area may be productive of considerable economies. According to the Board's Eighth Annual Report, suggestions were made to the Board by the Consultative Technical Committee for North-West England and North Wales with a view to pooling and distributing more equitably the savings in that area without jeopardising the finances of the Grid and, by the end of 1935, the form of pooling agreement between the Board and the individual Selected Station owners in the area had been settled and was in course of execution. The possibility of applying this or some analogous method to other areas is being considered.

Principal Economies Derived from the Grid

Capital Economies

Through the control of operation of Selected Generating Stations, the Board are able to adjust productive capacity to demand and ensure that the fullest use is made of capital investment in generating stations. In an industry with a prospect of steadily increased production, this adjustment of capacity is very important, since it ensures that the new capital investment in industry is applied to the most productive purposes.

The first effect of the construction of the Grid was to make available for revenue earning a large proportion of the generating plant in Selected Stations which had formerly of necessity been held in reserve and which could not have been fully remunerative under conditions of isolated operation. When the load has grown sufficiently to absorb

the output of the plant released in this way, further growth of load can be met at lower capital cost by reason of the smaller aggregate capacity which is required and the larger and more economical units of plant which can be installed.

In 1931 over 45 per cent of the total plant installed in the generating stations in Great Britain was held in reserve while, with the Grid in full operation throughout the country, it will be possible safely to reduce this proportion to 15 per cent. The diversity of the load on the several supply systems makes an important contribution to the economies of an interconnected national scheme. It is estimated that up to the end of 1935, the saving in capital investment in generating plant arising as a direct result of the construction of the Grid has exceeded £11.4 million. In another five or six years it is computed that the saving will be in excess of the total cost of the Grid. There are about 8 million kW. of plant now installed and with the contemplated reduction of 30 per cent in spare plant the saving in capital expenditure will be roughly 2.4 million kW. at £12 per kW. = £28.8 million.

It is apparent that the end of the first stage of development under the Grid is now within sight, since the extensions of Selected Stations decided upon during 1934, which came into commercial service during 1935, and which are coming into service in 1936, are of a total capacity roughly commensurate with the annual growth of demand throughout the country.

Operating Economies

The second major economy resulting from the interconnection of the generating stations through the Grid arises from the concentration of production in the most economical generating stations and the consequent restriction of the use of the less economical stations. The concentration of production of the long-hour or base load in the most efficient stations and the use of the less efficient stations for restricted periods results in great economies of running costs, while the closing down of such secondary stations during certain periods of the year permits of incidental economies in other operating expenses.

The average fuel consumption per unit sent out from the generating stations operating under the control of the Board in 1935 was 11 per cent below the average fuel consumption at such stations when operating under independent conditions in 1932. This represents a saving of some £960,000 in the operating costs for the year 1935. Some saving would, no doubt, have been effected under conditions of independent operation.

Reduction in the number of generating stations might have taken place after a considerable number of years even without the Grid, but before the proper adjustment of productive capacity to demand could have been carried out, there would have been unnecessary expansion of generating plant in many cases and excessively long service of inefficient units in others. There would consequently have been over-valuation of assets as far as old and inefficient stations were concerned, and waste of new capital in the provision of unnecessary extensions.

During 1935 there were 148 selected and non-selected generating stations operating under the directions of the Board in the areas in which general trading was in force.

These stations produced over 95 per cent of the total quantity of electricity generated by public supply authorities in those areas. Of these stations it was only necessary to run 28 for the full 8,760 hours in the year. The operation of the others was restricted, 46 running less than 2,400 hours, 47 others less than 6,600 hours and 27 over 6,600 hours. Fifteen of the most economical stations, which ran continuously throughout the year, supplied over 50 per cent of the total units generated for the Board.

In the pre-Grid period of supply, one of the most difficult tasks was the intelligent planning ahead of generating capacity to meet the probable demands of extended distribution networks and increased consumption per capita of domestic and power consumers, and this factor retarded full distribution development. The authorised undertaker who owns a Selected Generating Station is now in the position of having the Board absorbing his entire output and guaranteeing annual capital charges and interest. Such new conditions enhance the value of these assets and give an additional security which must ultimately be reflected in a tangible form, i.e. in the instance of company undertakings, in the quotations of their shares on the Stock Exchange. While these advantages concern the undertaker directly they must eventually reach the consumer.

The stimulation of consumption can be carried out through the provision of additional distribution lines to open up rural areas and closer costing between capital expenditure and running costs and estimated revenue. In view of the fact that, in generation and main transmission, capital risk is now assumed by the Board, supply undertakings do not require as great a margin of net revenue on a given capital expenditure on distribution as was necessary before, while the existence of accessible points of supply from the Grid represents a further economy in capital expenditure and a further elimination of capital risk. Much of the progress realised since 1933 has been due to the readiness of the supply industry to develop an area on a narrower margin of net revenue than formerly, under conditions of economy in capital expenditure and of reduced capital risk.

Standardisation of Frequency

Effective interconnection of all the generating stations and distribution systems could not be accomplished until the frequency of these systems was standardised. For this reason provision was made in the 1926 Act to give the Central Electricity Board power to require alteration of the frequency employed in any undertaking. The lack of uniformity in voltage and in frequency in the supply industry has caused waste and confusion in the past, both by compelling the electrical manufacturing industry to produce machinery and equipment of a wide variety of types for factory and home, and by preventing the consumer from using certain equipment after removing his household to an area of supply where electricity is distributed at a different voltage and frequency.

The savings in standardisation of output that will accrue from the standardisation of frequency will be substantial, and the task of effecting the change is equally large. For the electrical manufacturing industry, to serve a national market in which the major requirements for the design of electric motors and of all equipment—industrial, domestic and agricultural—have been standardised, will have far-reaching effects.

The total cost of standardisation is estimated to be between £16 and £18 million, and it is a charge on the entire electricity supply industry. The work has been entrusted to the Central Electricity Board, who pay the cost and are repaid by the Electricity Commissioners, the actual charges represented by the cost being collected by the Electricity Commissioners in the form of a levy on the industry, based on units sold and transmitted to the Board.

By the end of 1935 the change to standard frequency had been effected in respect of 669,286 kilowatts of generating plant out of an estimated total of 914,061; 82,025 motors aggregating 1,451,873 h.p. out of an estimated total of 1,821,976 h.p.; and converting plant of 291,058 kilowatts capacity out of an estimated total of 338,613 kilowatts. The work has involved the installation of new electric motors on a large scale in such industries as iron and steel, shipbuilding and engineering, and has entailed the rewinding of alternators in generating stations and of other equipment used for the transmission and conversion of electricity. The magnitude of this work, which has been carried out by the undertakers concerned in accordance with programmes arranged with the Board, included work on the premises of over 340,000 consumers whose supplies had to be maintained throughout the process.

Secondary Transmission Lines

The Board has, in the planning of its secondary lines and extensions to those lines, notably in Central England and Central Scotland, considered accessibility of bulk supply for distribution purposes and in this way reduced the margin of capital expenditure between the first installation and the consumers' terminals. The development of these secondary lines is dealt with in the next section of this report, "The Supply Industry and its Problems."

IV. THE ELECTRICITY SUPPLY INDUSTRY AND ITS PROBLEMS

Introductory—Territory and Population Covered—Consumers—Sales—International Comparisons—Employment—Finance—Generating Plant—Systems of Generation and Distribution—Size of Undertakings—Types of Undertakings—Generation: Thermal Efficiency—Cost of Energy—Varieties of Use—Consumption Characteristics—Costs and Prices—Services and Prices—Tariff Simplification—Service Charges and Guarantees—Market Research and Technical Information—Design and Layout of Supply Systems—Uneconomic Areas of Supply—Development Through Large-Scale Co-ordination—Company Administration—Holding Companies—Operating Companies—Power Companies—Local Authorities as Owners—Local Rates—Compulsory Purchase Rights—Local Negotiations

Introductory

The economic conditions which govern electricity supply are highly complex and, at the present stage, unstable. To understand them is essential to the formation of any policy of development. The situation is in many respects closely parallel to that of transport.

Electricity supply is in itself monopolistic in character and must remain so. The relatively large fixed capital which is necessary to give a supply in any area renders highly wasteful the duplication of capital equipment which would be involved in any attempt to compete for the custom of identical consumers. Thus at the present time in practically no area in the whole country is it possible to find a potential consumer of electricity who is in the position of being able to choose between two or more competing undertakings for his supply.

Nevertheless, the industry is almost everywhere exposed to competition of one sort or another. Consumers of certain types may generate their own electrical energy, and there is a manufacturing interest to foster this expedient. For some purposes the coal or coke fire and the coal-fired boiler are practicable alternatives. The same applies to oil. In urban areas, but not in rural, gas is a strong and active competitor. The ability of the supply industry to behave as a monopoly is highly restricted; indeed, except for such uses as domestic lighting, radio and similar purposes it scarcely exists.

To analyse in detail the effects of these conditions would be beyond the scope of this report: but the salient features must be briefly stated.

In the first place, they lead inevitably to a complex price-structure, to variations between areas in the price-structure and in price relations, and to frequent changes in both. In those places, and for those uses where the competitive position of electricity from a public supply is unchallenged or relatively strong, the price will tend to be governed by monopolistic considerations limited by the effect on the load factor and capital investment of the undertaking, of any new potential demand.

On the other hand, for uses, or in areas, where the competitive power of alternatives to electricity is strong, there is a natural tendency to fix the price on the basis of bare differential cost in order to get the business, leaving the more highly-rated classes of supply to bear most of the burden of the fixed charges. This tendency again is modified by the effect on the load factor and on the capital investment of additional demand so obtained. The operation of these conditions is also modified by the pressure of organised consumers and other forms of political pressure (particularly in the case of municipal undertakings) and by public statutory control, which is largely the expression of these pressures.

Underlying this problem is one which is even more fundamental. Should the price policy be to make each class of consumer equally profitable, in proportion to his consumption, to the undertaking or should (as the railwaymen say), "the fat traffic pay for the lean"? Should rural consumers, for instance, be carried on the much broader backs of urban consumers? We do not attempt to pursue this question; but we must content ourselves with pointing out its importance, and its bearing on the question of the reorganisation of areas of supply.

Lastly, economic conditions governing electricity supply are in themselves unstable. Costs of generation have fallen greatly and should continue to fall in a less marked degree. Of distribution costs, unfortunately nothing like enough is known. Indeed, one of the first and most important tasks of any authority responsible for reorganising and supervising distribution will be to obtain uniform and reliable data as to comparative distribution costs and the various conditions and components of such costs. It is probable that in developed areas distribution cost is falling through technical improvement, better organisation and the growing density of the distribution system, while elsewhere these savings may be more than out-weighed by the extension of supply into undeveloped or sparsely-developed districts. On this last point we would add that when once a policy of the widest possible availability of supply is adopted, the only sensible corollary to that policy is to aim at building up the greatest possible use of the distribution equipment provided. To create a complete distribution network, and then through lack of marketing energy and through restrictive tariffs to fail to get the fullest possible load for that network, is to enjoy the worst of both worlds.

Territory and Population Covered

The supply of electricity is now so far advanced in Great Britain that probably less than 3 per cent of the population lives in areas not yet covered by statutory powers. Considerable extensions of distribution systems have recently been planned or carried out to supply new territories. Even purely agricultural areas, such as East Anglia, are already covered by a network of overhead distribution lines, and similar developments can be found in many other parts of the country. During recent years, whole new agricultural areas of very large extent, notably the south and south-west of Scotland, Westmorland, Cumberland, Lincolnshire, Sussex and the area round the Wash have been opened up. The farm population has been the last to benefit. In 1930 there were only about 4,000 farms connected to the electricity mains; at the end of 1935 it was estimated that this figure had risen to 25,000.

Consumers

The number of consumers connected to electricity supply systems has increased remarkably since 1921. In that year the number of consumers was probably less than 2 million, in March 1928 it was 2.6 million, in March 1933, 5.3 million, and in March 1936 it was approximately 7.75 million, and was increasing at the rate of about 850,000 a year. Of the total, including bulk users, about 83 per cent are domestic. Inclusive of shops, farms, factories, commercial premises, churches and institutional buildings, public and private, as well as dwellings, the total potential number of consumers in this country is probably not far short of 15 million, so that the total already connected is only just over half the possible number.

Sales

Of the latest recorded total sales of electricity supplied by authorised undertakers 56 per cent were used for power, 35 per cent for lighting and domestic purposes and 7 per cent for traction. The total sales were 14,550 million units in 1935—an increase of 13.8 per cent over the previous year and equal to more than twice the 1927 total. Of the 14,550 million units sold, 9,181 million were sold by public authorities and 5,369 million by companies. The total revenue from all sources for sale of current was over £82 million in 1935, or more than twice the 1924 revenue. Units sold per head of population in 1935 were 319.

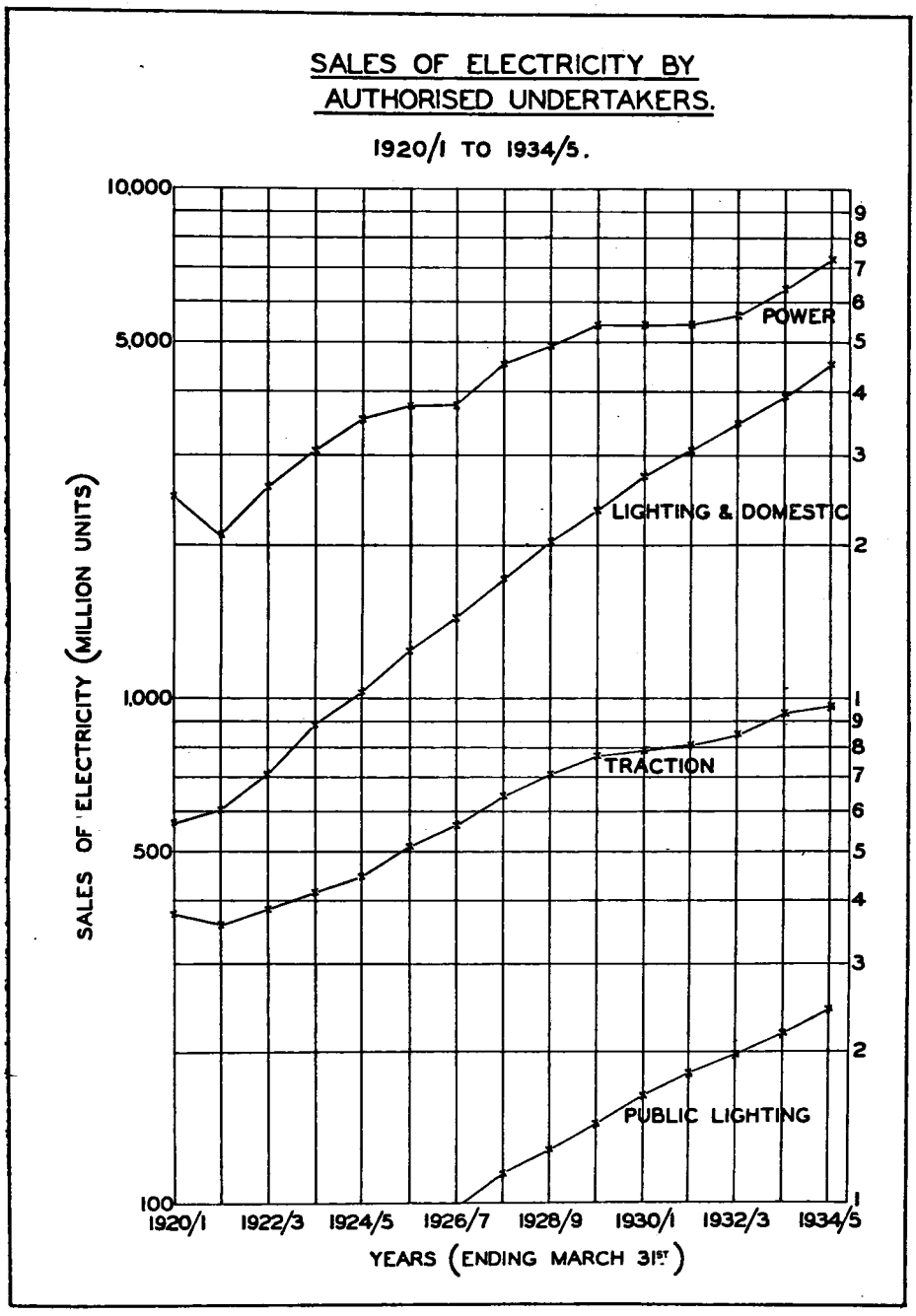
International Comparisons

It is interesting to make comparisons internationally between the recent progress of the electricity supply industry in the chief countries. Taking the output for the year 1929 as 100, the index for Great Britain in 1935 is 170.7, exceeded only by the special instance of Russia, 359.0, and only equalled by Denmark, also 170.7. Next in order come Japan, 155.5; Czechoslovakia, 143.0; Spain, 141.0; Holland, 136.9; and Canada, 130.8. In units generated the U.S.A. show the largest output for 1935, namely, 99,236 million, followed by Canada (23,548 million), Russia (23,000 million), Germany (19,118 million), Great Britain (17,565 million), and France (16,300 million).

These figures are, as far as possible, comparable, but accurate data compiled on exactly the same basis are difficult to obtain. It is evident that the growth of demand upon the electricity supply industry in Great Britain since 1929 has been greater than the corresponding growth in other industrial countries of the world.

Employment

The total number of persons employed by authorised undertakers at the beginning of 1935 was 80,803, with a total salaries and wages account of £12,390,572. By the beginning of 1936 employment among authorised undertakings is estimated to have reached 82,000, while inclusion of figures for non-statutory supply undertakings and of those covering employment in the related trades of wiring and contracting brings the total persons directly and indirectly employed in the electricity supply industry, excluding manufacturing, to some 125,000. (If electrical manufacturing and ancillary industries are included the total is now about 400,000 workers.)



On this ratio chart the vertical scale is one on which equal lengths of line correspond to equal percentage changes. The slopes of the curves shew relative rates of growth.

Finance

The capital invested by authorised undertakers at the beginning of 1935 amounted to £438,481,444, of which £50,000,000 was in loans raised by the Central Electricity Board, £245,820,456 in loans raised by public authorities and £142,660,988 in capital issued by company undertakings. The capital expenditure at the same date was £494,992,800, of which £46,183,796 was on account of the Central Electricity Board, £271,054,807 on account of Public Authorities and £177,754,197 of companies.

The capital raised by authorised undertakers by the beginning of 1929 was £267,755,139, and that for capital expenditure at the same date was £297,677,012. The increase over the six-year period, 1929 to 1935, has therefore been approximately 65 per cent.

Generating Plant

During the same period generating plant installed in stations operated by authorised undertakers increased from 5,801,770 kW. to 7,785,206 kW. (an increase of slightly over one-third), while the number of units generated increased from 9,324 million in the year ending March 31, 1929, to 15,587 million in the year ending March 31, 1935 (an increase of 67 per cent), and to 18,415 million in the year ending March 31, 1936.*

Systems of Generating and Distribution

The total number of generating stations decreased from 473 in 1923 to 421 in 1935; alternating-current generating stations (A.C.) increased from 193 to 212 and direct-current stations (D.C.) decreased from 227 to 134. Stations generating both A.C. and D.C. current decreased from 107 to 75.

The total number of undertakings increased from 492 in 1923 to 626 in 1936, a maximum figure of 668 being reached in 1930. Of the total the A.C. systems increased from 109 in 1923 to 288 in 1935, while D.C. systems decreased over the same period from 207 to 69. Undertakings having both A.C. and D.C. systems increased from 176 to 278.

Size of Undertakings

In 1935, 189 undertakings had sales of less than 1 million units a year, while 437 were above this sales level. Undertakings having sales between 1 and 5 million units numbered 168; between 5 and 10 million units, 72; above 10 million, 197. Of the larger undertakings 33 had sales exceeding 100 million units a year, and 32 between 50 and 100 million units. Of this group of 65 undertakings, 45 were owned by public authorities and 20 by companies.

Types of Undertakings

The electricity supply industry in Great Britain consists of a variety of undertakings, resulting largely from the economic, financial and political conditions under which this utility has grown up. The industry is carried on under no less than eighteen regulatory Acts of Parliament, ten of these being general, while six apply to London alone and two to Scotland alone.

*Steam power stations produced over 95 per cent of the units generated.

The publicly-owned section of the industry includes County Borough, Borough and Metropolitan Borough Councils, Urban District Councils, Rural District Councils, County Councils and Joint Electricity Authorities of various types. The private enterprise section includes the small local company working under a provisional or special order subject to purchase by the local authority; the power company working under perpetual franchise, and the composite company operating provisional or special orders, partly under perpetual franchise and partly subject to purchase.

Some distinction must be drawn in the organisation of those companies. There are:

(*a*) The independent company with no affiliations or connections with other companies;

(*b*) The company forming part of the Joint Electricity Authority as far as generation and main transmission is concerned, but independent in distribution;

(*c*) The company which acts as a distribution subsidiary to another company which is engaged largely in generation and bulk supply;

(*d*) The company which is an operating as well as a holding company;

(*e*) The holding company which controls undertakings in certain limited areas without nation-wide application;

(*f*) The holding company with interests scattered all over the country; and

(*g*) The electrical equipment manufacturing company, acting in the capacity of holding company.

In addition to these authorised undertakings, there are unauthorised undertakings (in the sense that their powers to supply electricity have not been obtained under legislation having specific reference to electricity supply) which are selling a part or the whole of their output to the public supply network. These are composed of tramway, railway and other undertakings owning 37 generating stations.

Generation—Thermal Efficiency

The economies achieved in the generation of electricity during the last ten or more years have been considerable. If we take the generating resources of the authorised undertakers, railway and tramway authorities and certain non-statutory undertakings, the average coal consumption per unit generated in 1925 was 2.53 lbs., and in 1935 it was 1.54 lbs., so that for every unit generated to-day about 1 lb. of coal is saved. On a total output of 18,106 millions of units for 1935 (including the railway, tramway and non-statutory undertakings) the coal consumption is now 27,950 million lbs., a saving of 7¾ million tons of coal per year, in comparison with 1925 standards.

The most economical generating station is the Battersea station of the London Power Co., consuming 0.96 lbs. of coal per unit generated; followed by Barking "B" station of the County of London Electric Supply Co., using 1.09 lbs.; Dunston "B" station of the North Eastern Electric Supply Co. (Newcastle-on-Tyne), using 1.11 lbs.; and Clarence Dock Station of the Liverpool Corporation, using 1.12 lbs. The overall thermal efficiency of Battersea is 28.59 per cent, Barking 28.07 per cent, Dunston "B" 27.25 per cent, and Clarence Dock 26.21 per cent.

Cost of Energy

If we examine the production part of the price of electricity supply, i.e. works cost per unit generated (excluding capital charges) 15 undertakings record less than 0.2d. per unit, 80 less than 0.5d. per unit, 140 less than 1d. per unit, and 184 less than 1.5d. per unit. Of the 140 at less than 1d. per unit, 71 are Local Authority stations and 69 are owned by companies; of the 80 at less than ½d. per unit, 45 are Local Authority and 35 are company stations.

Those undertakings not possessing generating stations obtain their supply in bulk, while some receive a supply in bulk to carry the base load and generate at peak load periods. Analysing the bulk supply costs, we find that 13 undertakings paid less than 0.3d. per unit, 178 paid less than 0.5d., 442 less than 1d. and 530 less than 1.5d.

Varieties of Use

Generation and distribution conditions on the one hand and the different uses of electricity on the other affect the tariff structure and level of charges so basically that the final product delivered at the consumers' terminals has all the main features of a variety of products. To use a factory analogy, the generating station takes in its raw material, coal, oil and water, and through processes of conversion makes a single product, electricity. When this product is sold in bulk to large industrial undertakings, using millions of units, it is a commodity parallel to the factory-product sold direct to large wholesalers. The costs involved in giving this supply after leaving the factory (generating station) include the necessary high tension overhead line or underground cable and the switchgear and transforming equipment at the consumer's end of the line. There are service and maintenance costs on the line and capital charges, including interest and depreciation, but the costs of commercial service involved in this class of bulk supply are small. No retail distribution outlets are involved, advertising and propaganda are not needed, and the activities of a large sales force, giving sales, engineering, demonstration, showroom and special appliance service are not required. There will be negotiations between the factory manager and the engineer of the supply undertaking, and a proportion of the general administration and commercial charges must be allocated to securing and developing these large factory power loads, but the costs are small in relation to the sales development and service costs needed to supply the residential consumer.

The costs involved in the supply of electricity to residential consumers are those of service from a manufacturer to the public through retail outlets. It is true that no retail shops are interposed between the distributor of electricity and the public, but he must maintain branch offices and selling outlets in the form of showrooms where the public may buy electricity-consuming appliances and receive full service. The analogy is therefore with the manufacturer owning retail outlets and branch offices, and all the forms of operating expenses (which must be included in the final price of the manufacturer's goods to the public) are represented in the final price of electricity supply to the domestic consumer.

Consumption Characteristics

The effect upon cost of increasing the variety of equipment in the household or the variety of consumers is twofold, since both the amount of electricity used, and the period

of use of the plant, are increased. We show in Appendix 2 typical curves of demand at different seasons of the year, when the uses of different equipment vary."

The diagram shows typical demand curves for well-developed domestic, industrial and lighting supplies. As the valleys in the curves are filled up by diversity of demand, the load factor improves.* Electricity supplied for use at periods of light load can be sold at a very low price because it does not cause any additional peak load, and therefore no increase in maximum demand charges or capital costs, the actual costs being little more than the cost of fuel used in generating the off-peak demand. A number of undertakers now offer low "off-peak" rates for water-heating by immersion heaters which are temperature-controlled, and for other purposes where the supply can be discontinued at peak load periods during the months of November, December, January and February. It is on the maximum demand occurring in those four months that the supply undertakers pay the Central Electricity Board the fixed charge in the two-part Grid Tariff.

In most areas the maximum demand on the system occurs between 4.30 and 5. p.m. with a secondary peak just before noon, these peaks arising largely from factory demand and lighting.

Electric cooking produces a demand at breakfast time, at midday and in the evening, after the main peak has subsided. It appears that, at any rate up to a certain point, which will vary according to the characteristics of the area, the connection of a large number of cookers does not materially affect the undertaking's maximum demand, although exceptional cases exist of an undertaking with a highly-developed cooker load having its top peak on Sunday at noon.

Cooking by 100 families, each having a 7 kW. cooker, will not, because of the diversity of demand, produce a load of 700 kW. at any time. It may provide a load of only 50 kW.† The diversity factor of this group with 100 cookers would then be 700 :. 50 or 14 to 1, and it is the diversity of all the numerous demands which permits of the connection of large quantities of apparatus without fear of exceeding the capacity of the mains and plant through the switching on of all the apparatus connected to the system at the same time. In the design and layout of a distribution system, Load Factor and Diversity Factor are allowed for, the main requirement being the maintenance (within the statutory permitted limits) of the declared voltage at the consumers' terminals and the provision of a continuous supply at that voltage: similarly, the capacity of a telephone system is not designed to carry the demand from everybody's wanting to talk at once; probabilities of use enter to enable reasonable margins to be maintained.

* Load factor is the ratio of the total kilowatt-hours (units) used to the kWh (units) which would have been used were the maximum demand in kilowatts sustained throughout the year. (Maximum demand is defined as twice the largest number of units used during any consecutive 30 minutes commencing or terminating at the hour.)
Expressed as a formula:

$$\text{Load Factor} = \frac{\text{kWh (units) used in year} \times 100}{\text{Maximum demand in kW.} \times 8760.} = x\%$$

† Diversity Factor is the number obtained by dividing the sum of the maximum demands of individual consumers during a given period by the actual maximum demand during the same period. Expressed as a formula:

$$\text{Diversity Factor} = \frac{\text{Sum of consumers M.D. in kW.}}{\text{Actual M.D. in kW.}} = d\%$$

Diversity varies with every group of consumers.

Costs and Prices

In all forms of production the costing of any particular product cannot be exact; in manufacturing industry it is the result of certain assumptions with regard to the allocation of factory overheads, the method of charging labour costs, and the price at which raw material is chargeable to a certain job at a certain date. Again, there are further variables in the methods of applying overheads outside the factory (i.e. administration and general expense and sales expense) to arrive at a selling price. Further, one does not, in a buyer's market, determine a selling price from cost, but one works to a cost necessary to meet a selling price demanded by market conditions. This is true of electricity from public supply in the different markets in which it competes, for although a quasi-monopoly, it has to meet competition from private generating plant, and from gas, oil, coke or raw coal in various applications.

The problem of costs is dealt with here in some detail since it is one on which the public needs information to understand the necessity for price flexibility. There is no standard system of costing for distribution costs in the electricity supply industry (nor is there one in any important manufacturing industry) and some methods remain most elementary while others have become excessively elaborate. The disadvantage of the former is that they tend to show a profit when one is making a loss; the disadvantage of the latter is that they tend to show a loss when one is making a profit.

The manufacturer producing a range of models in one broad type of product has to balance his total profits on the estimated sales of each line to customer groups of different purchasing power. He may, for instance, be producing economical low h.p. cars, expensive high h.p. cars, heavy service lorries and motor vans. Competition in each of these lines is different, and the purchasing power of each customer group, the sales effort involved, the publicity expense, and the sales promotion expense in terms of specialist salesmen, and demonstration, are also different. These different conditions have their parallels in the sale of electricity.

In producing and distributing electricity the total cost involved is made up of fixed charges on generating plant and equipment, transformers, cables, overhead lines, etc., and variable costs such as sales and advertising expenses, and the running charges for units generated or purchased. When electricity was used for lighting only, a very high price per unit was required to meet these charges, since this price had to cover capital charges on plant, most of which was idle or under-employed for the greater part of the day, and therefore represented the purchase of the right to use electricity—a commodity which cannot economically be stored—in any quantity at any time. The existence of peak demand determines the amount of plant needed to supply a given area, and therefore the extent of use of the generating plant during "slack" periods becomes most important.

The development of the use of power in industry increased consumption enormously, but it introduced its own peculiar peak demands on the system, so that the method of charging for power supply consisted of a fixed charge based on the maximum demand of the factory, plus a small running charge per unit consumed. The proportion of fixed costs to running costs in a typical industrial area varies in the ratio of about 2 to 1 to 1 to 1, depending on the load factor.

In other public services similar conditions arise. For example, the costs of water supply consist almost entirely of fixed charges, so that a single rate, regardless of the amount consumed, becomes practicable; the costs of telephone service provide a closer parallel to electricity, and call for a fixed annual charge for the installation plus a running charge of so much per call. There is a difference between telephone demands and electricity supply demands in the fact that telephone calls do not automatically create a peak demand but are capable, within limits, of postponement; although their probable frequency determines the capacity of the switching systems needed to meet the expected "rush hour" demands. A telephone call may, however, be delayed at such times; a power demand must be answered the instant it is uttered. It should, however, be added that what makes a uniform tariff for telephone service practicable is the fact that the whole of the telephone system is controlled by a single organisation. The nearest approach to this condition would be the agreed pooling of prices between undertakers in regions.

Services and Prices

Among the various modern methods of increasing the use of the generating and distributing plant, which have been adopted in Great Britain, may be mentioned an improved twenty-four-hour service, assisted wiring, hire purchase of apparatus, straight hire, the quotation of a combined rate for electricity including the hire of apparatus, and, at the option of the consumer, a two-part tariff. The last-named most needs discussion and explanation here. Of the others, all that need here be said is that they have proved on the whole effective, and have produced results from the domestic consumer, particularly of the poorer classes, so great as to attract notice from American and Continental experts.

While the principles on which electricity supply tariffs should be founded have become more or less established, the construction of particular tariffs is an art as well as a technique, depending amongst other things upon the economic make-up of the area and in some instances the balance of the principal forms of load; power, domestic, public lighting and traction.

The tariff methods of the electricity supply industry have been criticised on the grounds of unnecessary complexity, lack of uniformity, and, in some districts, actual level of charges. The tariff problem needs some explanation since, as has been stated above, the economic characteristics of the production and distribution of electricity determine the basis on which it is sold to the public.

Two distinct but closely related problems arise in connection with charges. The first concerns the basis of the charge, while the second is whether, given a certain basis, the charge is too high or too low. While the demand of the domestic consumer as an individual may justify a simple and relatively high flat rate per unit, as a member of a group in a supply area, the characteristics of his demands are similar to those of a large power-using industry.

The two-part tariff for domestic consumers was introduced to meet the conditions of increased demand brought about by the increasing variety of electrical apparatus in use. The two-part tariff is an alternative to the usual flat rate charges and consumers have complete freedom of choice. Many consumers who use electricity for lighting only are content to pay for their supply at flat rates, but their numbers are rapidly decreasing. The

two-part tariff has a "promotional" element, since the greater the consumption by the individual, the lower is his average cost per unit. The fixed charge represents the consumer's contribution towards the capital costs involved in providing plant, mains, etc., ready to give a supply the moment it is wanted, and the low unit charge is necessary to cover the actual cost of production. The higher flat rate charge per unit for lighting only is necessary to cover these same capital charges.

It may therefore be unfair to criticise an undertaking for having a flat rate of say 8d. per unit, if it has an alternative two-part tariff, with a running charge of ½d. or ¾d. per unit. In fact a very low lighting rate conflicts with a main function of the supply engineer, which is to encourage greater use of electricity by promotional tariffs and bring down the average price all round.

The basis of the fixed charge in the two-part tariff to domestic users of electricity varies in practice throughout the country. It may be a percentage of the rateable value of the premises, or a charge based on the floor area, number of rooms, number of lamp outlets, or the total lamp wattage. These are all attempts to find some reasonable and workable basis on which the domestic consumer should pay for the fixed charges incurred by the supply authority, so as to be ready to supply him with energy whenever he demands it. The general trend is now towards using one of the first two of these bases, the second having a very wide field of application.

There is, however, still much variation, even in rural and in urban zones by themselves. For example, in a random group of fifteen undertakings operating mainly rural zones, six use floor area as their basis; three use rateable value; one uses net annual value; three use number of rooms; one uses lamp wattage; and another uses both floor space and rateable value. These varieties are not essential and could be reduced to two, as evidenced by the recent simplification achieved by the West Midlands Joint Electricity Authority. In the area of this Authority, which includes ten undertakings serving about one million people, the standard methods of charge adopted for residential supplies have been agreed as a "two-part tariff consisting of a fixed charge and a small unit charge, the fixed charge to be based on either the size of house or the rateable value, at the option of the supply authority."

As regards the running charge, among the fifteen undertakings taken at random, which had five different ways of assessing the fixed charge, the running charge ranges from ½d., ⅝d., 1d. to 1¼d. per unit. Some varieties in the running charge must occur within areas of widely different characteristics.

Rural tariffs present a peculiar problem, particularly the farm tariff. Some undertakers regard the farm as domestic premises, embracing the farmhouse and a few small motors; some assess the farm-operations power load at power rates, separately from the farmhouse; while others have evolved special farm tariffs. Sometimes the farmer is asked to guarantee a minimum consumption sufficient to provide a gross return of 20 per cent of the capital cost of the extension to his farm; sometimes, although less frequently to-day, he is required to contribute a lump sum towards the capital cost of connecting him up. Circumstances modify the terms, for the large dairy or poultry farmer is a potential consumer of electricity on a big scale and represents a different type of consumer from the arable farmer, who may only provide a lighting load plus a few small motors for inter-

mittent use. In 1927 it was generally thought that 2d. per unit should be the maximum running charge in rural areas, but to-day less than 1d. is generally regarded as necessary if the rural domestic farm load is to be fully cultivated. The great variety in farm activities, in location and even in type of building, make necessary a flexibility in the methods of charging which the local management must cater for if it is to make a commercial success of the farm electrification business.

Tariff Simplification

Considering these aspects of the service of electricity supply, and appreciating the widely-differing character of the areas supplied, it is evident that the problem of uniform tariffs is complex. Even if the generating cost is averaged uniformly over all classes of consumer without price discrimination, differences in the cost of supply must still exist between large consumers for factory use and small domestic users, and even in the domestic field, it is not possible to charge householders in remote rural zones rates as low as those charged to consumers in the middle of a large town, unless the latter are to subsidise the former. There is a wide difference between distribution costs in a small highly-developed area with a high demand and good diversity factor, and those of a large area of low development, small demand and poor diversity factor.

Simplification, while attractive to the consumer, presents a number of difficulties; and in the current stage of active development it would be a mistake to pursue simplification so far as to sacrifice the flexibility necessary to win potential markets. The element of psychology enters into the tariff structure, and a promotional rate which encourages consumption through reducing the average price per unit as consumption increases, is more likely to appeal to large sections of the public than a single equated rate. There must be room for flexibility.

Some undertakings have, however, applied simplified tariffs to certain classes of consumer with success. For example, an East London local authority has developed a 1d. a unit "all-in" rate for supplying electricity to working-class housing schemes, using a slot-meter method of collection. The rate covers the charge for current, including fixed charges, and also the hire of an electric kettle and a cooker. A minimum consumption of 20 units a week is stipulated.

The setting of such new types of simplified rates requires a thorough statistical analysis of the characteristics of the demand of the group concerned, and the future development of even more simple rates will call for very exact study of the purchasing power and habits of different groups of people as expressed in their consumption of electricity and its growth and the load factor and diversity factor of their demand.

Service Charges and Guarantees

The service connection charge, particularly in rural areas, has been mentioned as one of the obstacles to more rapid development. The conditions under which new consumers are connected to the supply mains, are to some extent governed by the Electric Lighting (Clauses) Act 1889. Section 24 of this Act enables six or more owners or occupiers to make a requisition upon the electricity undertakers to provide distributing mains for the purposes of general supply. Section 25, however, requires the persons who make the

requisition to guarantee for a period of three years at least a use of energy sufficient, at the rates for the time being charged by the undertakers, to produce annually a reasonable sum specified by the undertaker in the notice. The undertaker may not, without the authority of the Electricity Commissioners, specify a sum exceeding 20 per cent of the expense of providing and laying down the required distributing mains.

Section 27 enables the owner or occupier of any premises within fifty yards of a distributing main to require the undertaking to furnish a supply. Undertakers may, however, require such an owner or occupier to enter into a written contract with them to continue to receive a supply of energy for a period of at least two years and to pay for it a sum representing not less than 20 per cent per annum on the outlay incurred by the undertakers in providing any electric lines required for the purpose of the supply. The undertaker may require the person making the requisition to pay for the cost of any electric line required to supply him, beyond sixty feet of any distributing main, and also of any line on his property, even if it is within sixty feet of a distributing main. Intending consumers whose premises are beyond fifty yards of any distributing mains cannot demand a supply at all and must make the best terms they can with the undertakers.

While there is no uniformity of practice among the many authorised undertakers in respect of the charges made for connecting up new consumers, it is usual in dealing with persons whose premises are beyond fifty yards from a distributing main to apply the same conditions which the law allows in the case of premises within fifty yards of those mains. Some undertakers adhere rigidly to the guarantee of a gross return of 20 per cent on the capital expended; others are prepared to connect on a 15 per cent basis; some are satisfied with a lower immediate gross return; and a few require no guarantee at all.

In cases where a consumer is unlikely to use an amount of electricity sufficient to provide a gross return of 20 per cent allowed by law (or such lesser percentage as may be agreed by the supply authority), the consumer is generally asked to pay the difference between the capital upon which he can guarantee a return of 20 per cent (or less if the undertaker adopts a lower percentage) and the total capital necessary to connect him to the mains. For example, if a country house nearly a mile from the nearest distributing main, costs say £350 (for line, transformer and switchgear) to connect, and at the rates charged an annual revenue of £40 is guaranteed, this guarantee would represent 20 per cent on £200 and the balance of capital expenditure, namely, £150, would be payable by the consumer. If in this case the consumer were able to guarantee an annual gross revenue to the supply authority of £70, no contribution would be required from him towards the capital cost. A contribution towards the capital cost of connecting up (even payment of the whole cost) does not give the consumer any ownership in the line. When connected to the supply system, it automatically becomes the property of the supply undertaker, who is responsible for the losses in the line and for maintaining it in a safe condition up to the meter—the supply point on the consumer's premises. In such cases as supply to isolated dwellings which require a separate transformer, the consumer is required to guarantee a minimum quarterly consumption based on the size of the transformer with a view to covering maintenance and transformer losses.

Under modern conditions of development, greater uniformity of practice is desirable. There is a case for some amendment in the law which provides that only those owners or

occupiers whose premises are within fifty yards of a distributing main, may demand a supply and that they may only obtain it on guaranteeing a gross revenue of at least 20 per cent on the capital outlay for a period of two or three years. Any person within the area of supply of an authorised undertaker should be entitled to demand a supply on giving a guarantee to take, for a period of three years, sufficient energy to produce (at the rates for the time being charged) a reasonable return on the capital expenditure incurred in making the supply available. But while this would make more satisfactory the legal position of the person requiring a supply of electricity, the phrase "a reasonable return" eludes satisfactory definition and the "rates being charged" may be uneconomic or excessive. The supply of electricity cannot satisfactorily be developed by piecemeal treatment in this way: it is the overall return which is important.

The initial annual charges incurred by an undertaker when he makes an extension to his distributing system amount to about 10 per cent of his capital expenditure. They consist of interest, 3½—5½ per cent; sinking fund or depreciation, 3 per cent; maintenance and repairs, 1 per cent; management and local rates, 1.5 per cent. The actual cost of generating or purchasing the energy and delivering it to the consumer, under average conditions of load and diversity, is roughly 0.5d. per unit. These average figures are a useful guide to general policy, but cannot be applied to particular cases without careful examination of local conditions.

Revenue received from extensions will vary considerably, and will not be directly related to the capital involved in each instance. The return may be very low or very high, and an undertaking must consider not only the immediate consumption but also the potential growth of consumption from the particular extension, the probable effect on the district of the arrival of a supply of electricity, and the average rate of return being received from other extensions in the area.

The problem of development is that of taking reasonable business risks, and must depend finally on individual judgment. For instance, a local manager who knows local people and conditions may be justified, in the long run, in carrying out an extension at 10 per cent *immediate* return, whereas headquarters officials, who do not know local conditions, may insist on 20 per cent.

In any case, under the conditions existing to-day, 15 per cent gross return would be more defensible than the 20 per cent, which was calculated many years ago under entirely different conditions of electricity supply and use. These sections of the Electric Lighting (Clauses) Act which have been quoted above should be adapted to modern conditions of operation.

Market Research and Technical Information

Many supply undertakers are backward in their attitude to fundamental marketing studies. They have not attempted to assess the potentialities of their area by proper economic investigation which would provide a sound basis for long-period planning. Such studies are essential since they provide a basis for determining the direction and character of commercial policy and financial investment.

The supply industry, despite various attempts, has not effectively pooled its knowledge and experience regarding design and efficiency, maintenance costs and

depreciation factors in the more important types of electrical appliances hired out by undertakings. The result is that there is considerable duplication, waste of effort and error in development policy. There has been no real cheapening in the cost of appliances, but a multiplication of designs, sizes and efficiencies, which tend to restrict the service, increase capital charges and add to the cost of using electricity. Indeed, without some central control or guidance these tendencies will continue, as there is a strong tendency under competitive conditions to multiply differences in design, in order to provide "selling points" good, bad, or indifferent.

It is a justifiable criticism that the industry, as a whole lacks advanced commercial policies, a not uncommon feature of any quasi-monopoly. There is need of long-term development plans, well-devised canvassing schemes and adequate publicity staff and expenditure backed by attractive tariffs of the promotional type.

In addition, a difficulty peculiar to rural areas is the lack of trained specialist salesmen able to deal intelligently with agriculturalists. This is a defect partly commercial and partly educational in character. It is evidently one cause of the slow development of the farm load in many areas. Some form of training might be adopted in collaboration with agricultural colleges and institutions, since agriculture is steadily progressing under national policy, and will represent a much more important demand in the future than it does to-day. (*See Appendix 3b.*)

At the same time the industry has on the whole improved in its commercial outlook, and assisted wiring schemes, promotional tariffs and hire-purchase schemes are more common than a few years ago. As far as rural districts are concerned, the establishment of showrooms in rural townships and major market towns has become more common practice, although the total number is still inadequate. The insistence on contributions to the cost of making extensions or upon high guarantees on rigid terms is less evident in rural districts now than a year or two ago. Publicity literature, generally speaking, is still weak and inadequate, although demonstration work has increased and active canvassing and study of local conditions is more developed.

There is, however, no guarantee that these commercial activities are being carried out effectively throughout the country; it is evident that many undertakings, both local authority and private company, could improve their standards. There is still a lack of commercially trained men for positions as commercial managers, publicity men and sales staff, and a lack of understanding that such men are specialists in their work on the same plane as engineers, and need to be adequately paid.

Design and Layout of Supply Systems

Badly designed distribution schemes and inefficient supply systems exist side by side with first-rate systems, and it is evident that engineers differ widely in their ideas on methods of development and of technical standards. This diversity of opinion is unfortunate, since the capital cost of mains is one of the chief items in distribution cost. In the construction of overhead lines some engineers adopt an unduly high factor of safety, beyond that required by the Electricity Commissioners' Regulations.

The variety of standards in construction of overhead main lines and services produces a variety of costs, and hence affects the standard return required by the undertaking

concerned. It is difficult to impose an absolute uniformity in the technical matters of line construction and services, but the existing variety is too great and the Electricity Commission can only require certain minimum standards of construction to be observed.

Uneconomic Areas of Supply

Among the broad factors which are retarding the growth of electricity service, an important matter is that of unbalanced or badly chosen areas. Territories have, on the whole, been acquired haphazardly—a circumstance which among other things leads to disparities in price between adjacent areas. One undertaking may be responsible for a small zone of 100 to 200 sq. miles surrounding a town which has built up a big load and a cheap supply; another, for a very large territory of 2,000-5,000 sq. miles, operated through regional offices. An undertaking with an important urban centre may be operating a modest area outside the urban boundaries, while all round is a large territory with small villages in which relatively high prices are charged by a second undertaking. A large power company with a sparsely populated area may acquire a territory of richer potentialities, although the new area added may have nothing in common, geographically or economically, with the original area of the company. And these areas may be so shaped as to involve an unnecessary long length of line to serve a given district. High prices have resulted partly from this uneconomic division of territory and partly from the policy of certain large controlling groups operating in some areas.

In many cases the failure to create economic areas has been due to the fact that municipalities with distribution powers have exercised those powers within their municipal boundaries and left mainly to the companies the business of developing outlying thinly populated rural areas. It is comparatively easy to obtain a remunerative load in a densely populated centre, but extremely difficult in a scattered district. The supply undertaking with a remunerative demand in the vicinity of the generating station or distribution centre is under no compulsion to seek load in outlying areas, with the result that the very large municipalities have, with few exceptions, either neglected rural electrification or not carried it out as fully as medium-sized undertakings, municipal and private.

The economic character of an area depends on its potential load characteristics rather than on its size or population. An undertaking may be in possession of too extensive distribution powers, so that it is unable or unwilling to incur capital expenditure on distribution sufficient to cover the whole of its area effectively within a given period of time. In rural zones, for instance, there exist districts of widely scattered hamlets and farms, far away from urban centres of even moderate size, and completely lacking rural industries. In these districts there is no basic load to help the supply undertaking to regain a reasonable proportion of its development expenses. Since the major part of distribution cost is capital charges on line and its associated equipment, the rural problem is to secure an adequate return on capital charges in such zones. In the initial period of development an undertaking without a reasonably good if modest load may be faced with operating on an uneconomic basis, although potential revenue, as consumers and the extent of usage increases, may justify a development scheme.

It must be recognised, however, that there is no exact and permanent definition of what an economic supply area is. The discovery of cheaper methods of distribution,

and new types of load, the development of more intensive demand among consumers and the influence of rural supply from the Grid's secondary lines, have all changed the economic and technical characteristics of the problem of electricity supply in this country. The continuation of these processes must extend the range of what may be regarded in the future as an economic area.

Development Through Large-scale Co-ordination

By way of contrast, one or two examples of wide-range development in rural areas may be given.

The large and sparsely populated South-West Scotland zone possesses no industrial areas of importance. Its inhabitants have a comparatively low standard of living, the population density is below 60 per square mile, and estimates showed that a scheme for this zone would not become profitable until after 15 years. The watersheds, lochs and rivers of Galloway represented, however, potential sources of power, and showed that the area could be used as an exporting power centre, although there was little prospect of economic development within the area. The Central Electricity Board, in deciding to extend through this zone, made possible, by purchasing the output from its hydro-electric generating stations, the development of the Galloway Water Power Scheme, and the extensive development of distribution lines from transforming stations at a number of points within the area.

The effects of these extensive power developments have been many. The power resources of the remote lands of Galloway which would otherwise have remained untapped, have been developed, and the region has become an important power exporting centre to industrial and commercial zones such as Glasgow and North Lancashire. Under normal circumstances Galloway and Dumfries would have been difficult to develop, but to-day this region of 118,000 people spread over 2,500 square miles has over 600 miles of high tension and low tension cable, and 11,000 consumers, of whom 2,270 are using electric cookers. Many farms and most industries are electrified. The term "Industry" in this territory applies to primary production since there are practically no secondary industries, and the economic development is represented by quarries, corn mills, cheese and butter factories, milk powder factories and similar undertakings.

The Board has established a number of supply points either through primary or secondary lines in order that authorised distributors may be able to extend their activities without having to consider the erection of new transmission lines or further generating stations. The Wigtownshire Electricity Company is a case in point: the promoters of the scheme desired to give a supply only to Stranraer; the Board suggested, however, that they should take a larger view of the question and see what could be done for the whole county of Wigtown. The wider area was too thinly populated to bear the capital costs of independent generation, though self-generation in Stranraer could be justified. Accordingly the Board in its South Scotland scheme made provision for Grid points at Glenluce and Newton Stewart. As a result the promoters applied for a Special Order authorising them to supply the whole county, their scheme being to radiate from both Grid points.

Other zones are being supplied from the Grid by secondary systems or supply points for local and regional development. In the North-West there are the areas of the Westmorland and District Electric Supply Co., the Mid-Cumberland Electricity Supply Co., and the Penrith Supply Co., which are being fed from the Grid's main and secondary lines.

In the South the same applies to the area of the Ringmer and District Electricity Supply Company and the West Hampshire Electricity Supply Company. In the East of England secondary lines with transforming stations have been constructed in South Lincolnshire at Bourne, Grantham, Sleaford, Boston and Surfleet. According to the last report of the Central Electricity Board, the load on the 33,000-volt secondary system here has grown so rapidly that a new 132,000-volt transforming station is being provided at Bourne on the Peterborough-Lincoln main Grid line to feed this network at a more central point. In the North-East, the North-Eastern Electric Supply Company has been aided by a special tapping from the Grid system at Wooler in Northumberland.

Company Administration

In addition to the problem of economic areas there is the question whether the limited liability company, as such, and the municipal authority, as such, are the best forms of organisation for the provision of electricity service. As far as the companies are concerned, there is a great variety of types, which it is thought makes for lack of co-ordination and inefficiency. The very small operating company may be so small as to be incapable of distributing electricity at an economic price. The company subject to control by other companies, may suffer from lack of delegation of responsibility and of enterprise. The holding company which is also an operating concern has the weakness of a dual purpose which may tend to make it an expensive distributor. The pure holding company, being a financial amalgamation, is dependent for success on its ability, through its control of subsidiaries, to achieve economies greater than the extra charges represented by its financial structure.

From the point of view of co-ordination of distribution on a large scale, the variety of types creates difficulty where public ownership and private enterprise should be required to work to a common policy.

Holding Companies

The objects of the holding company are to concentrate control in a few hands, and as a rule to broaden the basis of security for its investments by a variety of holdings which may be spread over areas of different character. Such holding companies may raise capital for the development of new areas and may create a body of technical and managerial skill to further the efficient development of subsidiary businesses.

The engineering efficiency of the group in securing proper development of service may, however, be counterbalanced by financial activities of a different character. Inflated values may be paid for individual undertakings in order to obtain control; the fees and costs of merging companies may represent a serious addition to the capitalisation. Recapitalisation may occur, and the contracts for engineering, management and super-

vision of development for the subsidiary operating companies may involve unreasonably high charges to the latter. Where the holding company has control or close association with a manufacturing concern, it may disseminate excessive profits in the payment of excessive prices for equipment. In this way it may evade criticism of excessive profits by the government or the public, since the manufacturing concern is thus allowed to absorb some of the profits of the supply companies. The holding company may also own contracting firms engaged in carrying out the business of installations for lighting, heating and power, and transfer to them, through unnecessarily high prices for these services, a proportion of the profits resulting from the supply of electricity. It may, again, force consumers to use the service of such firms and make excessive profits for them on wiring and contracting, at the direct expense of the consumer. It may own finance companies engaged in financing the hire-purchase of consumers' apparatus, and transfer some of its profits to them. It may derive excessive profits through its power to transfer to this type of company a large volume of trade in consumers' apparatus. Further, the system of "pyramiding" control upwards which has developed in the United States enables a small investment at the apex of the holding company pyramid to control a very large range of subsidiary companies.

As American experience has shown, the holding company system lends itself to capital inflation, over-valuation of assets, instability of administration and high prices for service.

The holding company, as developed in this country, shows similar tendencies to its American prototype and while it may possess, in its operating companies, executives and engineers of vision and ability, they are to some extent limited by the over-riding financial policy of the controlling group. It has usually been found that where a subsidiary operating company is delegated a maximum of authority and responsibility the best results are obtained in the development of an area.

It is difficult, in the present state of the law, to obtain reliable financial statistics concerning the operations of the holding company and the operating companies under its control, and it becomes impossible to allocate to any productive asset its appropriate capital valuation. The holding company, since it has no statutory powers and therefore no statutory responsibilities, is outside the control of the Electricity Commission or any body representative of and protecting the interests of the public.

To sum up, the holding company, under modern conditions, is one of the most elusive and one of the most difficult organisations to control in the interest of the consumer, and neither the Electricity (Supply) Act, 1926, nor the Companies Act of 1929 has provided adequate control over its operations.

While the holding company system in the electricity supply industry of Great Britain has not been developed into so remarkable a concentration of power in a few hands as is apparent in the U.S.A., it is evident that the degree of concentrated financial control in Great Britain is considerable. A table showing the holding companies and their subsidiaries appears on pp. 140 and 141.

At the present time 12 holding companies control 166 supply companies, or 27 per cent of the total number of undertakings in Great Britain, representing a capital of £74.4 millions, supplying over 1¼ million consumers and having a total sale of 2,232 million units.

As 60 per cent of the total number of undertakings in Great Britain are local authority undertakings, this leaves 247 companies of which 67 per cent are in the hands of twelve holding companies. The high degree of concentration of control is shown by the following data:

	Holding Company	*Subsidiaries*
1.	Edmundson's Electricity Corporation . . .	45
2.	Power Securities Corporation, Ltd. (Balfour Beatty)	31
3.	County of London Electricity Supply Co. . .	18
4.	British Electric Traction Co.	13
5.	Electric Development and Securities Trust, Ltd. (General Electric Co.)	11
6.	Whitehall Securities, Ltd.	9
	6 holding companies . . .	127

Operating Companies

Distinct in type from the holding company is the operating company which also owns subsidiary companies. This enterprise may suffer from capital inflation through paying artificial values for the assets acquired from its subsidiary companies. It may create subsidiary holding companies similar in type and in function to investment trusts, to take over its holdings in its subsidiary companies after their incorporation.

Power Companies

The origin and growth of the power companies has been outlined in the historical section of this report. These companies constitute an important part of the supply industry; the twenty-one undertakings represent a total issued capital of £62.5 million, and a total sales (including bulk sales) of 3,598 million units. Excluding bulk sales, the figure of units sold is 1,779 million units, of which 82 per cent are power sales. The total number of consumers served by the power companies is 457,286.

Local Authorities as Owners

Local authorities which own gas as well as electricity supply undertakings have sometimes attempted to protect their investment in gas by retarding electrical development. This has taken the form of refusing to allow the electricity department to put electric mains in the streets, to canvass for new consumers and to extend the supply beyond lighting. In some instances a limit has been set to the number of consumers which the electricity department is allowed to connect up during the year. Selective discrimination of this kind has been marked in housing schemes under control of the municipalities themselves. In addition, there are instances of complete refusal to allow electricity supply companies to supply electricity to housing estates under the control of the Corporation.

For other reasons the local authority may, in deference to some special interest, retard or prevent altogether the full development of its electricity undertaking. In some parts of England particularly, small bodies of traders have been instrumental in holding up the building of showrooms and in preventing the use of the right to sell fittings granted in the Act of 1926 to local authority undertakers. The result has been a slow rate of electrical development owing to the difficulty of providing adequate educative and promotional methods. It is not uncommon, moreover, for a local authority to use an electricity undertaking as a means of relieving the rates. In some parts of the country local authorities allocate the maximum sum possible from the electricity department's profits in this way. This not only imposes a double burden on the electricity services, but is highly undesirable in a developing business. A profit-making local utility should use its surplus to assist in the development of the system and particularly to carry the loss on temporarily unremunerative extensions that will ultimately be self-supporting. In 1933/34 local authority undertakings paid over £630,000 to relief of rates; in 1934/35 the sum was £550,000.

Local Rates

Rigid methods of rating may prejudice the development of rural electrification. In some parts of England these local rates amount to an average of 0.25 per unit sold during the first year of working. The experience of some electricity undertakers is that local rates have reached a sum which is greater per unit than the cost of coal used to produce the units sold. For example, in rural districts around Boston the annual local rates paid exceed ten shillings per consumer in some villages, while the average revenue per consumer is little above £2 10s. per year. During the year 1933-34 local supply undertakers in this country paid nearly £4½ million in rates, a sum equal to 14 per cent of total net working expenses. In 1934-35 the sum was slightly more than £5½ million.

The experience of the Melton Mowbray Electric Light Co., is that local rates exceed in amount the whole cost of electricity purchased from the Central Electricity Board plus the cost of coal required for their own generation. Rates and taxes are equal to approximately the sum of 1d. per unit for all electricity sold by the Company. Those who criticise the electricity companies are not always aware of these facts. They constitute a drag on development; as an electricity supply undertaking developing service in a difficult rural area may not make profit before about the third or fourth year of operation, and since it is making a valuable contribution to local expansion and enhancing the value of the properties it supplies, there is a good case for leaving it free of rates for at least a three-year period or even for five years. One may quote here the instance of a certain Corporation which offered to electrify two villages provided the rating authorities would undertake not to rate the works until the following quinquennial assessment. This was agreed. More encouragement of this kind by the Local Authorities would undoubtedly lead to many rural areas being supplied which cannot be provided for under the existing burden of rates.

Compulsory Purchase Rights

The existence of compulsory purchase rights and the uncertainty of their operation has slowed down the speed of rural development in some areas. Whatever policy is

adopted in the future in regard to these rights, it should be such as to make clear that assessment of values created by the companies will be on an equitable basis so as to prevent any slowing down of extensions as the date of exercising purchase rights approaches. It is advocated in this report that all purchase rights should be vested in the proposed Electrical Development Authority pending decisions to be made by the Electricity Commission.

Local Negotiations

There is scope for economy in the amount and the expense of the initial formalities attending new extensions. At present numerous bodies such as parish councils, rural district councils and county councils all require plans of projected distribution line extensions. Costs are further increased by regulations which make necessary the submission of detailed plans by the supply undertakers to local authorities and others for each line and spur contemplated in a rural area. In rural areas these additional costs could be mitigated to some extent by a broad programme covering 5 to 10 years overhead construction which would obviate the need for the preparation of detailed plan proposals for each small extension, and the economies made in this way would be reflected in lower charges to the consumer.

Many engineers still meet opposition and delays in persuading county councils and various commissioners to accept standard wayleave payments. Opposition and delays from railway companies and small owners in granting wayleaves are common; the larger landowners appear to be the most public-spirited and sympathetic in wayleave negotiations. In some districts unsatisfactory negotiations often lead to enforced alternative longer routes for overhead lines and consequently higher capital costs.

Certain authorities and landlords still raise objections on principle to all overhead lines. In instances where special beauty spots are to be supplied, there is a legitimate case for partial underground supply, and in most districts supply undertakers take special precautions to bring their supply lines into villages from the most sheltered positions, but it must be remembered that there are many dull and uninteresting landscapes. It is also true that roads, canals, railways, telephone lines and transmission and distribution lines are all artificial products of man, imposed upon the face of nature as civilisation has demanded new means of inter-communication and fresh amenities.

V. THE MARKET FOR ELECTRICITY

Introductory—Production and Marketing Trends—Competitive Adjustments—Basic Changes in Demand—(*a*) *Electricity in Industry*—Growth of Power Equipment; Mechanisation of Industry; Advantages of Public Supply; Conversion of Private Plant to Public Supply; Process Steam Plants; The Coal-Mining Industry; Industrial Heating; Effect on Power Load—(*b*) *Lighting*—(*c*) *Electric Traction*—Introductory; Electric Traction; Causes Leading to Electrification; Characteristics of Electric Traction; Some General Advantages; Effects of Electrification; Employment; Electrification and the Transport Problem; The Present Position—(*d*) *Domestic*—Growth Statistics; Electric Cooking; Development; Factors in Home Electrification; Working-Class Housing; Characteristics of the Working-Class Demand; Electrification of Modern "Luxury" Flats—All-Electric Flats in Greater London; Future Growth—(*e*) *Rural*—Nature of the Problem; The Modern Countryside; Progress of Electrification; Growth of Distribution Powers; Progress of Connections; Rural Supply Policies; Factors of Progressive Development Defined; Organisation: Urban and Rural Grouping; Relations with the Farmer; Economic Studies of Rural Electrification; Demonstration Schemes; County Schemes; Farm Variety; Typical Farm Consumptions and Revenues; Characteristics of the Village Demand; Domestic Revenues.

Introductory

Owing to the continuous fall in the price of electric current, a fall which has been much greater than that recorded in prices of competing sources of energy and in wholesale prices generally, the supply industry has been successful in opening up new sources of demand without interruption, and its capacity to continue doing so is at the moment beyond calculation. A point of comparative stability in prices has not yet been reached, and may not be reached for some considerable time. It is true, of course, that the rate of decrease in prices has slowed down during the last two years, but the process shows no signs of termination. After many years the public is accustomed to the notion of a complete electrical service and the potential market in front of electricity is so large that it would be responsive at once to price reductions. In other words, there is very little inertia to overcome in the market itself.

Production and Marketing Trends

Largely as a result of the widening of the market the economic strength of the industry is being enhanced. This is plainly shown by the statistics indicating the relationship between the total connections and the total net maximum load on the generating stations. In the year 1920/21 the ratio between the total connections and the net maximum load was 2.83 : 1. In other words every 2.83 kW. of new business only required the provision of 1 kW. of new generating plant in the power station, but in the year ending March 1935 the ratio had risen to 3.80 : 1. In other words, for almost every 4 kW. of new business the power supply undertaking had only to provide 1 kW. of new generating plant. The earning capacity of the productive asset as represented by the power station had improved by about 35 per cent. This, of course, has been an important element in the capacity of the industry to reduce its prices.

To this two other important factors contribute. The first is the influence of the Grid on the effective use of the total plant of the generating station. This is indicated most

clearly by the percentage of generating plant surplus to the net maximum load. This percentage rose in almost a straight line from 62 per cent in the year ending March 1925 to 84 per cent in the year ending March 1930, but it fell steadily from that point to 63 per cent in the year ending March 1934, and to 47 per cent in the year ending March 31, 1935. This has meant a very great saving on the provision of new generating plant, and with it some reduction in total capital cost.

The same influence has shown itself in the fall in the number of generating stations. In the year ending March 1930 there were 500 generating stations in public supply undertakings, but this figure had fallen to 421 in the year ending March 1935. The average capacity of the generating stations has risen from a little over 13,000 kW. to over 18,000 kW., and for A.C. generation alone the average figure is now over 28,000 kW.

The second factor is the increasing percentage of generating plant represented by units not more than fifteen years old. Almost three-quarters of all generating plant in public supply stations is now represented by comparatively new units. The effect of this modernisation is a marked improvement in the overall thermal efficiency of generating stations. In the year ending March 1936 it was 20.10 per cent, corresponding to a coal consumption of 1.52 lbs. per unit generated. The national average is approaching the average of the twenty-five most efficient generating stations.

As a result of experience derived from analysis of different types of consumers and different types of electrical service, the industry is adjusting itself more and more to the current competitive position. This process has entailed study of the conditions, both economic and technical, governing the definition and distribution of costs, operating as well as capital. There is a clearer appreciation, for example, of the value of special types of demand for the regulation of load factor and improvement of the earning capacity of the productive assets at the disposal of the electricity supply undertaking.

Competitive Adjustments

The study of off-peak load conditions has allowed the industry to quote prices for electrical energy sufficiently low to open up large new demands which were not considered possible even a few years ago. The use of electrical thermal storage for large-scale heating purposes, a development which in this country has only taken place during the last four or five years, has expanded so much that the load on the generating stations in many areas has benefited, and the operating efficiency been improved. In another direction the systematic investigation of consumer preferences and requirements, particularly in working-class areas, has led to the adoption of methods of service and methods of defining and regulating all-in prices to bring within the effective range of the supply undertaking large strata of the working-class population which were considered inaccessible a short time ago. The greatest single success of the electricity supply industry, particularly in parts of London, has been the speed with which it has brought electricity as a complete domestic service within the reach of the working-class population. It has had an important psychological effect on the entire range of consumers, with the result that the annual rate of increment measured in actual numbers of new consumers has now reached the immense total of 850,000 to 900,000.

In the purely industrial market, where the price for power is defined just as much by the bargaining capacity of the individual consumer as by the competitive strength of

sources of energy other than public electric supply, there has been a more exact and detailed study of power costs, so that there is more evidence to define and indicate real competitive advantages.

In this work of obtaining essential data and making fundamental cost investigations, both in the industrial and in the domestic market, close co-operation between the Central Electricity Board, the supply undertakings, and the more advanced and successful industrial firms has led to considerable benefit for the supply industry and the industrial consumer. The result has been a considerable degree of conversion of private generating plant to public supply. This has been most markedly the case in the iron and steel, woollen textile, engineering, automobile manufacturing, brick-making, fine cotton textile and the coal mining industries. There are, however, certain types of industry where, owing to the need for process steam, electricity can be generated as a by-product. In some cases it is virtually impossible for a public supply to compete with private generation, with the result that some of the more rapidly-expanding industries within this category, such as news-print, artificial silk, and chemicals, have not yet come within the scope of the public supply systems. Nevertheless, the speed of conversion during the last three years, particularly, has been much more rapid than at any previous time.

Some indication of what has happened may be obtained from the statistics. In the fifteen years 1920/35, the percentage of the total consumption of electricity represented by industrial power, has fallen from 71.4 per cent to 55.9 per cent, while the percentage represented by lighting and domestic supplies has risen during the same period from 16.5 per cent to 34.8 per cent. Electric traction, represented mainly by tramways, fell steeply from 10.7 per cent in 1920/21 to 8.8 per cent in 1924/25, and since that time it has decreased to the level of 7.4 per cent. In the future this percentage may be expected to rise a little at the expense of industrial power.

Basic Changes in Demand

The significance of the changes just described is considerable. It means that the demand for electricity is becoming more evenly distributed over all sections of the national activity with the result that the industry is becoming more and more immune to trade slumps. In other words, an increasing proportion of this total business is represented by forms of national activity so essential to the maintenance of the modern State that they must survive almost unaffected by fluctuations in the state of trade. A condition of immunity would probably be reached if the proportion represented by industrial power fell to 45 per cent or less. The industry therefore has the task in front of it of accelerating as much as possible the demand from the non-industrial consumer, in order to take care of this change in industrial demand. On the other hand, the conversion to public supply of a number of basic industries such as coal-mining, and iron and steel, may have the effect of increasing the vulnerability of the industry in certain sections, if not balanced by increased electrification of the sheltered trades.

The possibilities in this direction should, however, not be over-estimated. Of all the factories recorded in the country 83.9 per cent are now using electricity. This would indicate that the rate of conversion is likely to slow down sometime in the near future owing to the fact that the proportion of plant suitable for conversion is becoming so small as to be residual. On the other hand, most of the new factories that are being built are automatically all-electric with the exception of the heating of the building itself.

In other words, electricity supply has reached a stage where, as far as industry is concerned, it must depend in a greater and greater measure on growth in mechanisation and on the expansion of the total economic effort of the country.

Owing to the fairly rapid conversion of electricity supply into a large-scale industry serving a wider and wider range of economic activities, the responsibility of the individual undertaking has considerably increased, and new standards of executive capacity and commercial ability have been forced on the industry.

When, about the end of the War period, electricity supply undertakings were serving a total of a million consumers, limited to areas of dense population and of highly concentrated industrial and commercial demand, they were carrying out a function which technically, financially, and commercially, was simple compared with the immensely involved problem represented by the current mass of about eight million consumers. As regards service to the consumer, the industry has become much more complex, and the consumer's demand, both individually and *en masse*, is similarly becoming more and more complicated and exacting.

A further complexity which has imposed considerable stress on the industry has been the change in the character and location of demand itself. In the early years of development, this demand was easily tapped and accessible. In the later years it is becoming more scattered as far as outlying sources are concerned, and more difficult to secure against competition within areas that are not rural or agricultural. In other words, the supply undertaking has had to expend considerably more capital in securing new consumers and new sources of demand than previously: but, as indicated in a preceding section, its success in tapping those new sources of demand has in reality improved the earning capacity of its productive assets, and has to that extent justified the greater measure of risk and of commercial speculation on the part of supply executives. This observation does not, however, lead to the conclusion that all supply undertakings have been as enterprising in going after possible consumers as would be expected of an active and successful commercial enterprise. There are too many examples still of lack of development through the imposition of unnecessarily severe conditions of guarantee by the supply undertakings, and there are whole counties where progress has been retarded by the adoption of this policy.

It must, however, be recognised that the industry has shown adaptability to new conditions. On the whole, judging from the figures, the speed of adaptability has been, if anything, greater in the case of local authorities than in the case of companies. This is shown most markedly in the statistical table already mentioned, where there is a gap of almost 1d. per unit in many of the categories between the average price per unit sold for lighting and domestic purposes by local authorities and by companies respectively. We, of course, recognise that a large number of companies have been supplying non-industrial and sparsely-populated areas, and this has tended to raise the average price to the consumer, but this explanation is hardly sufficient to cover the whole of the discrepancy. There are supply companies serving widely scattered areas with low densities of population, which obtain a lower average price than the average shown for the groups in which they are classified. The main reason is not to be found in this factor but in the inability or unwillingness of supply companies to supply the low-income consumer. The recognition of the importance of this type of consumer is only being made now by many companies, whereas it has been an essential element in the load-creating policy of local authorities for a considerable number of years.

(a) ELECTRICITY IN INDUSTRY

Broadly speaking, it may be said that the application of electricity as power in factories begins with the end of the nineteenth century. It was given a big impetus through the perfection of the polyphase motor, which made it possible to use for power purposes the same type of current as was being generated and sold for lighting.

Since this development came early in the history of the supply industry, the use of electricity in manufacture has progressed much further than in the domestic, agricultural or traction markets. Economic change, including the rapidity of mechanisation, has accelerated this process. Among the industrial applications of electricity, however, its use for light and power in factories is in advance of its use for heat in processes, and far in advance of its application as heat for water supply and general space heating.

The large size of the industrial power demand, the relatively low price at which electricity is available from public supply for power purposes, through economies in generation costs in super-power stations and the development of the two-part tariff, and its flexibility in modern production processes are mainly responsible for this difference in degree of application. However, as tariffs for heating purposes have been reduced, electricity has become more and more competitive in this field of application also.

Growth of Power Equipment

The growth of power equipment in industry since 1907 has been accompanied by an increasing degree of application of electrical energy; while this in its turn has been brought about by an increasing efficiency in the generation of the energy itself, the steam turbine displacing earlier forms of motive power. In 1907 there was a total of 10.4 million h.p. in capacity of prime movers installed in industry (including the supply industry and including reserve plant), of which steam turbines represented only 5 per cent; in 1924, of the total of 16.4 (11.04)* million h.p., steam turbines represented 40.9 per cent (17.2 per cent) and in 1930 the proportion was 58.5 per cent (26.5 per cent). Similarly, as regards the generating plant, of the 6.5 (2.4) million kW. of such plant installed in 1924, 74 per cent (51 per cent) was steam turbine plant. In 1930 the figure was 85 per cent (59 per cent).

As a broad indication of the growth in the application of electric power in industrys it may be noted that in 1924 the Census of Production shows a figure of 6½ million h.p. of electric motors installed in industry (excluding electricity supply), compared with some 2½ million h.p. in 1912. For 1930 the figure is close upon 9 million h.p., and for the present year it may be estimated as over 12 million h.p., so that during the last twenty-five years the growth in the installed capacity of electric motors in industry has been about fivefold,

Taking the factory trades alone, the Census of Production figures of power plant in industrial establishments show that the capacity of motors driven by purchased electricity in these trades has, over the period 1924 to 1930, increased from 3.05 million h.p. to 4.46 million h.p. Over the same period the total capacity of electric motors has increased from 4.58 million h.p. to 6.65 million h.p., and the degree of electrification of factory trades as a group has increased from 54.7 per cent to 68.5 per cent.

* The figures in brackets show the capacity, excluding the supply industry.

Of the main groups coming under this classification, textiles show the lowest degree of electrification (reflecting the number of plants using process steam in this industry). The Paper, Printing and Stationery trade shows a 91.0 per cent degree of electrification, Vehicles 98.7 per cent, Chemicals 71.7 per cent and Iron and Steel 60.4 per cent.

The non-factory trades average 54.4 per cent electrification in 1930 compared with 43.0 per cent in 1924. This percentage is calculated by using the ratio of total capacity of electric motors in the industry to the total power capacity.

The figures relating to power equipment of all kinds are also significant. During the period 1907 to 1930 the total h.p. available in the manufacturing industries of Great Britain was doubled; but while over the same period the electrical h.p. increased by 887 per cent, the mechanical h.p. decreased by 13.2 per cent. In 1907 the h.p. available per worker was 1.49, while in 1930 it was 2.81, nearly double the earlier figure. At the present time, out of 164,277 factories in the country, 137,880 or 83.9 per cent use electricity, and the majority of new factories are obtaining power from public supply. This intensification of industrial electrification is apparent from the fact that in 1929, the corresponding figure was 70.2 per cent and in 1921, 49.0 per cent.

As regards the sources of electrical energy and their growth the Census of Production for Great Britain records show that in 1924 public electricity supply accounted for 4,018 million kW. out of a total generating capacity of 6,261 million, or 64.2 per cent. In 1930, the percentage in public supply was 74.6 out of a total capacity of close on 10,000 million kW. of generating plant. Private generation survived chiefly in the Mines and Quarries group which accounted for 8.3 per cent in 1930 compared with 12.8 per cent in 1924; and the Iron and Steel, Shipbuilding and Engineering group which accounted for 6.8 per cent in 1930 compared with 10.2 per cent in 1924.

Mechanisation of Industry

The extensive changes in production technique that have taken place have been marked by a large increase in machine processes, in new types of machine, in adjustments of machine layout for flow production, in the manufacture on a large scale of piece parts for assembly and in working to more exacting limits in the production of these piece parts and of the final assembled unit. These changes have brought about a heavy investment in machine equipment, so that in many industries that part of the cost per unit which represents capital costs on equipment has become the principal component. This trend has had the effect of stimulating machine design and of demanding increased flexibility of machinery and hence adaptability of power equipment.

The production problems raised by these forces of mechanisation have been solved very largely by the flexible character of electric drive and of the electric motor. While their importance to industrial processes differs from one industry to another, it is broadly true that electric power has affected fundamentally the layout and flexibility of production equipment and the operation and use of machine tools.

The application of the electric motor to industrial processes has enabled each process to have its own source of power which can be switched on and off as it is required. The advantage of this over the earlier method of a continuously operating system of shafting

pulleys and belts lies mainly in the better use that can be made of the floor space of the factory. This means that the layout of production equipment can be planned to obtain a maximum of efficiency. Further, the independent operation of single motors facilitates flexibility in operation: this secures a saving in the cost of power where only a few processes are being carried on while the rest remain idle.

From another point of view the compactness and facility of control of the small electric motor has made it a necessity in the operation of all types of machine tools, which are the essential element in modern production processes. Thus the present high efficiency of modern flow production technique depends upon the electric motor.

Advantages of Public Supply

Public supply offers certain general economic advantages: it enables the electrically-operated equipment of a factory to be extended as desired, the only extra cost incurred being that of the additional electricity used, whereas with private generation of power a small extension of electrical equipment may require the installation of a comparatively large generating set, as it is impracticable to provide new plant capacity which is adjusted closely to an estimated increase in electricity demand. The "peak" demand of a year or two ahead determines the capacity needed and introduces the uneconomic factor of idle spare plant. Moreover, industries suffer from periods of boom and depression, and seasonal variations, so that the flexibility of the public supply offers advantage under these conditions. One may say that, as far as most industries are concerned, the function of power generation has become so highly specialised that the natural trend of manufacturing industry is towards leaving this to those who have specialised in it and towards concentration on the production and marketing of goods.

Further, the standardisation of frequency of electricity supply is nearly complete throughout the country; where some five years ago different frequencies prevailed in electricity distribution to various industrial centres, there is now one standard, 50 cycles per second. This means that, for the vast home market, manufacturers of electric motors can confine their designs to a range of motors for the standard frequency, reducing their development charges and lowering costs of production and variety of output and stock, to the advantage of the industrial purchaser. Further, the manufacturer proposing to transfer his plant from one area to another is not faced with difficulties in his operating equipment since all his motors and other apparatus have a uniform supply system available.

Conversion of Private Plant to Public Supply

According to the latest Census of Production Returns, 11 million h.p. are still in use in British workshops, factories and mines, which are operated by others forms of power than the public supply. This large figure includes 3 million h.p. of reciprocating steam engines. Before the War, engineers in charge of power provision for factories tended to be conservative, and placed reliance upon the older established methods of the steam era in which they were trained. However, the experience of the War period showed that:

(1) Public supply gave greater security, flexibility and convenience than were obtainable from a private power plant.

(2) Electric drive had outstanding advantages over the older methods.

(3) Capital could be spent to better advantage on "process" plant than on "power" plant.

The rate of conversion from private plant to public supply has been governed by the development of the competitive power of public supply, and by the ability of manufacturers to finance replacements of earlier forms of plant.

The cost of electricity from public supply has fallen consistently for many years, and must continue to do so, as the growth of load on the public system demands more and more new plant, in the installation of which advantage can be taken of every advance in design and efficiency. Actually, the average price of electricity for power purposes decreased from 1.30d. per unit in 1922/23 to 1.14d. in 1926/27, to 0.73d. in 1933/34, and 0.69 in 1934/35, a total decrease of 47 per cent over the twelve year period.

With the steady decline in the price of electricity, its competitive range extends into those specially-situated industries which have private plant producing at very low costs, and since an unlimited supply of current is available through the national system, the requirements of any industrial concern, however big, can be met from public supply.

These factors have influenced numerous producers in old-established industries who have hitherto generated their own electricity to change over to public supply. Recent conversions of this character include two large steel works in Sheffield, where private plant of 20,000 kW. capacity has been displaced, and the supply of nearly 100 million units per annum is now purchased; a large steel works in Cardiff; the biggest tyre factory, the biggest flour mills and the biggest thread mills in Great Britain, those of J. & P. Coats at Paisley.

Perhaps the most recent important change-over from private to public supply is that of Lever Bros. at Port Sunlight. The Lever Bros. conversion resulted from agreements concluded (under powers contained in the recently-passed Electricity Act of 1935) between the Central Electricity Board, the Corporation of Birkenhead and Messrs. Lever Bros., under which the great industrial estate of Port Sunlight became linked up with the Grid. The company's generating station of 16,000 kW. capacity is now associated with the Grid system and draws from it, through the Birkenhead Corporation, the whole of the electricity requirements of the area, amounting to nearly 40 million units a year.

Process Steam Plants

There are certain industries in a special position, technically, with regard to power-generation costs. Industries needing large quantities of process steam for their manufactures are able to produce their electricity as a by-product by first passing the steam through the back-pressure or pass-out turbo-alternator sets before it is utilised as low-pressure steam for process purposes. In many plants in these industries the cost of production of electricity is so low that public supply cannot compete: But this is not always the case. For example, unless the process steam and electricity requirements coincide at all times, it may be more economic to purchase the electricity than to generate it. Recent investigations into such problems show, for example, in the textile manufacturing industry, a variety of mills; those which do not require any process steam; those which have process steam equal to about 20 per cent to 50 per cent of the steam needed for power generation; and those in which the demands for power and for steam do not coincide, resulting in large and uneconomic variations of demand on the boiler plant.

It is probable too that, owing to defective methods of computing the running costs of private plant, the advantages of public as against private supply are sometimes not realised. In the motion picture industry, for instance, the load factor on oil engine plant installed is often extremely low, on account of the irregular character of the demand from studios, and actual costs may be far higher than estimates. Again, in certain process steam industries, the demand for steam is very high in winter and practically nil in summer, resulting in overall operating costs for power production in excess of those at which a public supply could be obtained.

It should be added that to raise steam for power generation is not an economic method of operation, in view of the relative efficiencies of private and public supply, particularly with regard to the trend of running costs and of fuel consumption per h.p., unless the process steam demand coincides with the power demand, or unless the entire power needed is normally generated as a by-product of the process steam.

The Coal-mining Industry

Another great basic industry which is in a special position in relation to power generation is coal-mining. A colliery can burn its own low-grade fuel, it uses compressed air extensively as power for coal cutting and it usually has large winding loads which fluctuate considerably. Its special conditions produce low power costs in the industry, but it is apparent that there are potential economies to be derived through working in with the public supply system, by utilising it as a standby.

Such an arrangement would be particularly applicable to new collieries, since initial development conditions make the close estimating of power needs difficult. In the early stages the entire power requirements could probably be purchased with advantage from outside sources and the problem of setting up generation at the pithead could be examined more thoroughly after a few years: at this stage low grade or small-sized fuel might have a higher market value, there being a perceptible trend in this direction. The study of trends in the coal industry indicates, too, that electricity is displacing compressed air in collieries, and statistics for the period 1931-35 show an average annual increase of 44,000 h.p. of electricity used, of which nearly 24,000 h.p. is underground.

While many collieries are advantageously situated for the generation of their own power, the general trends in the industry indicate that, even with the lowest cost pithead generation, there are possible forms of co-operation with the public supply system which deserve studying to determine the most economic and flexible utilisation of power sources in each particular instance. The public system, by supplying a number of collieries, would have the advantage of the diversity factor due to the standby character of the demand.

Industrial Heating

The steady decrease in the price of electricity, coupled with the development of suitable forms of tariff by supply undertakers for the heating load, has fostered the use of electricity for heating purposes in industrial processes and in industrial and commercial buildings. Associated with these developments are low rates for "all-in" demands for industrial use. Experience in the heating of all types of building during the past three or four years has shown that given reasonable rates, and in appropriate demand conditions, the all-in running cost of electric heating is economical.

Among the space and water heating schemes which have been proved to be economic may be cited the Watford Public Baths, the first in the country where electricity is used entirely for heating the building, the swimming pond, and the laundry plant. Numerous schools and churches throughout the country have been heated by tubular heaters and panels with satisfactory results, and many storage heating plants with thermostatic control have been installed during the last few years. Examples of this kind have shown that with a properly-designed scheme, the capital and running costs may compare favourably with any solid or liquid fuel, when proper allowance is made for savings in maintenance, labour and other charges.

In industrial processes electric heating is extremely adaptable to requirements, and its regulation through thermostatic control, coupled with the absence of products of combustion, has been recognised as particularly suited to modern industrial conditions. In the iron and steel industry the induction type of electric furnace has replaced earlier types of furnace in many plants, and similarly, in the production of brass and nickel, self-contained induction furnace units are being used in increasing numbers. The developments of metallurgical research have called for more and more exacting temperature limits in the processes of annealing, hardening and tempering of steel, and these developments have been met by the modern electric furnace and electrically heated oven with heat uniformity and special systems of control. Similarly, advances in the annealing of copper and brass and the heat treatment of alluminium alloys, have shown that the automatic temperature regulation of the electric furnace has advantages over combustion types of furnaces. Among the non-metallic industries, electric heating has developed rapidly in pottery and glass production. Pottery firing with coal-fired ovens is relatively wasteful and the use of the continuous kiln with its hot gases is liable to uneven heating of the pottery loads. The application of electric heating in this industry gives a more uniform heat distribution and eliminates atmospheric pollution.

Other applications of electric heating which have developed rapidly in industrial processes include welding, vitreous enamelling, japanning, drying, sherardising, the operation of moulding presses, the heating of liquids for process work, the heating of type metal, and steam raising, with the electrode boiler or the thermal storage tank. The extent and range of these subsidiary applications of electric heat is considerable.

Effect on Power Load

With the increasing application of electricity to heating processes, combined with the rapid growth of domestic electrification in both urban and rural communities, the power load of the electricity supply industry, while it increases substantially from year to year, has formed a continually decreasing proportion of the total load. For the year ending March 31, 1921, the consumption of current for power purposes was 71.4 per cent of total consumption; at 1931 it was 59.2 per cent, and at March 31, 1935, 55.9 per cent of total. From 1933 to 1935 units sold by all authorised undertakers for power increased by 28 per cent to 7,284.9 million units. Over the same period, units sold for lighting and domestic purposes increased by 30.8 per cent to 4,534.7 million units, and estimates for 1936 indicate a higher rate of growth of domestic consumption. It should be noted that the actual increase in units sold for power during the year 1934/35 was 893 million compared with an increase of 619 million units for lighting and domestic purposes.

(b) LIGHTING

Electric lighting is generally accepted as "standard practice" in modern factories, houses and public buildings. However, standards of illumination vary considerably, and there is still much scope for improving factory illumination in many industries, and in particular, for planned lighting systems, designed on scientific principles.

In the official returns of consumption the classification "lighting and domestic" includes lighting of residential, commercial and public buildings. While the average lighting consumption in most buildings is small in proportion to consumption for other uses, it is growing steadily. The demand for higher standards of lighting in homes, offices and shops has been met by the development of new types of lamp and a wide range of special equipment, including indirect and concealed lighting. The Neon tube has been applied extensively to the illumination of commercial buildings and factories, flood-lighting of all types of buildings has become more common practice, and investigations into conditions of work in factories has resulted in higher standards of light for factory operations.

The public lighting load is classified separately from domestic lighting in the official returns of the supply industry, and represented at 1934/35 some 243 million units a year, or under 2 per cent of total consumption for all purposes; it is increasing at the rate of about 10 per cent each year. Its future development will depend partly on general road policy and the adoption of more uniform standards and methods, and partly on the relation of the public lighting load to other forms of demand from the point of view of load-building.

(c) ELECTRIC TRACTION—RAILWAYS

Introductory

It would be generally accepted that there is in this country an important and not fully-developed market for electrical energy—railway electrification. What is not so generally agreed is the size and composition of that market. For suburban and semi-suburban areas of dense passenger traffic the case for electrification is really established. Beyond lie the problems of the heavy main line routes and the more lightly-loaded secondary systems and branch lines. In the various cases the factors which count for or against electrification, and their relative weight, vary greatly. Comparative cost, initial and recurrent, saving of time, frequency of service, traffic potentialities, the relative advantage or disadvantage to the user of competitive transport systems and the prospect of their development—all these enter into the problem. Very important, since electrification means a heavy capital outlay to be supported by savings in operating costs, is the rate of interest at which the necessary capital could be obtained.

In this report we have not attempted to evaluate all these factors in the light of current conditions and to present the results of full and expert examination of the problem. We have confined ourselves to calling attention to the importance of the subject, and

explaining the case for a bolder policy of railway electrification, believing that in order to reach sound conclusions in this matter, long-range views and wide views are called for.

Electric Traction

Railway electrification is the only method of traction in which the source of power is not carried on the train; the energy required is produced in a central power station and is transmitted at high pressure to sub-stations located along the track, where it is converted to direct current at the appropriate voltage, and is then fed through the overhead conductor or the third rail to the train, which is equipped with motors and control gear. In this sense it is fundamentally different from other electrical haulage systems such as the diesel-electric or the electric battery locomotive.

Causes Leading to Electrification

Since road competition awakened railway authorities to the possibilities of electric traction, many railway systems have been electrified in all parts of the world. Competition emphasised the limitations of steam traction, especially in densely populated areas. The incapacity of steam trains to carry very heavy passenger traffic was responsible for the suburban electrification schemes of the Southern Railway. The conversion of these lines was followed by the electrification of the Brighton and other lines.

In Germany the suburban lines round Munich and Stuttgart have been electrified for the same reason, and the line connecting these two towns has also been converted to electric traction. A committee appointed by the Minister of Public Works in France has recommended the electrification of 4,000 miles of railways, including the sections from Strasbourg to Bâle, and from Mulhouse to Belfort in Alsace Lorraine. The reason given for this was that it would enable France to meet the increasing competition of the German railway system. The electrification of the Brenner line in Austria was due to the competition of the previously electrified line of the St. Gotthard in Switzerland. In the United States the Pennsylvania Railway decided in favour of electrification, in a large measure, in order to provide a service of greater speed and flexibility and so forestall potential aircraft competition.

In other cases the primary motive has been the need for reducing operating cost or increasing carrying capacity in order to maintain some trade of national importance. This is illustrated by the decision of the Swedish Government who, faced with the opportunity of increasing Sweden's exports of raw materials, embarked upon a policy of electrification on the line from Lullea to Riksgransen, one of the most important freight routes in the country. The iron ore exports of the district had been increasing rapidly, the capacity of the line had been reached and the authorities decided to electrify so as to increase the capacity and lower the working costs, rather than spend a much larger capital sum in doubling the track, which would have necessitated increased freight charges. Very similar conditions apply to the electric mineral railways in Algeria and Morocco, where efficient and cheap transport was essential to the continued export of the minerals, the staple produce of the province.

In this connexion there is evidence indicating that, at any rate in some parts of Great Britain, the railways are not giving the industrialist the service expected of them, and

are consequently losing ground to their competitors. The South-West Lancashire Regional Planning Committee sent a questionnaire to the principal manufacturers of the region. The 320 firms who answered the questionnaire transported into and out of Liverpool a total of 6,520,000 tons: of this the railways carried only 2,048,965 tons, and the roads as much as 1,826,415 tons, the canals taking the remainder. The Mersey Docks and Harbour Board stated that the tonnage of dock traffic dealt with solely by road transport was 83,000 tons in 1921, and had reached the colossal figure of 371,000 tons in 1927, an increase of 350 per cent in six years. Again, the railways themselves published the fact that more than three-quarters of cotton textile traffic was going by road in 1928. The report of the Cumbrian Regional Planning Scheme declares that vast improvement in transport is possible in that area, especially in the coastal strip, and that there is an urgent need to speed up traffic before any effective reconstruction in the area can be carried out. The report of the Manchester and District Regional Planning Committee stresses the need for rapid and cheap transport, and declares that suburban electrification in the whole region is economically possible. The report of the Mid-Cheshire Regional Committee recommends the electrification of the railways, and there appears to be a general demand for improved standards of service all over the country.

A scheme of railway electrification may at first be due to national policy, but later the proved advantages of electric traction may lead to further extensions. In Switzerland and Sweden it was, in the first instance, desired to improve the balance of trade and to become independent of foreign fuel supplies. The reason, however, for the Swedish extensions of 1929 and subsequent years was to increase traffic and secure operating economies which, it had been found, followed the electrification of the Stockholm-Gothenburg line. Again, the London District and Metropolitan Railways were first electrified partly to avoid the smoke and steam nuisance in the tunnels and partly to increase their carrying capacity; but when the benefits of electrification were realised the suburban electrification of the Southern and other lines followed. With few exceptions, electric traction has been adopted to meet either foreign competition in trade, or the competition of other forms of transport. The greater competitive power of an electrified railway is attributable to its technical characteristics, which differ widely from those of other forms of transport.

Characteristics of Electric Traction

(1) Increased Speed

The capacity of an electric motor to take an overload of anything up to 100 per cent of its normal capacity enables the electric locomotive to show very rapid acceleration from rest, and at the same time a greater uniformity of speed over the different classes of trains. Heavy gradients or a rapidly increased load, as often met in freight traffic, can be surmounted by momentarily overloading the electric motors. In Italy the time taken to travel from Naples to Foggia has been reduced from 5 hours to 3½ hours, while from Parma to Spezzia the time has been reduced by 45 minutes. In Southern Sweden, where the country is not mountainous, the journey from Stockholm to Gothenburg used to take 8 hours 40 minutes, it now only requires 6 hours 4 minutes; the journey from Malmo

to Östermunde at present takes 24 hours by steam, but it is anticipated that it will take no more than 14½ hours when the electric service has been inaugurated. Reductions up to 27 per cent in the scheduled times have been achieved on the Delaware-Lackawanna Railway in America. Accelerated schedules are not only available for the passenger services but also to freight trains; thus on the Chicago Milwaukee (Rocky Mountain division) it took an average of 0.964 minutes to transport 1,000 tons a distance of one mile compared with 2.37 minutes under steam operation. In France, on the Paris-Orleans line, an increase of 30 per cent in the speed of local and freight trains has been achieved; while in Germany the average increase in speed as compared with steam operation has been 39 per cent for expresses, 47 per cent for fast trains, and 42 per cent for freight trains. The 1931 Report of the Departmental Committee set up by the Minister of Transport, known as the Weir Committee, estimated for this country that, owing to the greater uniformity of speed over different classes of traffic, a reduction of 50 minutes on a freight steam train journey of 3¾ hours should be feasible.

It would not be fair to ignore the fact that there has been in recent years a marked acceleration at various points in steam-operated railways also. But it may be doubted whether this has been as great or as general as that which has been achieved where electrification has taken place.

(2) Increased Frequency

The increased punctuality of trains, due to the capacity of electric traction to take a heavy overload and to maintain uniform speed, is illustrated by the experience of the Lackawanna railway in America, where 99.4 per cent of trains were on time as compared with 95.4 per cent with steam operation. It has enabled the railways to give a far more frequent service by reducing the headway of each train without incurring additional risks. An indication of such increased service was given in June 1936 by Sir Herbert Walker, General Manager of the Southern Railway, when he stated that in 1934 his company had replaced 10,000,000 steam train miles by 26,000,000 electric train miles.

(3) Fuller Use of Fixed Capital

Electrification increases the use made of railway capital, either by increasing the traffic that can be dealt with by a given amount of capital or by releasing valuable building sites, as in New York, where, following an electrification, lines leading into terminal stations have been built over. Further advantages possessed by the electrically-operated train are that it doubles the capacity of terminal stations, since no engine changes are required in the despatch of trains, and increases the capacity of marshalling and storage yards through greater flexibility in operations.

(4) Fuller Use of Rolling Stock

Electrification has enabled services to be run with fewer locomotives than were required under steam operation. This is due to the cumulative effect of four different factors. The first is that electric locomotives have a much greater haulage capacity. Steam locomotives are prevented by their railway gauge, and by the height of their

tunnels and bridges, from reaching much higher capacities than those now obtained. Such dimensional limitations do not affect the future development of the electric locomotive, and this, together with the efficiency of the electric motor, enables far heavier loads to be hauled by electric trains than by steam.

In Switzerland the haulage ratio is almost two to one in favour of electric traction, the average haul of an electric train in 1932 was 310 tons (in 1929 it was actually 337 tons), whereas it was only 163 tons in 1932 for steam trains. The result is borne out by the experience of many other electrifications such, for instance, as that of the Culoz-Modane line of the Paris-Lyons-Mediterranean Railway. Here it was found that 37 electric locomotives could actually meet a much heavier traffic than that served by 70 steam locomotives.

The increased schedule speeds of all trains enable each locomotive to complete a greater mileage per annum than was possible under steam operation. The effect of the combination of the increased haulage capacity and the increased scheduled speeds of electric trains is seen in the experience of the Italian railways on their line from Lecco to Sondrio. Following on electrification both the average weight and speed of the trains were doubled, resulting in the same service being run with fewer than 50 per cent of the steam engines originally used, while the capacity of the track was quadrupled. A similar instance, relating to rolling stock, can be cited from the experience of the Swedish Railways. When faced with an increasing traffic the authorities considered the relative merits of electrification, which would cost £3,850,000, and the alternative of developing the steam system, which would cost £990,000. One item in this £990,000 is important: "Value of 200 freight cars which are not required with electric traction, because the shorter running time permits a better utilisation of freight cars, £77,000." The Weir Report estimated a capital saving on this account for passenger coaches alone of £2.5 millions.

Some saving can also be achieved through the need for fewer types of locomotive than in the case of steam operation. Locomotives in railway service have to meet varying operating conditions, such as in express, passenger, suburban and freight train services or in the marshalling yards. A separate type of steam locomotive is required for each, whereas with the electric motor it has been found possible to standardise on a smaller number. It has been estimated that standardisation in Great Britain could be made on a maximum of six types, exclusive of the motor units. In Sweden, standardisation has been made on two types only, and the fullest measure of interchangeability has been obtained, thereby increasing considerably the use made of each tractor.

The fact that an electric locomotive does not require time to be spent in lighting fires, raising steam, coaling and watering, clearing fires and movements to the round house, enables it to be in service for the whole 24 hours when necessary. It is apparent that an electric locomotive must have a much higher proportion of useful working hours than a steam locomotive. An electric locomotive can, on the average, be in service for 80 per cent of the year.

The cumulative effect of these four factors on the number of locomotives required, both for goods and passenger traffic, is very great. It is interesting to note that the Weir Report, in estimating the cost of electrification, allowed for some 30 per cent fewer

tractors, and in view of the experience on the P.L.M. in France, and the railways in Italy as well as many others, this appears to be a conservative estimate. In Sweden the average yearly mileage run by electric locomotives is 66,000 miles, as compared with 28,000 miles for steam locomotives.

(5) Reduced Labour Costs

The fact that the railways can, when electrified, run their services with between 30 per cent and 50 per cent fewer locomotives, produces a comparable reduction in the combined engine and shed staff. The Paris-Lyons-Mediterranean, on electrifying its Culoz-Modane line, reduced its staff by 100 men, or roughly one man per kilometre of track, and in addition was able to close down one-third of the engine sheds. Actually, economies averaging over 50 per cent in locomotive wages have been secured on the French electric system as compared with steam operation, in which this item amounts to one-third of the total haulage costs. In other words, operating costs have been reduced by one-sixth, by the economies on this item alone.

To this should be added the saving which could be realised by the general adoption of the "dead man's handle" or some analogous system. Experience on the Federal Railways of Switzerland has been so favourable that the authorities are rapidly applying it to all their locomotives. With the operation of such a safety system it becomes unnecessary to have two engine-men on a train, thus halving the wages bill. The Weir Committee, in their estimates of the savings that would materialise on the adoption of electrification, have, however, allowed for the use of one driver only on multiple unit trains, freight and shunting locomotives.

(6) Lower Maintenance Costs

Another result of electrification is a notable decrease in maintenance costs for tractors, rolling stock and the permanent way. Careful accounts were kept by the Swedish railways of the results of electrification of their line from Stockholm to Gothenburg. One of the points that is strongly brought out in these is the large saving that has been made in locomotive repairs; whereas the total repair cost per locomotive mile for the steam locomotive was 3.225 pence, the total repair cost for the type "D" electric locomotives, the type used for all purposes except shunting, has been reduced to 1.3 pence. Locomotive maintenance costs per engine mile have been reduced by about 40 per cent. Experience gained on the French railways supports the evidence of the Swedish railways. Economies in the maintenance of rolling stock are chiefly in the form of a reduction in the renewals of drawbars and couplers, owing to the even pull of the motors. This point was particularly stressed in a statement on the results of electrification by the President of the Virginia Railway, U.S.A. The absence of smoke and steam enables a further economy to be made in the cleaning and painting of rolling stock, which has been estimated at 25 per cent of the present costs.

While economies in the maintenance of the permanent way are difficult to ascertain, the electric locomotive is much lighter than either the steam or diesel tractor which has to haul its own power. It has been estimated in France that for each metric ton of merchandise hauled there were about 2.4 m.t. of train load, while in passenger traffic the ratio was about 2.8 m.t. of train load per passenger. It is stated that by means of the multiple unit

system, which is a unique characteristic of electric traction and by which the train may be split up at will according to the amount of traffic actually moving, the ratio for suburban traffic on the State Railway was reduced to only 840 kilograms per passenger. All suburban and local passenger trains will be operated on this principle, thus enabling the railways to reduce by 70 per cent the weight of their services.

(7) Fuel Costs

The only important item affected by electrification which does not show a large saving is that of fuel costs. The Weir Report estimated the fuel costs of all standard gauge railways in Great Britain in 1930 under steam operation at £11,723,000, to which had to be added 5 per cent for the cost of carriage, making a total of £12,310,446. The then cost of electric energy was estimated at £11,260,000, less the revenue obtained from the transport of coal to power stations. This showed a saving of only about 9 per cent. It should be noted, however, that under electrification the power requirements of the railways would be met by a consumption of 3,650,000 tons of coal in the central power stations, instead of a consumption of 13,413,000 tons in steam locomotives. Thus, electric haulage tends to reduce the effect of fluctuations in the price of coal. Under steam operation, if the price of coal were to rise 10 per cent, the working costs would be increased by £1,172,000, whereas with electric traction the increase would only be £336,000. This would be important if there were a rise in the price of coal relatively to the price of those commodities which enter into the cost of electrical operation, which seems not unlikely.

(9) Increased Traffic

On the revenue side the result of electrification has been to increase the competitive power of the railways. This is shown by the increase in traffic that has followed, particularly in the case of the Swedish railways (on the Stockholm-Gothenburg line), where it has increased by 36 per cent while the Manchester, South Junction, and Altrincham Railway has reported an increase of 35 per cent in traffic on its 26-mile line since the date of its electrification, despite the competition of an express 'bus service.

The Rhaetian Railway in Switzerland has been able to meet road competition successfully following on its electrification. The Company found that the locomotives could haul double the weight, and immediately placed heavier and more comfortable cars in service, with the result that it recovered the traffic it had lost in previous years. In 1928 the Spanish Government set up a commission to report on railway electrification. The only qualification of its powers was that its proposals should relate to schemes that could be justified on technical and on economic grounds. The commission reported in favour of the conversion of 950 route miles. The most common reason given for these schemes was to improve the service and thereby increase the traffic.

Striking confirmation of the increase in competitive power effected by electrification is afforded by the experience of the Southern Railway. Its receipts from season and workmen's tickets, the majority of which are issued in its electrified area, increased in the period 1928 to 1932 by 7.4 per cent, while the receipts of the other companies decreased by about 17.5 to 20 per cent in the same period, and in 1935 the receipts had risen on

the Southern Railway to £1,038,462 for workmen's and to £2,972,495 for season tickets. The success of the London-Brighton-Worthing line is typical. On this route the number of passengers from London increased from 1,900,000 in 1932 (the last year of steam working) to 2,500,000 in 1933, reaching 2,527,000 in 1934 and 2,532,000 in 1935. The whole electrified system handles over 20,000,000 passenger journeys every month. The net increase attributable to electrification, which may be calculated by deducting the increased operating costs from the increase in gross receipts, is estimated by the Company to be in excess of £1.5 million.

Some General Advantages

The results of electrification extend beyond the field of operating economies and competitive advantages to the railways themselves. The absence of smoke and the decrease of noise increases the value of all properties along the line, especially in urban districts. The more frequent and rapid service brings the country nearer to the towns and assists the decentralisation of industry. In Great Britain, the first results of the electrification of the Brighton line may already be seen; land values have increased all along the route, while the building industries are very active in developing the area.

Effects of Electrification on Employment

The initial effect on railway labour itself would be a considerable transfer from old to new classes of employment and a reduction in the amount of labour employed, which, however, should be rapidly made good through the increase of traffic. Of the direct employment that would be given by the conversion operation, apart from imported raw material—mainly copper for the overhead conductors and cables—almost the whole expenditure would be distributed in this country in the form of wages. The Weir Committee has estimated the direct employment given during the twenty years following the adoption of such a scheme at 60,000 men per annum, on the basis that £1 million will provide work over a period of one year for 4,000 men. No reliable check on this estimate can be made, but the fact that the total capital expenditure does not include any amount for compensation for the acquisition of land, means that the amount of direct employment per £1 million will be higher in this case than in cases such as road widening, bridge construction and the creation of playing fields.

On the basis of experience in Germany, where it was found that 80 per cent of the cost of electrification of the Munich-Stuttgart line was spent in wages, and assuming an average wage per man of £200 per annum, which is very high, the total employment given would amount to 1,460,000 man years spread over the next 30 years. This amounts to the direct employment of over 48,600 men per annum. It is commonly estimated that for every man placed in direct employment there is another man indirectly employed; when allowance is made for this, railway electrification is seen to give employment to nearly 100,000 persons. It should be noted that the electrical group of industries employed 215,000 workers in 1921 and employs about 400,000 workers to-day. At the present rate of expansion it will employ—by 1946—over 600,000 workers. The electrical group is absorbing a greater number of workers than the coal industry is losing, and any major scheme which encourages and intensifies its capacity for absorbing new labour deserves consideration.

Although the electrical manufacturing industry would naturally receive the greatest share of the direct increase in employment, the activity would be reflected right through a large number of industries ancillary to electrical engineering, as well as in industry and trade generally. Actually, in Germany only 38 per cent of the total expenditure went to the electrical manufacturing industry. Hundreds of thousands of tons of high-grade steel—one of the most highly-finished products of the iron and steel industry—would be required in the construction of the supports for the overhead conductors, the new power stations, transforming stations and transmission systems. Thousands of tons of aluminium would be required for the extension of the Grid system, while over 330,000 tons of copper would be required for the conductors alone, which would mean a large amount of work in refining the copper and rolling it to its last manufactured stage of copper wire. Again, large quantities of insulators would be required for the Grid system and for the overhead track equipment, together with thousands of tons of cement for the erection of power stations, sub-stations and the extension of station platforms.

Electrification and the Transport Problem

The bearing of an electrification policy on the acute current problem of transport generally is direct and of fundamental importance. If the arguments in favour of electrification—main line as well as suburban—just advanced are valid, it follows that this is a policy calculated to retain long-distance traffic on the railways and to check a development of long-distance road haulage which many authorities believe to be undesirable on both economic and social grounds. If, in the next few years, many millions of pounds are to be invested in making the national transport facilities more adequate to modern requirements in speed, convenience and price, should this sum be spent wholly in the enlargement and improvement of the main highway system or partly also in improving in those respects the railway transport system of the country? The issue is fundamental and calls for an early and definite answer. Traffic is so responsive to the facilities provided for it that an uneconomic and undesirable situation might easily arise from financing the modernisation of one type of transport while neglecting the modernisation of another.

In the short period of three months from December 1930 to March 1931, a Royal Commission and a Departmental Committee both reported their conclusions and recommendations as to the future of transport and the system of haulage in this country. These two bodies, although working under different terms of reference, were unanimous in their conviction that the railways are still essential to the prosperity of this country, and that electrification would be of material assistance in helping them to recover some of the traffic lost to the roads.

The Royal Commission on Transport reported that the railways were at present wasting their main asset, the advantage of speed, and that it was in many cases possible to travel quicker by road. They held that "it would be greatly to the interests of the railway companies and, at the same time, tend to the great convenience of the public if all suburban lines were electrified, not merely in London, but in all districts where there is intense suburban passenger traffic." They concluded that capital spent by the railways in getting on the roads would be better spent in electrification, on the principle that facilities increase traffic, while participation in road undertakings merely increases the competitive power of the roads.

The Weir Committee was limited by its terms of reference to the investigation of the problem of main line electrification, and in March 1931 made a unanimous report in favour of complete electrification. Considerable stress was laid on the fact that unless electrification were extended to the whole country, the full benefit of electrification could not be obtained. The sum involved (over £300 million, according to the then estimate of the Committee) is considerable, but the Report points out that this sum would be spread over fifteen or twenty years in contrast with the haphazard way in which £500 million had been spent on the roads of this country in the preceding ten years.

The Present Position

Certain changes have since taken place. The four main line companies have close working arrangements with each other and direct competition no longer exists. Road competition is itself undergoing modifications. All public passenger transport in Greater London is now a monopoly of the London Passenger Transport Board, the receipts being paid into a common pool. In the provinces the railways have acquired a controlling interest in the undertakings of their principal competitors in local passenger transport. In the transport of general merchandise the railways have recently acquired interests in certain localised carrying undertakings, notably Pickfords and Carter Paterson, and by co-ordinating their depots and services hope to give quicker delivery and regain some of their parcel and lighter goods traffic.

The progress of electrification of British railways is demonstrated by the following table:

RATE OF ELECTRIFICATION, 1926/35

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
Route miles of line electrified	527	530	555	585	615	623	658	695	701	802
Increase during year . .	64	3	25	30	30	8	35	37	6	101
Average annual extension: 34 miles										

The steady, though slow, increase is mainly due to the Southern Railway Company's progressive scheme of conversion from steam to electric traction. Large schemes are now on hand, but perhaps the least satisfactory feature of these developments is that they indicate that the railway companies have not yet appreciated that piecemeal electrification is comparatively far more costly than a planned long-term policy covering the whole country.

The Weir Committee reported in favour of general railway electrification in 1931, before the fall in interest rates following the War Loan conversion. As the scheme is one involving large capital expenditure, its economic prospects have been materially improved in the meantime, and the case for reconsidering its adoption is, therefore, strong.

(*d*) THE DOMESTIC MARKET

Growth Statistics

During the past ten years the number of consumers served by electricity supply has increased from just over 2 million to about 8 million, a rise of 300 per cent. It is estimated that domestic consumers amount to 83 per cent of the total, so that there are approximately 6½ million domestic consumers in the country to-day, increasing by nearly three-quarters of a million per year.

The rapid growth of the past few years in domestic consumers and consumption has been brought about by the steady decrease in price of electricity, its greater availability and the general demand for modern standards in housing. To-day 35 per cent of the total sales of electricity supply undertakings are for lighting and domestic purposes, compared with 20 per cent some ten years ago, and this proportion is steadily increasing. The figure of average revenue per unit received by supply undertakers for electricity for lighting and domestic purposes decreased from 5.30d. per unit in 1922/23 to 2.13d. per unit in 1934/35, a decline of 60 per cent. Analysing the returns of average revenue per unit sold by undertakings for lighting, heating and cooking supplies for the period 1934/35, the figures show that 311 out of the total 625 recorded had an average revenue per unit below 3d. Of this group 79 per cent were local authority undertakings and 21 per cent company undertakings. (These figures of average revenue per unit are composite figures, made up of varying numbers of consumers on flat-rates and on two-part tariffs in each supply area, and hence are not average prices in the simple sense of the term.) The tariffs of the supply industry to-day show (on a 95 per cent sample analysis) that 86 per cent of the total have domestic two-part tariffs in force, and 25 per cent have a running charge per unit of ½d. or less. With regard to assisted wiring schemes, 84 per cent have these in operation, but 25 per cent are without showrooms and without hiring schemes, 20 per cent have no hire purchase schemes, and over 40 per cent lack canvassers, these figures providing a revealing picture of current commercial practices.

Actual figures taken from a wide range of undertakers having the ½d. per unit running charge, show average prices ranging from .7 to 1d. for houses of rateable values from £12 to £15 on working-class estates and consuming from 1,200 to 2,500 units per year. These figures indicate the rate at which prices have declined in general, and at the same time the general range of tariffs shows the room for progressive developments in the industry.

Perhaps the most important factor contributing to the development of electricity for domestic purposes, apart from the fact that the price is now competitive with other fuels in most towns, has been the evolution of the two-part tariff, on which the consumer pays a fixed charge, based on the rateable value of his premises, or on total floor area; and a running charge per unit of electricity consumed. Such two-part tariffs are important for development purposes. In the first place they lower the cost of supplying a consumer by removing the need of having more than one meter installed in a consumer's premises, frequently of a duplication of the wiring system, and the clerical and other expenses involved in a duplicated system of accounts. In the second place they are of advantage to the consumer himself by being probably the most workable form of tariff under which a reduction in the price per unit of current is obtained with increased consumption.

Electric Cooking

The rapid growth of electric cooking has contributed very largely to higher consumption per domestic consumer. While improvements in design of cookers have lately taken place, but little progress has been made in the direction of standardisation. The many manufacturers produce a varied range of models, complicating the problem of stocks and keeping at a distance economies of production based on standardisation in the industry. Manufacturers accuse supply engineers of demanding excessive varieties of model; and supply engineers accuse manufacturers of refusing to co-ordinate their work. Although prices have declined, electric cookers are still too expensive; and one of the difficulties of the household which is asked to change over from other forms of cooking is the high initial outlay required on special machined-bottomed saucepans and frying-pans for use on solid hot plates. The number of cookers using the coiled type of heating element is small; solid hot plates predominate, and a large proportion of them are square. The selling prices of the utensils marketed by manufacturers for use on electric cooker hot plates are high and constitute a retarding influence on domestic development.

In addition, it is evident that the number of advanced educational institutions, such as Training Colleges, Polytechnics and Technical Institutions, which are fully equipped for teaching the use of electricity for cooking and general domestic purposes is inadequate, and probably does not exceed 50 in all, a condition which could be improved by more progressive policies of the supply undertakers locally with regard to domestic education.

Recent estimates show that among some 6.6 million domestic consumers in Great Britain there are in use 650,000 cookers, 210,000 water-heaters and 120,000 wash boilers with a total connected load of 4 million kilowatts. While these figures are encouraging, the market to be cultivated is still very large, as is shown by the fact that only 6.0 per cent of families have electric cookers and less than 10 per cent of domestic consumers have cookers. The water-heating market is even less penetrated by electricity: 2.9 per cent of domestic consumers have water-heaters and 1.8 per cent of domestic consumers have wash boilers.

Development

New housing schemes have become within the last five years a most important market for the supply industry. This has been due in part to the incessant activity in house-building since the War, beginning in the 'twenties with masses of subsidised houses which, on account of high costs of materials and labour, were rented too highly to be used by families of lower-paid workers. The introduction in 1930, under the Greenwood Act, of housing subsidies related directly to slum clearance and the continuation of such subsidies after 1933 when the others were removed, meant that the development in slum clearance coincided with the era of cheap electricity, of which the housing authorities have not been slow to take advantage.

The electricity supply industry has reason to be grateful for the short delay which occurred before large-scale working-class re-housing could take place, for it has had time to bring its costs down to a competitive level. There has been time, too, for the pioneers of the supply industry to prove to their own satisfaction that this domestic supply to small wage-earners is financially and technically sound, and the housing pioneers who installed

electric kitchens rather daringly a few years ago have been able to repeat their experiments on the firm ground of experience and with entire agreement on the part of the tenants.

A survey was lately made of new houses passed for building, both by local authorities and private enterprise, during the year 1935. The survey covered a sample of 130,000 houses, of which 127,000, or 98.5 per cent, were wired for electric lighting; 49,000, or about 38 per cent, were wired for all electrical purposes, excluding electric cooking; and 5,500, or 4.2 per cent, were all-electric houses. It will be seen from this sample that, while electricity is used for lighting in almost every house built at the present time, in a very small percentage of cases is it used for all domestic purposes, and in this respect the houses built by local authorities do not follow as advanced a practice as houses built by private enterprise. Almost 7 per cent of all houses built by private enterprise were all-electric, 55 per cent were all-electric with the exception of cooking, and in 36 per cent electricity was used for lighting only.

Factors in Home Electrification

While the factors of labour-saving and cleanliness have contributed to this development of electrification, the process has been assisted by the possibility of compact design when electricity is used in small dwellings for cooking and heating, and the consequent saving in costs, by the general desirability of the load from the supply engineer's point of view, and by the saving in expense to the tenant.

That the use of electrical appliances makes the architect's job of planning a house or flat much easier is obvious, particularly if all chimneys are done away with and all flues eliminated. In the small kitchens of to-day, which must take all the "workings" of a modern home, there must be water for washing and laundry, heat for cooking, ironing and laundry, plenty of space for storing food, utensils, dishes, pans, brushes and brooms, and coal too if there is a coal fire. And these, to save duplication of services, must be adjacent to the bathroom so that water and waste pipes of both kitchen and bathroom can travel together, and hot water need not wind round the flat before it finds its destination in bath or hand-basin. Figures derived from actual experience of "cottage" schemes in East London show that in houses with a capital cost of £300 a saving of £15 to £20 has been made, through the elimination of flues and the use of electric equipment. Builders in West London, with a slightly more expensive type of house, have effected economies rising to £60 per house, which have permitted the installation of electric equipment free. Large landlords are, moreover, turning to electricity to preserve and maintain their properties for a longer period without repair, thus reducing maintenance costs.

The second reason given above for the rapid progress of domestic electrification was the desirability of the load to supply undertakings. Engineers in various parts of the country affirm the value of supplying the small consumer whose maximum demand is generally low at the time of the station's peak. Partly because the supply undertakings have found it an easier load to develop and partly because it is often less urgent for middle-class people to replace their older heating and cooking appliances, the full use of electricity for purposes other than lighting still remains confined to relatively narrow sections of the population—broadly speaking, the re-housed poor and the re-housed rich.

Working-Class Housing

So far as the poor are concerned, evidence of the trend may be found among the most important Public Utility Societies and Trusts in London, which have built "all-electric" flats numbering close upon 1,000. These include flats of the St. Pancras Housing Improvement Society, the Willesden Housing Society and the St. Marylebone Housing Society, the Ecclesiastical Commissioners and the Commissioners of Crown Lands—bodies which often try out improvements in house construction, whose success or failure is carefully noted by the more conservative local authorities. In London there are the housing schemes of local authorities in Fulham, Stepney, Wimbledon, Willesden, Woolwich, Tilbury and St. Pancras. Of housing schemes carried out by the London County Council those in Somerstown, St. Marylebone and Hammersmith may be mentioned. In the provinces "all-electric" schemes are to be found at Bolton, Brighton, Hull, Norwich, Manchester, Exeter, Birmingham and York. The equipment of the majority of these schemes includes in the case of smaller dwellings or flats a cooker, kettle, iron and perhaps a wash boiler, while in the larger dwellings a water-heater frequently forms an addition to this equipment. Weekly charges for the hiring of such equipment vary between 1s. and 2s., while these returns, together with any fixed charges payable under the electricity tariff itself, are often collected with the rent of the premises. Perhaps, however, the main evidence of development is to be found not in individual housing schemes but in the steady increase in the numbers of cookers installed in areas, many of which have quite poor inhabitants, such as Poplar with 4,973, Ilford with 6,183, West Ham 8,363, Woolwich 7,005, Stepney 2,429, apart from such towns as Norwich 10,061, Hull 12,085, Preston 10,016, Leicester 15,000, Nottingham 10,582, and Newport 7,140.

The cost to the user of electricity for general household purposes naturally varies according to the type of tariff in operation and the amount he has to pay to hire the apparatus required. It varies also according to the size of premises he occupies and his economic status. Under such conditions no simple statement is possible of what it costs for a family to use electricity for general household purposes; or if a simple statement were attempted it would be misleading. But it is possible to determine with reasonable accuracy what will be the typical consumption of current by certain types of working-class users of electricity.

In the table below an examination is made of what a man would pay per week and per unit of current if he lived in the various parts of the Metropolitan area of London, served by the supply undertakings indicated in the left-hand column. It is assumed that he has living with him his wife and two children; that the premises he occupies consist of four rooms, kitchens and bathroom, with a rateable value of £15 per annum; that he uses electricity for lighting, cooking, wash-boilers and occasional room-heating; that he has a coal fire in his living-room. On the basis of the size of his premises and rateable value he is typical of a great proportion of actual or potential users of electricity of the upper working and lower middle classes in the Metropolitan area.

The amounts given in the table are inclusive of all payments that the consumer would have to make for his electricity service. They include payments for his current, of which he is assumed to use 2,000 units a year, his meter rent (where he has to pay one) and charges for the hire of all his electrical equipment (cooker, radiator, wash-boiler, kettle and iron).

PAYMENTS FOR ELECTRICITY SERVICE BY A TYPICAL UPPER WORKING OR LOWER MIDDLE CLASS CONSUMER IN LONDON*

Local Authority Undertaking	Payment per Week		Average per Unit
	s.	d.	d.
Barking	2	10	0.88
Battersea	3	4	1.05
Bermondsey	3	6	1.08
Bethnal Green	3	4	1.05
Ealing	3	7	1.12
East Ham	2	11	0.90
Fulham	3	2	0.99
Hackney	3	3	1.02
Hammersmith	3	0	0.94
Ilford	3	1	0.96
Poplar	3	3	1.02
St. Marylebone	3	9	1.16
St. Pancras	3	10	1.18
Stepney	3	8	1.14
Stoke Newington	3	10	1.20
Walthamstow	2	8	0.84
Willesden	3	0	0.94

It will be noticed that the weekly payments for electricity services to such a special group under the conditions described above range from 2s. 8d. as a minimum to 3s. 10d. as a maximum, the amount representative of the majority of undertakings falling between 3s. 0d. and 3s. 6d.

Characteristics of the Working-Class Demand

The problem of serving working-class consumers with electricity for purposes other than lighting at a price easily within reach of such a consumer has been regarded in the past by the electricity supply industry as difficult; hence more attention has been paid to the problem of the working-class load, both in respect of costs and sales resistance, than to that of any other class of domestic consumer.

The results of such attention have been not only that a series of principles regarding the development of this load has been established, but that sufficient information regarding the costs of supplying it and also regarding its potentialities has been obtained to enable forecasts of considerable accuracy to be made. In other words, the so-called safety margin which an executive must allow himself between anticipated cost and revenue has been reduced to a minimum with consequent advantage in the prices charged.

The experience which has been obtained as the result of the recent intensive electrification of working-class dwellings can be grouped under two broad headings. The first of these relates to the significance of general all-electrification schemes in connexion with the cost of domestic supply, and the second to the characteristics which the operation of such schemes has disclosed in respect of the consumption of current by various types of consumer.

* These figures include hiring charges for appliances and all fixed charges.

With regard to the first of these, the significance of what may be called "group" all-electrification is summed up in three points. The first lies in the obvious reductions which can be effected in the cost of equipping a group of say 300 or 400 dwellings with apparatus which could be regarded as identical. This applies not only to the reductions resulting from the wholesale purchase of standard equipment, but also to the reduction in labour costs involved in the installation of such equipment. The standardisation also of dwellings in relation to low-tension mains running down the street, and the connecting up of dwellings at one time rather than as a result of a series of operations, means that the wiring of the houses can be undertaken at a reduced cost. Thirdly, the possibility of regarding a housing scheme as one composite consumer with a favourable diversity factor, rather than as a number of individual consumers, has very favourable effects upon the costing of such load for electricity tariff purposes, for it introduces conditions under which the prices charged for such a load can approximate to wholesale, or bulk, prices rather than to retail tariffs.

With regard to the characteristics which the operation of all-electric working-class schemes have disclosed in respect of the consumption of current by various classes of consumers, it is clear that a knowledge of such characteristics is of importance not only to the development of that class of load but also because it forms the basis upon which corresponding conclusions can be drawn in respect of the other ranges of the domestic load. From a number of studies carried out it appears that the electricity consumption of the poorest class of consumer occupying a two-roomed dwelling, with a cooker, iron and kettle, as apparatus, is about 1,200 units per year, while the addition of a wash-boiler brings this figure within the neighbourhood of 1,700 units. A working-class dwelling of three rooms having as apparatus a cooker, iron and kettle, consumes approximately 1,500 units, the addition of a wash-boiler again raising this figure to about 2,000 units. A working and lower middle-class consumer occupying a dwelling of four rooms and having as apparatus a cooker, iron and kettle, consumes about 2,000 units a year, and the addition of a wash-boiler raises this figure to about 2,500 units.

Electrification of Modern "Luxury Flats"

So far as the "rich" are concerned it is necessary to refer to the very large part electricity has played in the heating, lighting, ventilating, cooking and refrigerating equipment of the newer blocks of "luxury flats" recently erected in and around London. For the supply engineer the load provided by the collective demand of this type of flat is possibly more valuable than that created by any other type of building activity, and the tendency of such development to move outwards into Middlesex, Surrey, Hertfordshire and Buckinghamshire and to spring up in Brighton, Bexhill, Bournemouth and other coastal towns, increases its importance.

All-Electric Flats in Greater London

A recent survey of new flats in and around London, ranging in rental from £100 to £1,500 per annum, establishes the fact that in addition to those erected under slum clearance and re-housing schemes an average of 5,000 middle-class flats were put up in London and the Home Counties annually during the past five years. Including those still in course of construction, and excluding all types of converted or semi-converted

houses, the number of "middle-class" flats built during the period 1930/36 is not far short of 35,000. When account is taken of the rate of building, which in each of the years 1934 and 1935 was double that of the preceding twelve months, the importance of this type of building development is evident.

Of the total number of middle-class flats built in London and the Home Counties since 1930, 98 per cent contain provision for the installation of electrical appliances other than for lighting. In order to distinguish the extent to which these appliances are actually employed in the various blocks, it is convenient to classify them thus:

Class A—Where all services in the flats (including water-heating) are electric together with a space-heating system supplied from a central source for the whole block.

Class B—Where all services are electric with the exception of the central heating system which is fired by coke, oil, coal or other non-electric heating agencies.

Class C—In which the tenant has the option of gas for cooking, and, in some blocks for heating.

Class D—Comprises blocks which employ electricity for lighting only.

The distribution of flats in the four classes is as follows:

Class	No. of Blocks	No. of Flats	Percentage of Total No. of Flats	Average No. of Flats per Block
A .	24	5,396	16.0	225
B .	82	15,275	47.2	186
C .	173	11,200	34.5	64
D .	28	750	2.3	27

The proportion of apparatus in the Class C (semi-electric) type of flat may be assumed to be one electric cooker and fire for one gas cooker and fire, and apportionment on this basis brings the total number of flats using electricity for cooking and heating to something over 26,000. In addition to these services most flats are provided with refrigeration and lifts, and some with a wireless re-transmission system, vacuum cleaning, laundry, and other services.

This field of development has only recently been entered by the supply companies. It is estimated that the proportion of all-electric flats being built before 1930 did not exceed 25 per cent of the total. Omitting all consideration of flats in which the tenant has an option of gas service for cooking, all-electric flats built during the years since 1930 formed in 1930/31, 32 per cent; 1932, 87 per cent; 1933, 43 per cent; 1934, 66 per cent; and for the period 1935 and the first two months of 1936, 66 per cent. The exceptional increase in 1932 is attributable to the erection of an unusually large block of flats in North London during a year in which the total number of flats erected was not much larger than in the previous year.

Development, once begun, was maintained without notable variation in the areas of the responsible supply undertakings. In two residential areas an average of about 700 all-electric flats were put up in each of the past five years.

The demand for electricity in these flats varies; in Group B a block of several hundred flats averaged 2,500 units per year per flat; in Group A representative blocks averaged 5,500 units per flat. This indicates that with the additional installation of water-heating apparatus consumption will be about doubled. If the central system is adopted for the whole block the work will be easier, particularly where such a system is operated by an off-peak supply ensuring a well-defined base load. At Chesil Court, Chelsea, for example, two 500 kW. 400 volt electrode hot-water boilers are subject to automatic remote control from a nearby sub-station giving a supply between 10 p.m. and 9 a.m., when ordinarily the supply is automatically discontinued. Another block in this category is Crompton Court, which has a collective system of water heating and space heating, provided by a 1,500 kW. electrode boiler.

A type of installation in general use is the central cooker for service flats, whether with or without a restaurant. Of the flats under review, nearly 12,000, or 30 per cent, enjoy both restaurant and service facilities; 4,700, or 14 per cent, have a restaurant only; service flats without restaurant form only 1.5 per cent of the total. All or some of these services, therefore, are provided in about half the total number of flats, and with few exceptions they are to be found in the group of all-electric flats. This concentration (which is encouraged as much as possible by the landlord) of a major domestic service creates a substantial type of demand, since in regard to this service it is possible to consider the whole block as one composite consumer rather than a number of individual consumers, with favourable effects upon the tariff which is to be charged.

Future Growth

While good progress has been made in domestic electrification, when one considers the average *per capita* consumption of electricity for domestic uses, it is evident that there is a long period of increased electrification ahead before saturation can be discussed as a problem. The work before the industry divides into two tasks, increasing the number of consumers and increasing the consumption per consumer.

The proportion of houses built with electrical circuits for power use as well as lighting is much higher to-day than it ever has been; but it is still not high enough. Houses which are wired for lighting only, and which have to be converted to power use involve additional costs in conversion, constituting a drawback to development. The supply industry should maintain close contact with architects and builders to ensure that adequate facilities for using electric light and power are provided initially in blocks of flats and in housing estates. Generally speaking, lighting outlets and power outlets are far too few in number and badly situated. It is also necessary to persuade the average householder to use better standards of lighting, as the typical dwelling house is "under-lighted" to-day.

The low "average" consumption per consumer is caused by the large quantity of people who use electricity for lighting only, or for lighting plus a wireless set, clock and

domestic iron. It is the uses for cooking and heating which have become important in building up consumption in large quantities, and these uses are the most helpful to earning an increased return on capital expenditure for distribution purposes.

If the problems of improved load factor, diversity and increased sales per £ of distribution capital are to be solved, the equipment used per domestic consumer must be increased, and restrictions on his use of current must be removed. The domestic consumer spends so much per year on heat, light and power in different proportions among the sources of energy, coal, paraffin, candles, crude oil, petrol, gas and electricity. The problem of the supply engineer is: "at what 'all-in' rate and service conditions can electricity be economically supplied to households in any quantities to cater for all energy demands?"

The solution of this problem requires imagination: in the future it may require new forms of tariff such as unlimited use of current for a fixed sum per week in accordance with size of house; it may require action by the proposed Electricity Development Authority on behalf of the supply industry and its consumers to induce the manufacturers of expensive domestic appliances, such as refrigerators and cookers, to co-ordinate their work and produce low-priced, efficient models; but whatever the solution may be, it demands vision and co-operation, research and practical experiment.

(e) THE RURAL MARKET

Nature of the Problem

In considering rural electrification it is necessary to bear in mind the peculiar conditions in which it has to be carried out. To mention only some of the salient points, the problem takes different forms according to the different population density of different areas, to the type of farming carried on, the degree of prosperity prevailing, the extent and nature of factory or extractive industries developed, and the presence or absence of a strong suburban, residential, or holiday element in the life of the area. A very brief summary must suffice to show the impact of some of these factors.

There is not a single rural electrification problem, but a mass of quite distinct problems, for each difference in population density and in social and economic characteristics involves a corresponding difference in electricity demands. In many cases a number of distinct types of demand occur in neighbouring areas served by a single electricity undertaking. Thus a district of large arable farms adjoins a patch of fruit-growing country, a rich dairying valley may be shut in by barren moors carrying only sheep farms with a low potential demand for electricity; but on the other hand, agriculturally barren areas may contain slate or stone quarries with a useful load. One local authority in Lancashire sells more than two million units a year to highly-electrified poultry farms in its rural zone. A factory, a surburban settlement, or some other apparently incongruous element, may considerably modify the problem before the supply engineer engaged in rural electrification, and without some such additions a purely agricultural area may be more difficult to deal with. Much obviously depends upon the prosperity of agriculture

itself, and the recent improvement in organisation and in returns to producers secured through subsidies, Agricultural Marketing Boards, and other attempts to promote rural revival, has undoubtedly removed some obstacles. Increased farm incomes increase the demand for electricity and for electrical equipment, and enable landowners and farmers to rebuild or to re-equip buildings, while the higher standards of efficiency and cleanliness prescribed by regulations, or enforced by competition, exercise pressure in the same direction. For example, in dairy farming the production of "grade A" milk has required high standards of cleanliness which have been most readily met by a widespread electrification of dairies. The movement towards electrification of agriculture has been strongest in the dairy and poultry branches of farming, although it may be described as a general movement, which has included the introduction of electric motors on a large scale to replace oil engines, steam plant and manual labour, both for operating barn machinery and to provide efficient pumping equipment.

The Modern Countryside

At the same time improved roads, quick and cheap transport, education, wireless, cinemas and the Press have brought the countryman into closer contact with town amenities, and have created a demand for similar amenities in the country. *From this aspect rural electrification is not a separate problem, but is bound up with the much wider problem of creating a new rural civilisation in Great Britain.* Conditions of living in the rural village and hamlet must be made much more attractive to the present generation than they have been in the past, if the drift to the towns is to be checked.

Materially, the three amenities which will help to solve the problem are good and abundant water supply, easily available, central drainage schemes, not merely for the small rural townships, but for groups of houses and cottages, and a cheap supply of electricity from the distribution systems of supply undertakings. It is difficult to isolate those three developments, since electricity is essential to pumping and drainage schemes, and such schemes form part of the potential demand which would justify electricity in going into difficult areas. A fourth development, which is almost as important as the other three combined, is rural housing, but rural housing cannot be satisfactorily carried out if these three basic services are not available.

Progress of Electrification

It has been shown that the growth of the electricity supply industry in its earlier years was concentrated on lighting and on industrial power uses, and that through technical advances and reduced costs the market for electricity was widened so that the domestic load has grown rapidly in the towns. During the post-war period the importance of the urban domestic load gradually became recognised, and the rural load, although regarded as less profitable, began to receive more attention from progressive undertakers.

Growth of Distribution Powers

The growth of rural electrical development is indicated by the following data. Before 1920 statutory powers to supply electricity had been granted to undertakers for rural

areas of 5,960 square miles, including a population of 1.98 million. The average density of this population was 332 people per square mile. Between 1920 and 1928 another 28,000 square miles were added containing 4.39 million people, bringing the area for which distribution powers were in force up to 34,000 square miles, including a population of 6.37 million. The average density of the areas added during this period was 157 people per square mile, and the average density of the combined rural areas was 188 people per square mile.

Taking total rural areas as 81,000 square miles, including a population of 9.4 million people, the percentage of the whole area for which supplies were either available or authorised for all purposes increased from 7.4 per cent to 42 per cent during the period 1920-1928. The change in percentage of total rural population under distribution powers corresponding to these areas was from 21.2 per cent in 1920 to 67 per cent in 1928. In the same year, 1928, the urban areas covered by authorised distributors were 89 per cent of total urban areas in the country, and 97 per cent of the total urban population. The growth of rural distribution powers was accelerated, under the influence of the national power scheme from 67 per cent of total rural population in 1928 to 82 per cent in 1930, the average density of this population decreasing from 188 in 1928 to 115 in 1930. Over the same period the increase in proportion of rural areas covered was from 42 per cent to 59 per cent. At March 1930, 7.75 million people in rural areas were covered by distribution powers.

From 1930 to 1936 the rate of rural electrification has accelerated and powers of supply now cover about 90 per cent of the rural districts of the country, including some eight million people. These figures of authorisation are only broad and imperfect indicators of rural development. The actual mileage of low tension distributing mains in rural districts was 3,700 miles in 1929, 5,300 miles in 1930, 13,000 miles in 1934, and about 18,000 miles at the present time. In relation to areas served, therefore, there was roughly one mile of low tension mains for every five square miles of rural area in 1936, compared with one for every nine in 1930.

Progress of Connections

A representative analysis of results at January 1935 of fifty undertakings serving rural zones and covering a total rural population of over 2¼ million, showed that the overall density of development was 33.5 per cent of domestic dwellings connected to supply. The group analysed covers all parts of Great Britain, including progressive and backward undertakers, and includes within its distribution orders 25 per cent of the total rural population of the country. The proportion of farms connected by this group of undertakers was 11.9 per cent out of a total of over 51,000 farms in their areas.

Rural Supply Policies

Low capital costs are most important in developing rural distribution systems since the units consumed per head of population in rural areas and the revenue obtained from them are relatively small. In general, overhead line distribution becomes essential on account of its much lower costs compared with underground cable. Advance planning

ensures economic development in the long run, compared with haphazard extension work carried out when demand arises, but the expected returns in each area or part of an area may not always justify construction of large networks in anticipation of growth.

The policy adopted in these circumstances by most undertakings is to develop their mains so that the maximum number of consumers are placed within reach, taking in townships, villages, and rurally located factories in the first stages, followed by farms and hamlets near to these villages. After connecting up the villages and townships, a network of consumers is built up and consumption *per capita* increases in the area developed, so that increasing revenue justifies extensions to less profitable zones. Other undertakings, chiefly local authorities, have embarked on schemes of more complete development over a wider area, which cannot be expected to pay immediately, but which should be profitable within a few years. Others have taken advantage of a subsidy, for example, from the Unemployment Grants Committee, in the form of relief of interest payment on part of the capital expenditure for a period, so as to enable them to embark on large scale rural schemes.

As a general rule the first years of developing a purely rural area are unprofitable since distribution costs are very high in relation to initial sales. It has to be borne in mind that a mile of distribution line in rural districts may have ten to thirty consumers, compared with two hundred to three hundred consumers served by a mile of cable in urban districts. Distribution costs may represent between 45 and 60 per cent of the revenue from a rural zone.

Many undertakings, before carrying out an extension, require a guarantee of the full 20 per cent return on the total capital expenditure, to which they are entitled by statute; in practice, numerous extensions are carried out at varying rates of return from 10 per cent to 20 per cent or more, depending upon local conditions. Some estimate to break even at 12½ per cent or 15 per cent, and are content with low initial returns, seeing reasonable profits ahead.

In any case, under conditions existing today, 15 per cent gross return would be more reasonable than the 20 per cent which was calculated many years ago under entirely different conditions of electricity supply and use.

The price at which electricity can be offered depends upon three factors: (1) The capital expenditure required to provide service, (2) The additional consumption to be obtained, (3) the nature of the consumer demand. The nature of the rural area has a large effect on the average consumption per head; the character of demand varies widely, and there may be one very large consumer exerting a great influence by providing a basic load for the local supply undertaking. The existence of large single, or several scattered, power loads within a rural zone is desirable to enable prices to be reduced to low levels. Many rural districts of hamlets, farms and villages, with low density population, can only be developed successfully by having an industrial and domestic load in an adjacent district to allow of profitable overall operation.

Normally, in the initial stages of development the urban community must to some extent support the rural communities, if the cost of electricity to rural dwellers is not to be

excessive. Increasing demand should make these areas profitable after some years, but it must be recognised that some rural districts are either stagnating or growing so slowly that rate of growth of electricity consumption must be very small.

The different conditions of municipal and company-owned undertakings must always influence development policy. Large municipalities, opening up semi-rural areas, can afford to give the inhabitants of these areas the same prices as those given to the townsfolk, without appreciable effect on the latter. Smaller municipalities possessing valuable industrial load and developing rural areas of some one hundred to three hundred square miles, may differentiate slightly between urban and rural prices, for instance, by adding from 10 per cent to 20 per cent to the urban tariff to cover the extra cost of distribution.

Factors of Progressive Development Defined

In considering supply policies, reference must be made to the Report published in 1930 by the Electricity Commission, which laid down the conditions governing rural electrical supply, and relating to:

1. The physical provision of electrical service.
2. The planning of electrical distribution networks.
3. The assessment and development of load potentialities.

The Report stated:

"The prospects of the electrification of rural areas being proceeded with more rapidly on a profitable basis are affected by a number of factors, the more important of which, though not necessarily in order of merit, are as set out below:

"(*a*) The availability at a reasonable price of electricity in bulk at appropriate points in or near the rural areas to be developed.

"(*b*) Minimum costs of transmission and distribution from the bulk supply points, by the liberal use of overhead lines for these purposes and the co-operation of the local authorities and landowners concerned in the granting of the necessary facilities; and by the adoption of standardised voltages and equipment and a carefully-planned layout for the area as a whole, the collective aim being the fullest possible economy in capital expenditure consistent with reasonable continuity of supply and safety.

"(*c*) The construction of a transmission and distribution system in anticipation of demand, so as to foster rapid development, instead of providing supplies in the area by sporadic and irregular extensions as and when a demand arises.

"(*d*) The adoption of a suitable two-part tariff, which by its character will serve to encourage extensions in the use of electricity once a supply is available.

"(*e*) The adoption of a scheme of assisted wiring so that new consumers are not forced to make a large cash payment for connection to the supply system.

"(*f*) The provision of a service whereby electrical cooking and heating apparatus, etc., and electric motors are provided on hire or hire purchase and efficiently maintained at a low cost.

"(*g*) Active propaganda, including showroom and other demonstration and canvassing of likely consumers."

Of these seven major recommendations ((*a*) has been largely met by progressive undertakers by the construction of high tension lines, aided in certain instances by the secondary lines of the Grid and extensions to these lines;) (*b*) has been met to a considerable extent through the adoption by a large majority of the supply authorities of standard transmission voltages. Many undertakings have developed overhead systems as recommended, although some are still backward. The solution of the wayleave problem has been facilitated by the Conference on Rural Electrification. Individual experience varies in acquiring wayleaves, some finding negotiations smooth, others finding difficulties with certain landowners. Concerning (*c*) planned layouts for areas as a whole, much remains to be done. The basic policy of the recommendation has had a mixed response, some undertakings carrying out broad developments and others clinging to piecemeal methods. As to (*d*), substantial progress has been made in introducing two-part tariffs for rural areas, although there is still excessive variety in the character of the standing charge. Concerning point (*e*), assisted wiring schemes have been more widely developed; concerning point (*f*) similarly, there has been some increase in hire-purchase activities all over the country. Commercial progress under point (*g*) is on the whole inadequate, and under all these four headings, (*d*), (*e*), (*f*) and (*g*), there are too many backward undertakings which lag behind the leaders.

While it is true that statutory powers of supply have been granted over 90 per cent of the country, this figure is misleading in that much of these areas has not been developed. Although in recent years it has been the practice in granting new distribution orders, to specify certain stages of development with time-limits, such conditions are difficult to observe in practice, and do not determine the development policy of the undertaker, or his commercial facilities and tariffs.

Organisation: Urban and Rural Grouping

The development of sparsely-populated zones has been made difficult by the absence from many areas of urban centres to supply the necessary volume and diversity of load. These conditions have been partially caused by (1) the reluctance of many urban undertakings to do any development work outside their local authority boundaries; (2) the acquisition of irregular territories by holding company groups; (3) the lack of co-ordinated planning of distribution.

While it is desirable to group rural and urban areas together from the viewpoint of levelling up the overall rate of return by forming composite areas, the operation of a rural zone has a technique of its own which urban supply engineers do not always understand, and it would be unfortunate if the development of rural zones became a subsidiary aspect of a primarily urban policy.

In this connection a distinction must be drawn between huge urban centres, such as Leeds, Birmingham and Manchester, which are industrial and commercial nuclei fully divorced from rural life and its direct influence, and moderate-sized urban centres such as Ipswich, Colchester and Norwich, which are interconnected with surrounding villages and hamlets, and which have an economy based largely upon the production of goods, equipment and services for agricultural use. Cities of the former class are too urban to enter into rural activities, but those of the latter are naturally qualified to undertake rural development.

Relations with the Farmer

There is some criticism among farmers and farmers' associations of the general progress, facilities, and levels of rates in rural areas, and while part of this criticism is uninformed, there is a certain amount of truth in it.

The development of hire and hire purchase facilities for farming equipment is not rapid enough, and the readiness to connect up farmers without demanding large capital contributions is not sufficiently general. It is impossible to over-emphasise the importance in rural areas of employing men trained or experienced to some extent in farming processes and men with rural sympathies. Farming is changing, not only in its trends of production, but in mechanisation and standard of operation. The supply undertaker needs to appreciate the nature of these changes as they affect the demand for electricity and for electrically-operated types of machinery. Closer collaboration between the supply engineer and the manufacturer of agricultural equipment is needed, to prevent apparatus coming on the market which is unsuitable, too expensive or in need of design modifications, before being offered to farmers.

In this connection it is believed that valuable experience would be gained from the setting up of farms for experimental and demonstration purposes. Farmers would be invited to co-operate in trying out new electrical methods of operation, and in testing of equipment, and the use of various types of wiring. Working farms would be electrified on a practical scale, run as ordinary profit-making enterprises, and accessible to those studying rural electrification, such as farmers, supply engineers and agriculturists.

The working out of a plan of this character on a regional basis could best be done in collaboration with the regional economists and the principal universities having agricultural faculties, and, as this is an important matter for future agricultural load building, we have put forward in Appendix 3 a suggested scheme of development.

Besides working and experimental farms, electrically operated, the supply industry needs more thorough co-ordination of information on rural electrical activities. This involves the systematic supply to undertakers and agriculturalists of information on new developments and equipment, and of the results obtained by various centres and zones. Studies in this field are few: where they exist in the records of separate undertakings they are seldom made available for the general use of the industry.

Economic Studies of Rural Electrification

While some technical research has been carried out, there has been a deficiency of basic economic studies, and only a few special investigations have been attempted. In 1927 the Electricity Commission published a "Memorandum on Electrical Development in Rural Areas." In 1928 it published a Report of Proceedings of the Conference on Electricity Supply in Rural Areas. In 1930 the Bedford Demonstration Scheme was begun, and was followed by the Norwich Demonstration Scheme. In 1929, Mr. Cameron Brown, of Oxford University Institute for Research in Agricultural Engineering, made a close study of a number of electrified farms in the area of the Chester Corporation. In 1931, Messrs.

Grimmitt and Dickinson presented an important paper to the Institution of Electrical Engineers on the electrification of rural areas, working out a hypothetical scheme. In 1932, Professor Ashby, of the University College of Wales, Aberystwyth, carried out a study of farm electrification in collaboration with the South Wales Power Co. In addition, useful papers were presented at various Royal Agricultural Shows by Mr. M. M. Harvey, of the Shropshire, Worcestershire and Staffordshire Electric Supply Co. (1931 and 1934), and Mr. F. E. Rowland, of the General Electric Company (1932 and 1936), Mr. S. E. Britten, of the Chester Corporation (1933), and Mr. H. D. Phelps, of the North-Eastern Electricity Supply Co. (1935).

Certain pamphlets, published by the Electrical Development Association, have added to the range of commercial information available on various aspects of rural electrification, such as pumps for rural water supplies, and poultry farming, but as far as technical and economic research is concerned, the Oxford University Institute for Research in Agricultural Engineering and, more recently, Rothamsted Experimental Station, appear to be the only independent bodies making investigations. The Oxford publications of recent years on farm wiring, pumping, poultry farming and soil heating are valuable contributions to the basic work of rural electrification.

In the U.S.A. greater attention has been given to the economic problems of rural electrification, and a number of studies have been carried out by such bodies as the Committee on the Relation of Electricity to Agriculture, Chicago (C.R.E.A.) and by numerous agricultural experimental stations, including Cornell, Nebraska, New Hampshire, California, Purdue, and South Dakota. More recently the Tenessee Valley Authority has made basic studies of rural problems, and the Rural Electrification Administration, set up by President Roosevelt, has made investigations leading to the carrying out of a national rural electrification plan on a scale never before attempted.

At the present time, with national policy directed towards the reconstruction of agriculture, with the forces of transport and electric power acting to decentralise industry into rural areas, and with rehousing surveys and projects widespread over the country, the basic work of applied research and development in rural electrification needs to be fostered.

Demonstration Schemes

During the years 1929 and 1930 two Demonstration Schemes were started in rural areas at the instance of the Electricity Commissioners, the earlier scheme being at Bedford, and covering 109 square miles, including 6,618 occupied dwellings, with a population density of about 176 people per square mile. The second scheme was the Norwich Scheme, covering 125 square miles including 4,000 occupied dwellings, with a population density of 112 people per square mile. These two schemes were developed with the object of providing for a full and rapid electrification of typical rural areas, on the basis of making a supply available for all purposes to practically the whole population within a period of two years. Special grants were made to finance these schemes, which were regarded as unlikely to prove self-supporting until after a few years of operation, and their latest reports still show deficits after deducting capital charges from gross surplus.

County Schemes

While both the Bedford and Norwich rural Demonstration Schemes are showing a loss, it is interesting to note that the two schemes in South-West Scotland, which were initiated to develop entire County areas of very rural character, are both operating at a profit. These two schemes, in Dumfriesshire and in Kirkcudbright Stewartry, obtain their electricity supplies direct from the Central Electricity Board at a low cost (total price, 0.563 and 0.585 pence per unit respectively), and have produced good results. Dumfriesshire obtained a grant from the Unemployment Grants Committee for relief of interest on certain sums for a limited period, and records a gross surplus of £18,601 at May 15, 1936, equal to over 5 per cent on the total capital expenditure. The success of this undertaking is attributed to "vigorous canvassing of prospective consumers coupled with demonstrations of the use of electricity; to the ample facilities offered for the hire and hire-purchase of apparatus, assisted wiring, etc.; and to the fact that consumers can obtain supplies at the tariff rates without being required to make any contribution towards capital costs." Kirkcudbright records a profit of £1,188 for the year ending May 15, 1936, excluding a special contribution from the Galloway Water Power Co., of £2,000.

The Dumfries scheme began in December 1931, and to-day every town and village in the County has a supply available. The Kirkcudbright scheme was started in 1932 without obtaining a grant, taking over a nucleus of 900 consumers from several small companies. Electricity is now available for more than half the total premises in the area.

Farm Variety

In farm electrification the lighting of farm premises has been the first step. Electric light in farmhouse, in cow-byres and in the farmyard, has replaced oil lamps, and has enabled cleaner conditions to be maintained. In many farm electrification developments the domestic installation of the farmhouse has preceded the power installation on the farm. It is interesting to note that the advantages of an all-mains wireless set are often an important inducement for the installation of electricity. It is evident that wherever the electricity tariffs are moderate, where guaranteed consumption conditions are reasonable, and where there is no connection charge loaded over a number of years, the desire for town amenities has assisted the process of electrifying the farming community.

Farm consumption must always be regarded as a highly variable quantity, and the actual consumptions recorded by different farms show wide divergences, depending upon installed capacity of farm and farmhouse equipment, and upon character and size of farm. The classification, "farm," covers the main varieties of dairy, poultry, livestock, arable, mixed, fruit, and market gardening: dairy farming alone may be divided into three main groups, (1) wholesale, (2) retail, and (3) cheese, cream, ice cream, etc., production. Again, (1) wholesale, subdivides into (*a*) ordinary, and (*b*) bulk producers; (2) retail, subdivides into (*a*) producer-retailer, and (*b*) direct retailer; (3) may be producing any or all of the commodities, cheese, butter, cream and ice cream.

Any of these may have its farmhouse connected up, using either lighting only, lighting with domestic iron and wireless set, or lighting and cooking, with or without washboiler or fires. Some farms, such as the factory type, producing cheese, will not have a farmhouse attached.

"Mixed farming" is the chief group among the farming categories in Great Britain, and may represent all combinations of agricultural and horticultural activity, particularly in a period of rapid change, such as the present. Types of mixed farming include arable and livestock; arable, dairy and livestock; arable and poultry; arable and sheep; poultry, market gardening and fruit; fruit, arable, pigs and hops.

Fruit farming subdivides into (1) soft fruits, and (2) hard fruits, the chief use of electricity being for pumping and spraying orchards, in which petrol engine competition is strong. Heating for frost protection is a use which has made little headway against oil lamps owing to relatively high cost. Grading and sorting of fruits is also carried out electrically. Market gardening subdivides into three groups: (1) outdoor, (2) glass, (3) special, such as bulbs and flowers.

Poultry farming subdivides into (1) hatchery, (2) eggs, and (3) table breeding. Hatchery divides into (*a*) chicks and table birds, (*b*) chicks and eggs. Eggs divide up into (*a*) those with small hatcheries of their own, and (b) those who buy from other producers. Table breeding divides up into (*a*) those who have their own incubators, and (*b*) those who buy chicks from other producers. Each of these classes has different requirements in lighting, incubators, hovers, brooders, food mixers and mashers, producing different types of demand.

It is evident that the variety of British farming may cover any combination of farming types, and experienced supply engineers operating rural areas express the opinions (1) that a farm must be surveyed by a competent man in order to estimate probable initial consumption, (2) that consumption during the second and subsequent years may (and frequently does), bear no relation to the initial year's consumption.

During the first year, the use of electricity is an experiment; its costs are unknown to the farmer, and meters may be closely scanned. When, however, experience shows that electricity is carrying out work previously done by hand labour or less economic means of power, the use of electricity should increase.

Typical Farm Consumptions and Revenues

The 1930 figures of the Electricity Commission for all types of farm showed for 200 undertakings operating in rural areas an "average" farm demand of 1,163 units, producing an average revenue of £11 2s. at 2.29d. per unit. A representative sample of about 500 farms from twelve undertakings operating in 1934 and 1935 showed an "average" demand of 1,700 units, which yields about £15 per farm. These data exclude a group of over 300 poultry farms yielding an average of 6,000 units per farm. A representative sample of dairy farms recorded 6,000 units as an overall average, while dairy factory-farms averaged 15,000 units.

Among mixed farms, records covering a variety of different undertakings showed the following typical data, covering in all about 700 farms:

Undertaking	Average Farm Consumption (Units)	Notes
1	1,500	
2	2,800	
3	4,900	(High percentage poultry and dairy)
4	1,320	
5	1,530	
6	1,000	
7	1,480	
8	675	(High percentage arable)
9	2,370	
Range	675—4,900	

The range of these average consumptions is necessarily wide and there is no single gauge of probable consumption. For dairy farms, the number of cows in milk is a reliable index of electricity consumption for farming operations. Similarly, head of poultry, output of eggs, or of table birds, may be used as an indicator of probable operations demand on a poultry farm. The demand for the farmhouse is similar to other domestic demand, bearing in mind rural habits of living and the class of farmer. In addition, there are local peculiarities and conditions which affect consumption.

For the foregoing reasons, "average" consumptions for electrified farms in any area cannot be postulated on general grounds. The term "farm" itself needs defining, as it may include small holdings and exclude factory farms, or vice versa. In any area some farms will be using electricity for lighting only, others for power and heating purposes, so that revenue and profitability may be low and high. The use of electric cooking in the farmhouse will have considerable effect upon the figures, while the existence of promotional tariffs at low rates naturally encourages increasing consumption.

Taking typical financial results from representative farming areas, in one Scottish zone mixed farms consume between 1,000 and 2,000 units a year at about 2.25d. per unit, producing between £9 and £18 per year. In another Scottish area, where dairy farming predominates, the average revenue per farm is £25; Kirkcudbright yields an average of £21.83 per farm; Dumfriesshire averages £11.42. In South Wales one undertaker averages 1,300 units per farm, or about £12 in revenue; in Buckinghamshire the average is 3,000 units, yielding £20; in Bedfordshire, 1,250 units, averaging £8.

Characteristics of the Village Demand

The rural community load is, like the farming load, variable, and depends upon local conditions and regional characteristics. "Average consumptions" for domestic consumers are reliable only if applied to fairly homogeneous groups of similar purchasing power and habits, so that it is preferable to show typical data indicating the range of consumption. The group of slot meter consumers is, however, more uniform in its consumption statistics from zone to zone.

As regards rural domestic consumption, the two experimental areas of Bedford and Norwich show "average" consumptions of 697 and 365 units per consumer respectively. The figure for Norwich's entire rural zone is about 470 units per consumer, and the average consumption obtained from the villages in a Norfolk coastal zone is 350 units. In South Wales, eighteen villages recorded an average of 440 units per consumer, the domestic consumption being about 300 units. In Hertfordshire, the average was 668 units per consumer from five villages, the domestic figure being about 550 units. In Dumfriesshire County the average domestic consumption is 740 units; in Kirkcudbright it is 445.

In Northumberland and Durham district, village consumers using electrical apparatus in adequate amount, ranged from 291 to 1,120 units, varying with number of rooms per house. In an Essex zone records from eight villages showed an average consumption per consumer of 240 units.

These figures depend upon the make-up of the villages concerned. Where there is a number of slot-meter consumers, mixed up with two-part tariff consumers, a composite average results. As far as slot-meter consumers are concerned, the data from such widely different parts of the country as Hertfordshire, Cumberland, Buckinghamshire and Northumberland show small variations. These purely lighting consumers use generally between 70 and 80 units per annum, although the large cottages, having seven or eight lighting points may use between 100 and 150 units.

These data illustrate the wide range of results obtainable from rural domestic load, and it is probable that the overall composite average for rural areas is between 450 and 500 units, not differing much from the 1930 overall composite average of 432 units obtained from analysis of 200 representative undertakings' returns. Such overall figures are obviously of little value without an analysis of consumptions in grades, such as is provided by rateable values or numbers of rooms.

In rural zones where electric cooking has been well developed, the combined lighting and cooking load represents from 1,000 to 2,500 units per annum according to the size of house occupied.

The following figures may be regarded as typical of well-developed areas:

TYPICAL LIGHTING AND COOKING INSTALLATIONS IN A RURAL COMMUNITY

	Approximate Consumption per Year			
Number in Family	Size of House. No. of Rooms	Lighting	Cooking	Combined
		No. of Units	No. of Units	No. of Units
2 to 4	2 3	100	1,000	1,100
3 to 5	4 5 6	120	1,400	1,520
5 to 7	7 8	160	2,000	2,160

Attempts to grade consumptions in relation to purchasing power show a definite increase in units used with increase in the rateable value of the premises concerned. From this point of view the following table is interesting.

Total for Three Cumberland Villages—Domestic Consumers			
Rateable Value of House	Consumers	Units	Average per Consumer
Under £10	90	32,315	357
£10 — £15	36	17,800	494
£15 — £20	41	45,017	1,254
Above £20	70	93,223	1,333

Similarly, there is great variety in the composition of the rural load. The Bedford Demonstration Area showed 36.8 per cent of its load in units consumed to be domestic and 59.3 per cent to be industrial, the relatively high industrial figure being due to the demand from a large brick works. By contrast, the Norwich Demonstration Area showed 80 per cent of its units as domestic and 8 per cent industrial; an Essex zone covering eight villages showed 84 per cent domestic and 15.8 per cent industrial; and a Norfolk coastal zone of ten villages recorded 93 per cent of its consumption as domestic.

Power load in rural areas may be derived from small rural industries and workshops, or from large decentralised industrial plants, so that "typical" consumptions in this class of demand will range from a few hundred units to many thousands, depending upon the type of industry concerned.

Shop consumption is sometimes included under domestic returns by undertakers, and here demand varies with installed wattage, the small village shops consuming between 40 and 50 units per 100 watts connected. Other types of rural premises, such as banks, public houses, halls, churches, garages, and clubs, are variable consumers, some being mainly lighting consumers, using from 50 to 150 units, others having occasional heating and small appliances consume from 150 to 500 units, and those using space heating, cooking and small power, consume from 500 to 2,000 units.

Domestic Revenues

Average revenue per domestic consumer varies widely. The Bedford Scheme records £4.63; the Norwich Scheme £3.65; the six Home Counties villages referred to, record £6.5; a Cumberland area £2.9; an Essex area records £2.5; villages in Cheshire returned £7; in South-East Scotland £6.3; Dumfriesshire £5.92; Kirkcudbright Stewartry £5.3.

Considering results broadly throughout the country, small cottages yield roughly £2 to £3.25 a year; the houses of higher rateable value, up to about £20, return from £5 to £7 per year; above £20 rateable value, from £7 to £15 or £20, and higher figures, depending on the district and the condition of cooker development.

The 1930 analysis of the returns of 200 undertakings in rural areas made by the Electricity Commissioners, showed an average return per domestic consumer of £5.3, and it is probable that this overall, composite average is still between £5 and £6, since the rapid rate of rural electrification has brought into the supply system very large quantities of slot-meter consumers of low consumption, as well as large quantities of higher purchasing power consumers, using cookers, so that one would expect to find the generally higher consumption per consumer of the latter group balanced out by the big influx of the former group, whose consumption is less elastic. In addition, it must be borne in mind that the average price of electricity in rural areas has decreased steadily over the last six years.

VI. THE REORGANISATION OF ELECTRICITY DISTRIBUTION

GUIDING PRINCIPLES: The Effects of Size—Essential Elements in Efficiency—Price Reduction without Service

PROPOSALS FOR LEGISLATION: (1) Appointment of a Committee of Investigation—(2) Creation of Electrical Development Authority—(3) Increased Powers of the Electricity Commission—(4) Co-ordination and Simplification of Existing Legislation on Electric Lighting and Electricity—(5) Removal of Restrictions and Anomalies

GUIDING PRINCIPLES

This Report steers a middle path between extremes. It offers no quick remedy for existing defects, omissions and anomalies in the supply industry, but it proposes certain positive actions to be taken which should have a beneficial effect upon the two essentials of costs and service.

Here are the principles which have guided the group in its study and recommendations:

(a) Before undertakings can provide the best service to consumers, anomalies and restrictions outside the undertakings' control, and also abuses in control, must be removed by legislation.

(b) Before reorganisation can be carried out intelligently, proper assessment of the efficiencies of individual undertakings must be made.

(c) Efficient undertakings, whatever their size or ownership, should be preserved.

(d) Size and efficiency are not directly related.

(e) Amalgamations of undertakings are no guarantee of efficiency.

(f) Form of control as between a local authority and a private company, is not a major factor in efficiency.

(g) Areas of supply may be either too small or too large for efficient operation.

(h) Management may of itself make an undertaking efficient or the reverse.

The Effects of Size

In approaching this problem certain fallacies which have appeared in some arguments in favour of reorganisation should be guarded against.

It is frequently assumed that size of an undertaking, measured either by the number of units of current it sells, by the extent of its supply area or the number of consumers served, is related causally with the degree of efficiency of operation.

There is validity in this argument where the generation of electricity is involved, for in such cases technical considerations of the proportion of standby plant, efficiency of large generating units and capital costs per kW. of generating equipment result in various ways in "economies of large-scale production," but where the operation in question is only that of distributing current, this is not necessarily the case.

The capacity to employ highly efficient specialists, and pay them adequately, is a definite advantage possessed by the large-scale undertaking. Further, investigation shows that, in connection with the distribution, there may be a certain range in undertaking size over which so-called "economies of large-scale operation" play a part. For example, purchases of stores on a large scale secure the advantages of bulk purchase prices and standardisation over a wide range of supplies. However, it is possible that, beyond a certain point, the complexity in administration resulting from increases in size results in decreasing efficiency, rather than in its improvement.

Each additional departmental unit or function means that an increased measure of co-ordination is needed; it is inevitable that rules and regulations multiply as a substitute for the personal contacts of a smaller unit; over-centralisation restricts initiative of local officers; action tends to be slower, reflecting more elaborate technique, and the exercise of responsibility is regulated more by chapter and verse than by executive perception and initiative. These tendencies are characteristic of large-scale enterprise, although management may take steps to guard against them; the medium sized unit is not afflicted by such difficulties.

Essential Elements in Efficiency

An efficient undertaking is one which provides a full and economic service to all classes of consumer, and which has planned ahead to provide such a service to potential consumers. The essential elements in an efficient service are, broadly speaking, the same as in any enterprise producing goods and services, subject to the more exacting standards of a public utility undertaking which should be conducted as a public service and a public trust. It should be so directed that the organisation is effective as a co-ordinated machine in all its functions, adequate responsibility and authority being delegated to executive officers, and close contact being kept with all classes of customer. Functions of management, bearing on efficiency, may be divided into (*a*) technical: the use of the most modern technique in the planning and construction of distribution systems; (*b*) commercial: the capacity to estimate the load potentialities of an area and to create a sales staff to develop these potentialities effectively, with attractive tariffs and facilities, in accordance with a budget plan; (*c*) economic: the use of economic research as a basis for this planning, maintaining close touch with developments in electrification, building technique, agricultural trends, equipment design, etc.; (*d*) financial: the economic raising and use of capital, the prompt and accurate routine analysis of costs, and the production of profit and loss accounts and balance sheets at monthly or quarterly intervals. Efficiency has two aspects—improving the performance of an undertaking within its existing limits or modifying the conditions in which it functions—for instance, the size and shape of area served. This brief statement will serve to indicate the manysidedness of the problem.

Price Reduction Without Service

A common misconception on distribution efficiency is to be found in the theory that price reductions are the sole index of efficient and good electrical service. Price reductions are undoubtedly necessary to extensive development, but if the undertakers make no effort to make their public aware of such reductions and of the advantages accruing from them; if they refuse to provide an electrical service, which enables the fullest possible use to be made of electricity at the low price, if they fail to carry out an advanced policy in such matters as assisted or free wiring and rental of consumers' apparatus; then their action in reducing prices should not be considered as a mark of real efficiency. By this test many undertakings which, according to the popular conception might be regarded as fully efficient, are not so in fact.

PROPOSALS FOR LEGISLATION

Our proposals for legislation cover five main lines of development:

(1) The appointment of a Committee of Investigation.

(2) The creation of an Electrical Development Authority.

(3) Increased powers of the Electricity Commission.

(4) Co-ordination and simplification of existing legislation.

(5) Removal of restrictions and anomalies.

(1) Appointment of a Committee of Investigation

The Government should, in consultation with the Electricity Commission, appoint a Committee of Investigation, with the following terms of reference:

(i) To determine the conditions, administrative and technical, governing efficient distribution; this examination should cover the technical lay-out, the control and operation of existing supply undertakings, and the economic characteristics of the supply areas, with a view to determining the efficiency or otherwise of existing methods.

(ii) To carry out a full scale examination of the relative efficiency of electricity supply undertakings and to assess their capacity for efficient development in the future.

(iii) In the light of such examination, to determine the methods by which inefficiencies in distribution can be remedied, and to what extent existing distribution areas should be reduced, reorganised, increased or remodelled in order to realise higher standards of efficiency in distribution.
Such a determination would include the amalgamation and co-ordination of supply undertakings, if these steps are deemed advisable or necessary, and the forms of ownership and control in cases where:

(a) as far as local authorities only are concerned, the formation of larger local units is necessary;

(b) as far as company undertakings are concerned, the creation of larger distribution areas is necessary;

(c) as far as amalgamation of local authority and company undertakings is involved, new types of ownership and control have to be created;

(d) special conditions not covered by the foregoing require new organisations.

(iv) To recommend the terms of payment to companies and local authorities where it is necessary to transfer areas of supply from such undertakings to the administration and control of other undertakings.

(v) To determine the exercise of purchasing rights vested in the Electrical Development Authority.

(vi) To decide whether there is a case for standardisation of systems in those areas where non-standard supplies are now given and, if so, to indicate how and over what period the conversion should take place.

Powers

1. To require disclosure of all and any information relevant to the functions of the Committee.

2. To hold enquiries which may be public or private and require the attendance of any director, officer or servant of any undertaking under investigation.

3. To employ such engineers, accountants, economists and other staff as they may think necessary for the investigation.

Constitution of the Committee

The Committee of Investigation should be a full-time, paid committee composed of not more than five persons. The Government in nominating this committee should consider experience in the control and operation, both technical and commercial, of local authority, company and joint electricity authority undertakings, as well as knowledge of the general economic conditions governing electricity as a public service.

Finance

The expenses of the committee should be met by a levy on the sales of electricity in the whole country through the Electricity Commission.

General

The Committee should not wait until they have completed their review of the country, but should submit their schemes from time to time to the Electricity Commission in order that they may be put into operation as far as specific areas are concerned.

This investigation would be concerned with the distribution of electricity and not the production and main transmission of electricity. It is expected that such an investigation would be completed within a period of not longer than three years.

(2) Creation of Electrical Development Authority

Legislation should provide for the setting up by the Government of a new permanent organisation, an Electrical Development Authority with a constitution similar to that of

the Central Electricity Board. The details of the constitution of this body, the methods by which it should be financed and its capitalisation are left for the present undefined. The purpose of this section is only to give in broad outline its main functions.

The principal functions of this body would fall under the following heads :

(i) Development and Research.
(ii) Transfer and Administration of Purchase Rights.
(iii) Central Testing.
(iv) Central Purchasing.
(v) Publicity.
(vi) Statistics.
(vii) Design.

(i) Development and Research

This section covers four main activities:

(a) Research.
(b) Development.
(c) Water Power.
(d) Standardisation.

(*a*) *Research, Technical and Economic*

The Authority should have power to finance experiments in the application of electricity to agricultural, industrial, commercial and domestic uses, to subscribe to the funds of organisations carrying out development and economic research work impinging on electricity, and to endow fellowships, scholarships, and exhibitions in educational institutions.

(*b*) *Development*

The Authority should have power to finance, if necessary, the extension of electricity supply to outlying areas, including installation and hire of consumers' apparatus in these areas. Any advances or guarantees to be conditioned by the net returns on the entire undertaking as determined in Paragraphs xi and xiii on page 107 and 108.

It should act as a guarantor for a limited period for expenditure by supply undertakings on unremunerative electricity distribution where the returns to be expected from extensions of distribution are less than N per cent of the capital expended. It should have the right to inspect the books of the undertaking in receipt of such advances or such guarantees. It should have power to carry out such extensions of distribution mains itself, where undertakings are unwilling to embark on them. It should be compulsory for undertakings to take over such distribution systems after construction by this organisation.

The finance for such work to be based on a levy on the entire sales of electricity in Great Britain, with the right to call on the Treasury guarantee in the case of capital expenditure exceeding £*x* in the aggregate for any scheme.

(*c*) *Water Power*

Financing new water power schemes where a public supply of electricity is involved.

(*d*) *Standardisation*

The Authority should advance money for standardisation of distribution systems and voltages. The methods of making these advances should be similar to the methods in force for the financing of the standardisation of frequency, i.e. the Electricity Commissioners would give consent to the Electrical Development Authority's borrowing the amounts required from time to time, to carry out standardisation of systems and voltages in areas determined by the recommendations of the Committee of Investigation

(ii) Transfer and Administration of Purchase Rights

The rights of local authorities to purchase distribution orders should be vested in the Electrical Development Authority pending the recommendations of the Electricity Commission. The Authority should have powers to make the necessary arrangements with regard to these orders, arising out of the Commission's recommendations.

(iii) Central Testing

No consumers' appliances should be permitted on distribution mains which are not approved by this body. It could, in place of set specifications, confine itself to the approval of existing models. It could set up a central institution for the testing of consumers' appliances and equipment.

(iv) Central Purchasing

The Authority should have powers to act as a central purchasing organisation for the supply industry generally. It should be able to manufacture electrical apparatus where it is proved that the development of the industry is being retarded by excessive prices for such apparatus.

(v) Publicity

The Authority should carry out publicity in support of electrical development and concentrate in its organisation all co-operative publicity done at present by organisations associated with the supply industry.

(vi) Statistics

The Authority should carry out statistical work and co-ordinate statistics bearing on electrical development. It should have the power to obtain statistics from supply undertakings and to make economic studies bearing on development of various types of load, of areas, markets, sales and similar matters.

(vii) Design

To ensure a high standard of design and construction in buildings erected for the purpose of generating, transmitting and distributing electricity, powers of approval of elevations of generating stations, offices and showrooms should be given to the Authority.

Since powers of approval of design and appearance of all classes of buildings are conferred upon local authorities by the Town and Country Planning Act, this proposal involves agreement over the exercise of such powers in respect of the types of building specified. In the case of designs considered unsatisfactory by the authority, the supply undertaking concerned should have the right of appeal to the Electricity Commission, or to an independent body of architects nominated by the Fine Art Commission on the initiative of the Electricity Commission.

(3) Increased Powers of the Electricity Commission

The Commission should have power:

(a) To require any undertaker to equip showrooms, provide facilities for the sale, hire or hire-purchase of electrical appliances or for assisted wiring schemes or to engage in the business of wiring and contracting.

(b) To prescribe model forms of tariff where such prescription is deemed necessary in the interests of standardisation.

(c) To issue special orders, in fulfilment of the recommendations of the Investigating Committee:

(i) To transfer distribution areas from certain undertakings to other undertakings, where such additions are necessary for the proper adjustment of electricity supply.

(ii) To create new distribution undertakings by the amalgamation of sections of distribution areas, taken from other undertakings.

(d) Where the provisions specified in such special orders are not carried out within a specified time by the undertakings concerned, the Electricity Commission should have power, on the recommendation of the Investigating Committee, to vest in the Electrical Development authority the property and rights affected by such special orders.

The Electricity Commission should, pending the report of the Investigating Committee, prohibit the absorption by companies of local authority undertakings. Where new distribution orders are granted, it should fix the maximum period during which development must be carried out and insist on the time-table being punctually observed.

(4) Co-ordination and Simplification of Existing Legislation on Electric Lighting and Electricity

A small committee should be appointed at once and be charged with the preparation of a draft bill for the purpose of:

(i) bringing all the Electric Lighting and Electricity Supply Acts under one General Act, and

(ii) importing into it certain amendments and new provisions necessary to improve and clarify existing legislation.

(a) It has been recognised for some years that a single consolidating Act is desirable, but so far the task has appeared too formidable and has not been undertaken. With the prospect of early legislation, one of the first things that should be done is to simplify the law. At the same time the opportunity should be taken of examining the various

sections of the Acts with a view to bringing them into line with modern conditions. There are certain defects in the 1899 Electric Lighting (Clauses) Act which might be remedied by means of one or two simple amendments.*

It is now suggested that the Commissioners should determine, in cases of difference or dispute between an authorised undertaker and a consumer or potential consumer:

(i) the amount of electricity to be taken or guaranteed;
(ii) the sufficiency of the security offered; and
(iii) the cost of any service line.

Under present-day conditions a potential consumer has either got to take the terms offered or leave them. Sometimes he writes to the Commissioners who then try to make a settlement, but they have no power to do so at present.

(b) Under Section 27 of the 1899 Act a single prospective consumer who is more than 50 yards from any distributing main cannot demand a supply of electricity. This may have been reasonable in 1899 when electricity supply was direct current at 110 or 220 volts, but under modern conditions it has no justification. It should be possible for *any person within the area of supply* to demand it, and he should be able to get it provided he guarantees sufficient revenue to the supplier or takes enough electricity to give the supplier a reasonable return.

Further, it is suggested that the 60 feet of free service, under Section 27, should be raised to 100 feet. This would not result in any hardship to the supply authority and would be an encouragement to potential consumers in the rural areas.

(c) An additional amendment to Section 27 (2) (b) should be made: this is in regard to the written contract between the undertaker and the consumer requiring the latter to agree to pay for a supply for a period of at least 2 years an amount which *shall not be less than* 20 *per cent* per annum on the outlay incurred by the undertakers.

The words *in italics* should be replaced by the following: "Shall not without the consent of the Electricity Commissioners be more than N per cent." Here N may stand for 20 per cent or whatever percentage return is considered a reasonable minimum by the Commission in the light of to-day's conditions of development.

In calculating the return on extensions, allowance must be made for local taxation on such extensions. In other words, the amount represented by local taxation should be added to the sum required to give the necessary guarantee.

* In this Act the following differences or disputes can only be settled by arbitration:

Section 17—As to alteration of pipes, wires, etc., under the street.
Section 20—As to reasonable precautions to be taken so as not to affect injuriously telegraphs, telephones and electric signalling communication.
Section 25—As to the giving of a supply on the requisition of six or more owners or occupiers.
Section 27—As to the improper use of energy or as to any alleged defect in any electric lines, fittings or apparatus.
Section 28—As to what may reasonably be anticipated as the consumption on the premises of an owner or occupier or as to the reasonableness of any expenses under that Section.

Few persons, however good their case, will engage in arbitration proceedings which are expensive and cumbersome and the above procedure would be simplified if the word "arbitration" were deleted and the words "Electricity Commissioners" substituted.

The following amendments and new provisions are, therefore, needed to existing legislation:

(i) In the Electric Lighting (Clauses) Act, 1899, wherever it is stated that any difference or dispute is to be settled by arbitration, the "Electricity Commissioners" to be substituted for the word "Arbitration."

(ii) In Section 27 (1) of the same Act the words "Fifty yards from any distributing main of the undertakers" to be replaced by the words "within the area of supply," and the words "one hundred feet" to be substituted for the words "sixty feet."

(iii) In Section 27 (2) (b) of the same Act the words "shall not be less than twenty per centum" to be replaced by the following "shall not without the consent of the Electricity Commission be more than N per centum."

(iv) The following to be substituted for Section 27 (6): "If any difference arises under this Section as to the amount of electricity to be taken or guaranteed as aforesaid, or as to the cost of any service line, or as to the sufficiency of the security offered by any owner or occupier, or as to any improper use of energy, or as to any alleged defect in any electric lines, fittings or apparatus that difference shall be determined by the Electricity Commissioners."

(5) Removal of Restrictions and Anomalies

(i) No local authority should have the power to prevent any persons, including tenants of dwellings owned or controlled by it, from obtaining a supply of electricity if they so desire. No municipality or local authority should, acting as landlord, have the power to refuse the supply of electricity to consumers occupying houses built or controlled by it; equally it should have no power to determine the consumers' preference for gas or for electricity or place any restrictions on the carrying out of wiring schemes or contracting activities, the hiring, selling or hire-purchasing of electrical appliances in local authority housing estates.

No local authority should have the power to refuse permission to an electricity supply company to wire its housing estates for all electrical services.

(ii) No member of a local authority electricity committee should have interests in gas or electricity companies giving supplies within the area of supply of the local authority undertaking, and if he has such interests before being appointed to the Electricity Committee, he must be under obligation to dispose of them on becoming a member. Similarly, no member of a local council, with interests in gas or electricity companies, should be allowed to vote or take part in any discussion bearing on gas or electricity.

(iii) There should be compulsory publication of details regarding financial operations of holding companies. It is not sufficient to be content with the terms of the 1929 Companies Act.

(iv) The accounts of holding companies should be audited by auditors appointed by the Commissioners.

(v) Exchange between one company and another of shares which are not represented by productive assets of equivalent value should be prohibited, the determination of this value being left in the hands of the Electricity Commission.

(vi) The issue of capital by holding companies without the specific approval of the Electricity Commission should be prohibited. This approval to be contingent on the application of all the new capital to the business of distributing and supplying electricity, and all new issues should be made in accordance with conditions attached to such approval.

(vii) The operating companies controlled by a holding company should prepare separate financial statements subject to examination by government auditors, appointed by the Electricity Commission.

The auditors appointed to audit the accounts should be the same as those appointed to audit the accounts of the holding company. The report of such auditors should state the capitalisation, the value of the assets and investments, the interest on loans and advances, and the changes in the capital structure and ownership during the year. The form of such report should be laid down by the Electricity Commission. The capitalisation must be shown separately from that of the holding company and an exact return of all borrowings from the holding company with the annual charges represented by them must be given. Such borrowings from the holding company, as well as increases in capital expenditure other than borrowings or advances must have the approval of the Electricity Commission.

(viii) The maximum returns allowed on capital advanced by holding companies on short-term advances and loans should not be greater than 1 per cent above bank rate, and on long-term loans than 1 per cent above the current rate of yield on Consols.*

(ix) Where a holding company ceases to be purely a holding company and becomes an operating company, in charge of an integrated system with central control and administration of what were previously constituent companies, it should be treated as an operating company, subject to the restriction that it cannot sell or transfer the property of the former constituent companies at a valuation higher than that determined by assessors appointed by the Electricity Commission.

(x) The consent of the Electricity Commission should be required for all new capital raised by operating companies, and the Commission should attach such conditions as they think fit.

(xi) The Electricity Commission should determine maximum prices to be charged by supply companies in order to realise an average of not more than 5 per cent on the ordinary and preferred share capital prior to the 1st January, 1936, and N per cent on new capital thereafter. Profits earned in excess of this return should be allocated in the following proportions: 20 per cent to additional depreciation and renewals and reserves, 10 per cent to the payment of additional dividends on the stock, 70 per cent to reduction of prices to the consumer. Where a delay of more than 12 months occurs between the allocation of profits and the reduction of prices, the whole of the subsequent year's profits, after the payment of 5 per cent on the capital, should be allocated to reduction of prices only.†

(xii) The legislation governing sliding scales and maximum prices in the case of companies affected by such legislation in the past should be revised and brought up to date.

* For long-term loans it might be desirable to raise this limit under certain conditions.

† These figures are set down to indicate the kind of financial limitation considered desirable and are not rigid limits.

(xiii) In the case of local authorities, the net surplus after payment of interest and sinking fund charges should be allocated in the following proportion: 20 per cent to additional depreciation, renewals and reserves and expenditure on distribution in unremunerative areas, 10 per cent to contribution towards rates and 70 per cent to reduction of prices to the consumer. Where, however, payments for local taxation assessed on the electricity undertaking increase in any year by an amount equal to, or greater than 10 per cent of the net surplus, the proportion allocated to the reduction of prices to the consumer shall be increased from 70 per cent to 80 per cent and no contribution made to the rates.*

(xiv) The Electricity Group consider that companies supplying gas and electricity should separate the one undertaking from the other by forming an independent gas and an independent electricity supply company, with a proper allocation of capital reserves and depreciation allowances. The directors of the gas and electric companies should not be the same persons, and the transfer of the control of either company or both companies to an investment trust or holding company should be prohibited.

(xv) Where consumers allege that the prices charged are in excess of what they deem equitable, they should have the right to demand an enquiry by the Electricity Commission, and the Commission should have no power to refuse that enquiry if the number of consumers making the petition in the area of a Rural District Council is in excess of 10, or in any other area 20. The Commissioners should publish the results of the enquiry, and their decisions should be binding on the supply undertakings.

(xvi) The sanction of the Electricity Commission should be obtained before any generating station or generating unit in excess of 35 kW. is installed in any premises, and the approval of the Commission to such installation should not be given without consultation with the Central Electricity Board. Such approval should not be withheld where it can be proved that the proposed private installation can produce electricity at a total cost less than the price quoted by the local electricity supply undertaking.

*These figures are set down to indicate the kind of financial limitation considered desirable and are not rigid limits.

VII. REPORT OF THE McGOWAN COMMITTEE: MAIN PROPOSALS COMPARED

Summary of the Report of the Committee on Electricity Distribution—(*a*) Organisation—(*b*) London—(*c*) Holding Companies—(*d*) Standardisation of Systems and Voltages—(*e*) Standardisation of Methods of Charge—(*f*) Further extensions of facilities, including supplies in Rural Areas—(*g*) Reductions in Costs—(*h*) Miscellaneous Recommendations

The Investigating Committee—Large Scale Units and Efficiency—The Electrical Development Authority and the Electricity Commission—Power Companies (Power Act Undertakings)—Holding Companies—Terms of Amalgamations—Rural Areas; Local Authority Assistance

In July 1936 the McGowan Report on Electricity Distribution was published. The P E P Electricity Group had previously submitted its proposals, which formed part of the evidence considered by the McGowan Committee in arriving at its conclusions. In order to show how our findings compare with the McGowan Committee's Report, we reproduce* (pages 81 to 88, paragraphs 470 to 482, of the Report of the McGowan Committee on Electricity Distribution) their own summary of their conclusions and recommendations, followed by a brief description of the main differences between the two sets of proposals:

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

470 Owing to the many and varied problems which arise in connection with the organisation of distribution, it is not possible to present in a small compass a comprehensive review of the numerous considerations involved. We give below, however, a summary of our principal conclusions and recommendations. The summary does not purport to be exhaustive, and necessarily excludes reference to many of the somewhat less important points which are dealt with in the main body of the Report:

(*a*) ORGANISATION

471 (i) An improvement can and should be effected in the present organisation with its numerous undertakings, the widespread duplication of powers, the liability to further disintegration by the exercise of individual Local Authority purchase rights and the many and varied systems and voltages of supply and tariffs in operation.

(ii) The essential features of any scheme of reorganisation must be:

(*a*) A substantial reduction in the present number of undertakings by the substitution where appropriate of larger and more economic units;

(*b*) The prevention of the splitting up of comprehensive undertakings in consequence of the exercise of rights of purchase by individual local authorities;

(*c*) The elimination of duplicate powers wherever they exist in the same area.

* By permission of the Controller of H.M. Stationery Office.

(iii) Adequate grounds do not exist for an immediate and complete reorganisation on a regional basis under public control by the setting up of regional boards which would buy out all existing undertakings.

(iv) Reorganisation should be based on the retention and utilisation, where possible, of the larger and more efficient of the existing undertakings and the absorption by such undertakings of the smaller or less efficient undertakings.

(v) Any attempt to carry through a scheme of reorganisation on a voluntary basis is bound to fail and legislation must confer definite and adequate compulsory powers.

(vi) The schemes of reorganisation should make provision for the possibility of ultimate public ownership of all undertakings, including those not at present subject to purchase by the Local Authorities.

(vii) No undertakings should be transferred compulsorily under a scheme of reorganisation without a prior local investigation. To this end the Electricity Commissioners should be empowered to delimit the country into a number of areas and to appoint for each area a temporary district Commissioner, with such technical and financial assistance as may be necessary.

(viii) All undertakings in an area should be brought under review by the District Commissioner. It should be his duty to prepare and submit to the Electricity Commissioners a scheme or schemes of reorganisation for the area. Advisory Committees comprising representatives of the undertakers in each area should be appointed to assist the District Commissioner in a consultative capacity.

(ix) After schemes have been prepared, simple machinery should be available for giving effect to them without undue delay. The Electricity Commissioners, after publishing a scheme and considering any representations, should be empowered to approve it with or without modifications. It should thereupon become operative in cases where:

(*a*) The scheme is agreed by the undertakers concerned; or

(*b*) The individual output of any undertakings proposed to be acquired compulsorily under the scheme did not exceed 10 million units in the year ending March 31, 1936.

In any other cases a scheme when approved by the Electricity Commissioners should not become operative unless confirmed by the Minister of Transport and approved by Parliament.

(x) We anticipate that in most cases it will be found that Power Companies will be retained under the area schemes. In such event the undertakings should be consolidated on a basis which should include:

(*a*) The amalgamation of the distribution undertakings, whether held by the Power Company or by subsidiary or associated companies, with the non-purchasable Power Act undertaking;

(*b*) The suspension of Local Authority rights of purchase;

(*c*) The transfer to the Power Companies, where appropriate, of small undertakings in or adjacent to the Power Act area.

(xi) At the end of a prescribed period, which in no case should exceed fifty years, the consolidated undertaking of the retained Power Companies, including the part at present non-purchasable, should be liable to purchase by some form of public authority on the basis of capital expenditure less depreciation.

(xii) During the consolidated tenure a retained Power Company should be subject to financial control, which should include:

(*a*) The application of an effective sliding scale relating prices to profits;
(*b*) The approval by the Electricity Commissioners of the terms of issue of new capital;
(*c*) More effective control by the Minister of Transport in regard to methods of charge.

(xiii) If a satisfactory scheme for the retention of a particular Power Company cannot be evolved or a Power Company so elects, it should be competent for a scheme to provide for the immediate purchase of the Power Company's undertaking, including their perpetuity rights and its transfer to some form of public authority.

(xiv) Where Distribution Companies are retained or set up under an area scheme, it should be on a consolidated basis, and they should be subject to financial control similar to that recommended for Power Companies. The period for the consolidated tenure should not exceed a maximum of fifty years amd would depend, *inter alia*, on the present unexpired franchise. The undertaking should be purchasable as a whole at the end of the tenure on the basis of capital expenditure less depreciation.

(xv) The powers of the Electricity Commissioners in regard to the exercise of purchase rights by Local Authorities should be strengthened. No such rights should be exercisable without the consent of the Commissioners, who should be empowered to suspend or equate such rights; to provide that they shall only be exercised jointly; and, where appropriate, to transfer them to some other body.

(xvi) It should be the objective of a consolidated undertaking to bring about uniformity of tariffs as soon as possible, but a certain amount of zoning may be necessary for a transitional period.

(xvii) Legislation should define clearly the terms on which undertakings, both Local Authority and Company, should be acquired by or merged with another undertaking.

(xviii) In the case of the acquisition of Local Authority undertakings, the basis of purchase should be the fair value of the assets, i.e. cost less depreciation. No addition should be made either in respect of contributions from the rates in previous years or of any right to contribute to the rates.

(xix) In the case of the acquisition of company undertakings, the basis of purchase should be the fair value of the assets with the addition of compensation for loss of future profits. Regard should be had (*a*) in the case of distribution companies, to the unexpired period of their franchise; (*b*) in the case of power companies, to their perpetuity rights; and (*c*) in both cases, to the limitation of profits to which they would have been subject under the proposed schemes, if they had not been acquired. Allowance should be made for unfructified capital expenditure incurred during the three years prior to purchase to the extent to which t had not become remunerative.

(xx) All supply authorities whose undertakings are acquired compulsorily under a scheme should have a right of appeal to an Arbitration Tribunal on the question of the amount of the purchase price.

(xxi) The Electricity Commissioners should be empowered to require undertakers (*a*) to submit and to carry out approved schemes of extensions for undeveloped areas, and (*b*) to offer facilities for the hire or hire purchase of apparatus and assisted wiring.

(xxii) The Electricity Commissioners should be empowered to effect minor boundary adjustments of area as between two adjacent undertakings.

(xxiii) The local Advisory Committees, comprising representatives of the Supply Authorities should, with modified representation in accordance with the reorganised areas, be retained for consultative purposes.

(*b*) LONDON

472 (i) The London and Home Counties Electricity District may appropriately form a delimited area for investigation by a District Commissioner.

(ii) The large number of undertakings in this area, some with duplication of powers, the differing systems and tariffs, and the inequality in the facilities offered, justify criticism on the part of the public. A substantial measure of amalgamation and co-ordination is possible and necessary.

(iii) The extent to which such amalgamations should be effected must be a matter for consideration by the District Commissioner when preparing a scheme or schemes for the area.

(iv) No variation of the principles of the settlement effected by the London Electricity Acts (No. 1) and (No. 2) 1925, should be contemplated except as may be consequential to a physical amalgamation of the Companies concerned.

(v) The present constitution of the London and Home Counties Joint Electricity Authority should be brought under review.

(*c*) HOLDING COMPANIES

473 (i) The advantages offered by the holding company system in regard to central management, central purchasing, and the provision of adequate financial resources have in certain cases been achieved.

(ii) There are, however, some cases where the benefits of amalgamation are not being passed on to the operating subsidiary companies, and there are possibilities of abuse.

(iii) The Electricity Commissioners should be empowered to require the amalgamation of subsidiary companies with one another and, where desirable and practicable, with the Holding Company or any associated contracting company.

(iv) The accounts of a Holding Company which controls subsidiary companies owning or operating authorised undertakings and any associated contracting or management companies should be subject to official audit.

(v) At any inquiry into the maximum prices of a subsidiary company, any profits made by a Holding Company in its dealings with subsidiary companies should be taken into account.

(*d*) STANDARDISATION OF SYSTEMS AND VOLTAGES

474 (i) Complete standardisation of systems and voltages should be the ultimate objective. This is not immediately practicable without either some form of Government assistance or a general levy on the supply industry, neither of which is justified.

(ii) The reorganisation recommended should facilitate and expedite standardisation, which is already being carried out voluntarily by certain undertakers wholly or in part.

(iii) A scheme should provide where appropriate for standardisation within the area of a consolidated undertaking and within a prescribed period.

(*e*) STANDARDISATION OF METHODS OF CHARGE

475 (i) Amalgamation of undertakings into a smaller number of larger undertakings will be an important step towards standardisation of methods of charge and more uniform prices.

(ii) The Minister of Transport should be empowered to require all undertakers to offer an approved statutory two-part tariff for domestic supplies as an optional alternative to a flat rate charge.

(iii) The fixed charge under an approved two-part tariff should be based either on size of house (floor area) or on rateable value, unless the undertakers satisfy the Minister that some other basis is justified, in view of special circumstances obtaining in their area.

(iv) All undertakers should be required to publish the actual scale of fixed charges under their two-part tariff.

(v) Supply Authorities must be allowed flexibility in quoting special rates for *special* classes of upply.

(*f*) FURTHER EXTENSION OF FACILITIES, INCLUDING SUPPLIES IN RURAL AREAS

476 (i) It should be competent for schemes to provide for distribution mains of adequate capacity being laid within a prescribed period in built up streets in urban areas where such mains are not already laid.

(ii) The creation of a demand in small class property should be encouraged by the offer of facilities for hire and hire purchase of apparatus and assisted wiring and by a more extensive use of two-part tariff prepayment meters.

(iii) Supply Authorities should be empowered in appropriate cases to carry their cables under the eaves of houses.

(iv) Development of rural areas has been made more difficult by prior and independent development of urban areas. In the proposed schemes rural areas should, as far as possible, be grouped with urban areas.

(v) As a result of such reorganisation considerable further development of rural areas should be possible. We do not recommend any form of Government subsidy.

(vi) Some modification of the requisition provisions of the Schedule to the Electric Lighting (Clauses) Act, 1899, is desirable. The Electricity Commissioners should be empowered to prescribe in suitable cases a lower guarantee of revenue than 20 per cent on the capital expenditure involved. Where a capital contribution is required in connection

with a supply to isolated premises, the consumer should be entitled to some proportionate refund if other consumers are within a period of three years supplied through the same main.

(vii) Local Authorities might in certain cases be empowered to participate in a guarantee in connection with the supply to villages in their district.

(viii) The Minister of Transport should be empowered when granting compulsory wayleaves to fix the wayleave rentals and compensation.

(*g*) REDUCTION IN COSTS

477 (i) The scheme recommended should result in a general though necessarily gradual reduction in costs.

(ii) New capital must be raised on the cheapest possible terms and used to the best advantage.

(iii) Existing capital must be utilised to the fullest possible extent by connecting all premises on the route of existing mains not already supplied, and by educating existing consumers to make a more extended use of the supply.

(iv) A greater standardisation of types of cable would reduce their cost.

(*h*) MISCELLANEOUS RECOMMENDATIONS

478 Combined Gas and Electricity Undertakings.

(i) Where gas and electricity undertakings are left under the joint ownership of a Local Authority, it would assist in the more rapid development of the electricity undertaking if the authority were required to have separate committees.

(ii) A Local Authority should not be entitled to restrict the right of any owner or occupier of premises to take a supply of electricity. The services of gas and electricity should be given equal facilities.

479 Non-Statutory Undertakings.

(i) Section 23 of the Electric Lighting Act, 1909, should be strengthened to the effect that a non-statutory body should not be allowed to supply electricity to new consumers within the area of supply of an authorised undertaker without the consent of such undertakers, subject to a right of appeal to the Electricity Commissioners.

(ii) Authorised undertakers should be entitled, with the consent of the Electricity Commissioners, to acquire the mains and other apparatus used by non-statutory bodies for supplying consumers, on the basis of capital expenditure, less depreciation. This consent should only be given where the Commissioners are satisfied that no undue hardship would fall on the consumer.

480 Rating.—It is desirable that a more uniform method of assessment should be applied to all electricity undertakings.

481 Compensation for Deprivation of Employment.

(i) While there may be some disturbance of employment in the initial stages of reorganisation, the subsequent expansion of the industry should result in increased employment.

(ii) Legislative provision should be made for the payment of adequate compensation to officers and servants who may be displaced or whose position may be worsened.

(iii) The original compensation provisions, with their numerous subsequent amendments, should be consolidated in one enactment.

482 Consolidation of Legislation. An early opportunity should be taken of consolidating the various Electricity Acts into one up-to-date enactment.

THE PEP PROPOSALS AS RELATED TO THE CHIEF PROPOSALS OF THE McGOWAN COMMITTEE

To a large extent the conclusions and proposals of the (McGowan) Committee on Electricity Distribution coincide with the P E P view. There are certain differences of outlook, or in suggested remedies, and it may be convenient, and help to clarify the issues, to explain here what these differences are.

Both reject nationalisation as a solution of the distribution problem at the present stage of evolution of the industry, and prefer to proceed by the method of overhaul and consolidation and more efficient grouping of existing undertakings on a regional basis.

The Investigating Committee

The P E P proposal to set up an Investigating Committee to work this out is similar in principle to the proposal of the McGowan Committee to set up District Commissioners. A certain difference in standpoint is, however, apparent. The McGowan Committee, accepting as a principle that larger undertakings are the remedy for present distribution difficulties, contemplate schemes of amalgamation under which the larger undertakings, speaking generally, would absorb the smaller: undertakings having sales below ten million units are, in fact, to have no right of appeal against these schemes excepting as regards the amount of the purchase price in the event of compulsory acquisition. The advantages of large-scale undertakings are given in detail by the McGowan Committee, but the disadvantages are not discussed.

Large Scale Units and Efficiency

The P E P view on this point is more cautious. It is suggested that the first step should be to find out the relative efficiencies of different undertakings. Any schemes for changes, either in control or size of areas, and the form of any amalgamation, should be decided according to the efficiency of an undertaking for giving a full and economic public service. It may happen that an undertaking of moderate size will be found to be highly efficient, and a very large neighbouring undertaking relatively inefficient. It is believed that the essential point in such circumstances is to ensure, in the public interest, that the more efficient undertaking dominates the amalgamation. The usual tendency in any amalgamation is for the larger and more powerful unit to dominate the new combine; but size alone should not create the right to control management and operation, or the right to determine standards and methods, or development policy, and it might well be disastrous for the future if this assumption were to be accepted and adopted.

Again, the McGowan Committee would make compulsory the absorption of all undertakings selling less than ten million units a year. P E P does not advocate the setting of any limit, which must, in the nature of the case, be entirely arbitrary. As a matter of convenience in minimising enquiries and appeals, the proposal to apply a ten million units limit may have practical advantages, but P E P does not accept it as a basis for reorganisation itself, and challenges the assumption that *all* undertakings selling less than this quantity of units are necessarily inefficient as self-contained members of the electricity supply system.

It may even be found necessary to split up over-large undertakings into smaller, more compact and more efficient units. As long as supply undertakings adopt the policy of limiting service to areas which afford an immediately profitable return on capital expenditure involved, without reference to the yield from operation in contiguous areas or the yield from the entire area of the undertaking, the possibility of realising higher efficiencies and more complete development of electricity through amalgamation or fusion of undertakings or areas will remain illusory.

As far as large-scale undertakings are concerned, P E P expresses the opinion that undertakings may be either too small or too large for efficient operation. The limits at either end of the scale are not known; it is a matter for study, but it is evident that large-scale undertakings have both advantages and disadvantages; and a full examination of the latter and of their causes is desirable in planning to set up new units if operating inefficiencies are to be avoided.

The Electrical Development Authority and the Electricity Commission

A certain difference in viewpoint exists with regard to the best method of promoting development. In both cases it is proposed to strengthen the existing powers of the Electricity Commissioners, but the McGowan Committee contemplate a very large amplification of their functions. P E P, on the other hand, would distinguish between (*a*) regulatory and judicial functions appropriate to the Commission, with certain increased powers; (*b*) promotional and constructional functions to be exercised by a new body, the "Electrical Development Authority."

If all the proposals of the McGowan Committee with regard to the Commission were adopted, it would be necessary that the status, constitution and organisation of this body should be recast in a new mould. The McGowan proposals would convert a judicial body into a body partly judicial and partly executive. This, it is considered, is unsound. If, notwithstanding, it is adopted, the Commission, if it is to succeed in its work, should be removed from the present restrictions of Treasury control and should be given the flexibility and managerial freedom possessed by the Central Electricity Board.

In the future, when far-sighted policy and long-range plans will be needed, with the full support of the industry behind them, a new and powerful national body will be desirable under the strenuous competitive conditions thus obtaining. An Electrical Development Authority, such as is proposed, would strengthen present development activities and enable long-period, planned development policies to be devised and their liabilities and initial burdens to be spread. The proposed body would have the advan-

tages of national status and would cover a full range of activities in furthering the interests of the electricity supply industry through research, publicity, economic and marketing studies, and the testing and approving of consumers' equipment. In brief, there would be for the first time in the industry's history a development body with constructive responsibilities and of status commensurate with the importance of the industry in the national economic framework.

Power Companies (Power Act Undertakings)

In the McGowan Committee's proposals for dealing with power companies it is stated that power companies are most likely to be retained under area schemes, and, if retained, should be consolidated by amalgamation of distribution undertakings with the power company. After the transfer to power companies of small undertakings in the Power Act area, the consolidated power company resulting is to be subject to certain measures of financial control. It is contemplated that power companies should absorb the small local authority undertakings within their areas and remain as power companies for not more than fifty years. While it is true that in certain parts of the country there exist very small local authority supply undertakings lacking capital for development, this proposal raises an important issue: If a private enterprise, operating in the field of public utility service, is to have powers to take over local authority undertakings, to what extent does public interest require that this process of absorption should result in the formation of a public or semi-public body?

Holding Companies

As pointed out in this Report, the small number of 12 holding companies controls 166 supply undertakings, representing £74.4 million of capital, and serving more than 1.25 million consumers, with a total of 2,232 million units sold. In the light of this concentration of control P E P holds that these finance companies are inadequately supervised, in view of their economic weight and their possibilities of abuse. The McGowan Committee propose that (1) accounts of holding companies controlling operating companies should be subject to official audit, and that (2) at inquiries on the maximum prices of a subsidiary, account is to be taken of the profits of the holding company in dealings with this subsidiary. A more strict and detailed control is advocated by P E P, the details of which are given on pages 106 and 107 of this Report.

Terms of Amalgamations

The McGowan Committee propose two different bases for the purchase of the two types of undertaking, local authority and company. In the case of the former, the basis is to be the fair value of the assets, i.e. cost less depreciation, no addition being made in respect of contributions from the rates in previous years, or the expectation of future contributions to the rates; in the case of the latter, the basis is to be the fair value of the assets with the addition of compensation for loss of future profits, i.e. for goodwill.

The effect of these proposals is twofold: they give the private undertaking an advantage over the local authority in the basis of compensation permissible, and they suggest that the cheaper way of carrying out amalgamations is to buy local authority undertakings in preference to privately-owned undertakings.

Compensation of the nature involved presupposes sound and public-spirited financial policies, for the test of efficient public service is not the amount of profits made. If the theory of compensation in proportion to profits lost were followed to its logical conclusion, then those companies which have been "profiteering" at the expense of the public, would receive compensation in proportion to the success of their exploitation policy. The Committee, however, require certain limitations on future profits to be taken into account. P E P regards these proposals as too liberal. As a minimum it considers that both the cost and book-value of the physical assets, and the determination of the amount of past and prospective profits, should be closely investigated by independent accountants, particular care being taken to eliminate any inflation of either.

Rural Areas—Local Authority Assistance

It is suggested in the McGowan Report that local authorities should assist a local supply undertaking in circumstances where uneconomic returns are obtained from an extension into rural zones. The Report says: "Where the amount of revenue to be obtained from an extension is not sufficient to show an economic return, we have come to the conclusion that there might in certain cases be ground for authorising the local authority concerned to associate themselves with a guarantee of revenue to bring it up to a reasonable level. For this purpose they should, if called upon to implement such guarantee, be entitled to charge it to the rates of the particular area concerned." (Par. 412.)

P E P suggests that as far as the principle of local authority assistance is concerned, instead of obtaining a guarantee of revenue from the authority, it would be preferable to grant direct relief of rates for a limited period. The local authority is responsible for rating the property of a supply undertaking, and since many extensions into rural areas do not pay for the first three, or even five years, exemption from rates for three or five years would be a valuable help. This form of assistance at the beginning of an extension has the advantage of removing a charge on revenue initially, with favourable reactions on the level of tariff which may be set.

VIII. THE WIDER ASPECTS OF ELECTRICAL DEVELOPMENT

Wider Functions of Electricity—Decentralisation of Industry—Industrial Decentralisation in Rural Zones—Design and Amenities of Industrial Buildings—Changing Role of Electricity Supply

In the foregoing pages we have tried to give a balanced picture of the development of the electricity supply industry, of its problems, achievements and shortcomings, to accompany our proposals for the reorganisation of distribution and to give them a background. The purpose of the extended study is to help those unfamiliar with the industry to understand it and to see why we have made certain types of recommendations and have rejected other possible solutions.

Wider Functions of Electricity

Electricity is often regarded simply as a form of energy, whether as power, as heat or as light, competing as a substitute for earlier forms of energy. But it is unique in its capacity to raise existing standards of social and economic life. We are concerned, therefore, with something more than a substitute for some other form of power or heat or light, and to complete this Report it is necessary to discuss briefly the social, economic and æsthetic consequences of the development of the use of electricity in the national life.

Those who are actively engaged in supplying electricity to the various users are often too deeply immersed in their daily occupations to realise fully the wider nature of their task; by looking at the problems and functions of the industry as a whole we can obtain a clearer perspective and see the work as an immense undertaking with immense potentialities. What are these potentialities? What should be the consequences of the national organisation of the generation and transmission of electric power?

From a broad national viewpoint it is difficult to overstate the importance of the contribution that electricity can make to social progress. Cheap supplies of electricity, widely distributed and used, would improve conditions in industry, amenities in rural life and the health of the people generally. Such developments should be guided by positive regional planning which must become a much stronger force in the national life as the public appreciates more fully the wasteful and unpleasant consequences of leaving the face of the countryside to the haphazard operations of landowners, speculative builders, industrialists and squatters. Some of these wider aspects of electrical development are briefly discussed in the following pages.

Decentralisation of Industry

Electrification affects not only the methods of production and the flexibility of processes, but also the location of industry, the character of industrial buildings, the amenities of the factory zone and the revival of new industries in rural areas. The problem

of the location of industry is being studied by another P E P group, and is too far-reaching to be analysed in a report on electricity. It raises issues of land ownership, of regional planning, and of the powers and policies of local authorities. Here it can be discussed only in its electrical aspects.

Electricity is mobile power, and as such has more affinity with transport than other forms of power such as gas, coal and oil. Alone among these sources of energy, it can be used to change the present regional economic balance of the country through the widespread availability of cheap power for industrial purposes. Until this power had developed technically the possibilities of control of industrial congestion and of other factors such as smoke, conditions of labour, or even the design of industrial buildings, could not be realised. Now, the factors which earlier influenced the location of industries such as mineral deposits and water, no longer operate with the force that they once possessed.

Decentralisation of electrified plants is one thing, however; planned decentralisation is another. Regional development and rural reconstruction have been fostered in many zones, but there is no national or regional planning body to utilise electricity and transport for planned regional development as a part of major economic development.

As far as economic planning is concerned, the influence of electricity in regional planning should be positive, urging planners beyond the early stage of mere restrictions upon the siting of industry towards the coming stage of constructive co-operation between industries and government, based on the economic character and needs of different areas. Mobile power is an instrument of planning, waiting to be used effectively.

The future development of satellite towns having industrial, commercial and residential zones will depend mainly upon the proper use of electricity and transport. Such concentrated masses of industrial plants as those recently developed on the north-west fringe of London are now recognised as undesirable. Some of these factories are producing luxury or semi-luxury consumers' goods, and nearness to London means nearness to the country's largest market and labour reservoir, but most of them have no traditional or necessary regional location; indeed, some are entirely new industries, and many of them could have been established in the depressed areas of north-east England, South Wales, or parts of Lancashire, to the betterment of those areas and of the regional economic balance of the country. The cheap power and the necessary transport are available for this purpose.

The national power scheme and the rapidly expanding supply industry should, therefore, if rightly used and directed, ultimately improve this balance, and enable regions to develop more fully their own resources.

Industrial Decentralisation in Rural Zones

Interesting examples of industrial decentralisation based on electric power supply in rural zones are provided by the cement plants established at Asham in Sussex and at Ketton in Lincolnshire. In the first case, at the foot of the Sussex Downs are chalk and lime, raw materials and adequate transport facilities. A Grid tapping provided the necessary power to make possible the setting up here of a cement plant whose very large

annual consumption provides a basic power load to the local distribution undertaking engaged in building up demand from a network of villages, isolated farms and mansions without a single urban nucleus.

The extension of electricity supply has enabled rural industries to expand in various districts, and has stimulated the growth of combined agricultural and industrial units in the country. This type of organisation may be illustrated by an old-established jam-producing company in Cambridgeshire which operates fruit farms and large vegetable-growing areas in association with a jam-making and fruit- and vegetable-canning factory. Such forms of enterprise, the factory-farm, are developing in rural districts, and cover a wide range of agricultural produce.

Revival of local rural industries forms an important corrective to the unbalance between congested industrial towns and inadequately populated rural zones. While the term "rural industry" is not readily defined, it may be regarded as including those industries engaged in excavating or processing local products, those serving local needs, and those occupied in crafts which have local establishment and traditions. From sample areas it is estimated that more than 60 per cent of these local industries use electricity, and the proportion is increasing with the rapid extension of rural networks.

Design and Amenities of Industrial Buildings

One of the outstanding features of modern industry is the improvement in design of the factory. The early types of building which the Victorian manufacturer erected in the middle of large towns were ugly, lacking in adequate window space, and produced smoke and dirt. A reaction took place against the squalor and ugliness which industry produced in the coal age, and some inheritance of this conception of industry has affected the minds of town and country planners in their general tendency to reserve spaces for residential development and to relegate industrialists to the "dismal swamps" of the neighbourhood where their factories will not offend the eyes of local residents.

To-day the position is reversed; the modern electrified factory is generally superior in architectural quality, in simplicity of form and line, and in fitness for function, to the public buildings of large towns, and is far superior to the majority of residential estates erected by building companies without plan, taste or understanding the of use of materials. The electrified factory is a clean, efficient and healthy production centre, which contributes economic, social and æsthetic values to the community. This great change in the character of industry is a most important factor in the planning of new towns and in the reconstruction of old towns, and has not been adequately appreciated.

In this connection it is essential that the electricity supply industry should, in the construction of its own power stations and other buildings, observe a high standard of design. The London Passenger Transport Board has set an excellent example of what may be done in this way.

Changing Role of Electricity Supply

The logical result of considering the functions of electricity from this wide view is that the importance of operating undertakings on a service basis with a minimum profit

becomes apparent. There are among local authority supply engineers, progressive men who have already realised these broader aspects of their work and have acted accordingly. It is always difficult, however, for those brought up in the different traditions of private enterprise to appreciate the validity of this viewpoint, especially in an industry which is comparatively young, and is dominated to some extent by the pioneers and their spirit. Some of the early enterprises in the supply industry struggled hard for years to make a profit; their attitude of mind, when the rewards of their pioneering appear, and are threatened by national control, can be understood, even if it cannot be accepted. Someone had to take risks in the early days of the industry, and service to the community became inextricably entangled with the struggle for profit. Nor would it always be easy to distinguish the real motives of local authority undertakers in those pioneering days, since there were often municipal gas interests to protect as well as the new and largely experimental service of electricity to develop.

But now, the factions of these two sections of the industry should disappear in the knowledge that the industry is to operate on a nationally-controlled basis—although not actually nationalised—so that there should be very little practical distinction between a local authority or a privately-owned undertaking. The only distinction that will matter will be between those undertakings which achieve rapid and efficient progress in the task of electrification of their area, and those which fail to do so. There may also be new types of undertaking, foreshadowed by the present Joint Electricity Authorities.

The Central Electricity Board would continue to control the generation and transmission of electrical energy, and the Electricity Commissioners would, with strengthened powers, continue to act as the judicial and administrative centre of the industry. The proposed Electrical Development Authority would carry out all the research, development and propaganda activities needed to help the rapid and guided advance of the industry. It would ensure adequate contact with town planning, agricultural revival, housing and industrial decentralisation. Aided by these three bodies, yet free to operate their undertakings within the limits of legislative control, the supply engineers would be able to concentrate their minds upon the work of distribution.

The future will be electrical to the extent that the supply engineers develop a wider knowledge of their responsibilities to provide higher standards of service to the consumer And if in this process a number of ideas and prejudices are abandoned, the result will give wider benefits to the industry. The public expects that the supply industry should hasten towards a future in which the maximum amenities will be available for the residential consumer, farmer and industrialist through the fullest freedom to use electricity.

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Acknowledgments are made to the Annual Reports and "Returns of Engineering and Financial Statistics" of the Electricity Commission; to Garcke's Manual of Electrical Undertakings and to the Annual Reports of the Central Electricity Board for a number of the following tables.

I. INTERNATIONAL AND GENERAL STATISTICS

1. Generation of Electricity in Seventeen Countries

Public Supply Only

A. Output in Millions of Units

	1929	1930	1931	1932	1933	1934	1935
Austria	1,394	1,381	1,395	1,436	1,464	1,495	1,600*
Belgium	1,800	1,995	2,101	1,748	1,875	1,930	2,140
Czechoslovakia	910	989	981	1,007	1,015	1,220*	1,330*
Denmark‡	331	373	362	414	450	584	565
France¶	14,352	15,839	14,350	13,590	14,912	15,700	16,300
Germany§	16,876	16,209	14,252	13,027	14,210	16,762	19,118
Great Britain	10,294	10,914	11,413	12,224	13,562	15,459	17,569
Italy	10,557	10,836	10,540	10,652	11,770	11,883	12,800
Holland	1,606	1,818	1,977	2,047	2,087	2,158	2,198
Poland	1,315	1,625	1,508	1,222	1,269	1,395	1,500*
Spain	2,433	2,609	2,681	2,804	3,006	3,140	3,440
Sweden	3,285	3,351	3,392	2,908	3,199	3,620	4,140
Switzerland‡	3,767	3,682	3,787	3,665	3,817	4,200	4,502
Canada	17,964	18,094	16,331	15,863	17,453	21,159	23,548
U.S.A.	97,352	75,936	91,729	79,658	85,402	91,150	99,236
Japan¶	13,515	14,184	14,411	15,761	17,903	19,700	21,000*
U.S.S.R.†	6,386	8,231	10,500	13,400	16,366	20,520	23,000*

B. Indices (1929 = 100)

Austria	100	99.1	100.0	103.1	105.0	107.3	115.0*
Belgium	100	110.9	116.9	97.2	104.2	107.1	118.9
Czechoslovakia	100	108.7	107.8	110.7	111.5	134.2*	143.0*
Denmark‡	100	112.7	109.4	125.1	136.0	176.5	170.7
France¶	100	110.4	100.0	94.7	103.9	109.4	113.7
Germany§	100	96.0	84.5	77.2	84.2	99.3	113.2
Great Britain	100	106.0	110.9	118.7	131.7	150.2	170.7
Italy	100	102.6	99.8	101.0	111.5	112.6	121.2
Holland	100	113.2	123.1	127.5	130.0	134.4	136.9
Poland	100	123.6	114.7	92.9	95.5	106.1	114.0*
Spain	100	107.2	110.2	115.3	123.4	129.1	141.0
Sweden	100	102.0	103.3	88.5	97.4	110.2	126.0
Switzerland‡	100	97.7	100.5	97.3	101.3	111.5	119.4
Canada	100	100.7	90.9	88.3	97.2	117.8	130.8
U.S.A.	100	78.0	94.2	81.8	87.7	93.6	102.8
Japan¶	100	105.0	106.6	116.6	132.7	145.8	155.5*
U.S.S.R.†	100	128.9	164.4	209.8	256.0	321.0	359.0*

* Provisional.
† Total supply from all sources.
‡ Twelve months ending 30th September in year shown.
§ 122 largest undertakings.
¶ Undertakings of over 500 kW. only.

2. Railway Electrification in Thirty-eight Countries

(including schemes now in course of execution)

April 1936

Country	Route Miles Electrified	Route Miles to be Electrified	Country	Route Miles Electrified	Route Miles to be Electrified
Algeria	103	46	Italy	2,550	4,400
Argentina	65	—	Japan	500	—
Australia	270	50	Mexico	64	60
Austria	590	417	Morocco	543	—
Belgium	32	180	Netherlands, The	142	—
Bolivia	5	—	Netherlands, E. Indies	70	—
Brazil	345	—	New Zealand	15	—
Bulgaria	—	70	Norway	144	93
Canada	41	—	Poland	155*	—
Chile	218	—	Portugal	66	—
China	79	—	Rumania	—	45
Costa Rica	92	—	Spain	567	—
Cuba	155	—	Sweden	1,690	2,016†
Czechoslovakia	30	200	Switzerland	1,760	300
Denmark	24	—	Union of South Africa	302	20
France	1,528	757	U.S.A.	2,649	500
Germany	1,330	1,020	U.S.S.R.	3,800	3,125
Great Britain	802	382	Venezuela	23	—
Hungary	119	60			
India	250	55	Total	21,476	13,269

* Track Miles.
† State Railways only.

3. Output of Electricity and Consumption of Coal in Great Britain

(All Sources, 1935)

Source of Output	Total Output (Millions of Units)	Total Consumption of Coal (Tons)
Authorised Public Supply Undertakings	17,569.3	12,500,056
Tramway Authorities	413.3	
Railway Authorities	879.6	
Non-Statutory Undertakings	131.3	
Private Industrial Plant*	6,500.0	8,700,000†
Commercial, Cinemas, Stores, Private Houses, etc.*	460.0	
	25,953.5	21,200,056

* Estimated.
† Estimated on a basis of 2.9 lbs. per unit generated with allowance for water-power plant.

II. CENTRAL ELECTRICITY BOARD

4. Economic Data of Electricity Scheme Areas

Scheme Areas†	Area in square miles	Percentage of G.B.	Population 1934 (Registrar General's estimates)	Percentage of G.B.	Estimated Number of Factories 1935	Percentage of G.B.	Estimated Number of Agricultural Holdings	Percentage of G.B.	Number of Structurally Separate Dwellings	Percentage of G.B.	Number of Electricity Consumers 1934-35	Percentage of G.B.	Generation of Electricity (mill. units) Actual 1932	Percentage of G.B.	Actual 1933	Percentage of G.B.	Actual 1934	Percentage of G.B.	Actual 1935	Percentage of G.B.
North Scotland*	20,509	23.3	810,348	1.8			50,739	11.1	194,821	1.9	51,644	0.8	231.5	1.9	253.6	1.9	366.9	2.4	430.5	2.5
Central Scotland	4,980	5.6	3,870,279	8.5	18,151	11.1	15,559	3.4	889,875	8.7	459,500	6.6	844.1	6.9	934.4	6.9	1,063.7	6.9	1,177.7	6.7
South Scotland	4,308	4.9	253,664	0.6			8,336	1.8	64,243	0.6	17,781	0.3	14.4	0.1	14.6	0.1	13.5	0.1	97.7	0.5
North-East England	5,049	5.7	2,708,679	6.0	5,922	3.6	21,660	4.7	596,354	5.8	374,228	5.4	802.6	6.6	835.1	6.2	931.9	6.0	1,057.4	6.0
North-West England and North Wales	9,082	10.3	7,143,077	15.7	27,264	16.6	69,325	15.1	1,706,243	16.6	1,085,085	15.6	2,304.6	18.8	2,476.1	18.3	2,787.1	18.0	3,034.1	17.3
Mid-East England	7,546	8.6	4,941,774	10.9	21,987	13.4	52,545	11.5	1,232,892	12.0	802,811	11.5	1,408.1	11.5	1,562.2	11.5	1,747.8	11.3	1,990.0	11.4
Central England	7,311	8.3	5,699,542	12.6	22,615	13.8	54,268	11.8	1,347,922	13.1	878,100	12.6	1,759.0	14.4	1,983.1	14.6	2,300.3	14.9	2,644.2	15.0
East England	3,438	3.9	13,678,151	30.1	50,758	30.9	75,714	16.5	204,926	2.0	110,318	1.6	89.5	0.7	114.4	0.8	142.5	0.9	163.9	0.9
South-East England	8,828	10.0							2,583,134	25.2	2,363,366	34.0	3,894.5	31.8	4,366.7	32.2	4,943.1	32.0	5,615.0	32.0
South-West England and South Wales	17,090	19.4	6,295,777	13.8	17,580	10.6	110,760	24.1	1,451,804	14.1	809,881	11.6	899.9	7.3	1,041.1	7.5	1,165.3	7.5	1,349.8	7.7
Total Great Britain	88,141	100.0	45,401,291	100.0	164,277	100.0	458,906	100.0	10,272,214	100.0	6,952,714	100.0	12,248.2	100.0	13,554.3	100.0	15,462.1	100.0	17,569.3	100.0

*No scheme for this area is in contemplation. †The boundaries of the various Scheme Areas are shewn on the map on page 25.

5. The Transmission Lines and Capacity of the Grid

Scheme Area	Transmission Lines		Capacity of Generating Plant in Selected Generating Stations kW.	Capacity of Transforming and Switching Stations 1935 kVA.	Extensions of Selected Stations since beginning of Board's operation kW.
	Primary (miles)	Secondary (miles)			
North Scotland*	—	—	—	—	—
Central Scotland	238.5	12.9	517,675	744,300	190,000
South Scotland	230.9	137.1	64,300	137,000	—
North East England	91.4	88.9	497,380	369,450	150,000
N.W. England and N. Wales	313.3	196.6	1,190,000	1,509,000	412,500
Mid-East England	322.1	201.2	650,825	951,200	235,000
Central England	392.9	32.3	973,775	1,240,000	568,500
South-East and East England	675.1†	416.2‡	2,341,625	3,108,750	1,124,250
S.W. England and S. Wales	612.6	112.6	513,650	803,000	204,000
Total Great Britain	2,876.8	1,197.8	6,749,230	8,862,700	2,884,250§

* No scheme for this area is in contemplation.
† Including 15.3 miles of cables in the London Area.
‡ Including 102 miles of cables in the London Area.
§ These statistics include extensions sanctioned but not yet completed or, in some cases, placed on order with the manufacturers.

III. ELECTRICITY SUPPLY UNDERTAKINGS

6. Authorised Undertakers in Great Britain

Apart from the Central Electricity Board, the number of authorised undertakers in Great Britain holding powers to supply electricity at March 31, 1936, was 626.

Undertakers	Number Holding Statutory Powers in:		Total
	England and Wales	Scotland	
Joint Electricity Authorities	3	—	3
Joint Boards (representative of Local Authorities)	4	1	5
Local Authorities	336	35	371
Companies and Persons	214	33	247
Totals	557	69	626

Inclusive of the Central Electricity Board, and allowing for the case of two Companies with undertakings in England and also in Scotland, the number of separate undertakers at March 31, 1936, was 625, a net decrease of 5 on the number holding supply powers at the end of the preceding year.

There were also four other statutory bodies not possessing powers to supply but charged with definite duties of an advisory or supervisory character in respect of the organisation for the supply of electricity in districts within their jurisdiction, namely, the Joint Electricity Authority for the North Wales and South Cheshire Electricity District; the Advisory Boards for the Mid Lancashire and East Midlands Electricity Districts, respectively; and the Advisory Joint Committee for the South West Midlands Electricity District.

7. CLASSIFICATION OF AUTHORISED UNDERTAKERS ACCORDING TO NUMBER OF UNITS SOLD AND AVERAGE PRICE FOR LIGHTING AND DOMESTIC PURPOSES, 1934/35

Units Sold Sales to Consumers (excluding Bulk Supplies)	Total		Division of Total				Price per Unit Sold for Lighting and Domestic Purposes		
			Public Authorities		Companies		By Local Authorities	By Companies	By All Undertakings
	No. of Undertakings	Aggregate Units, 000's omitted	No. of Undertakings	Aggregate Units, 000's omitted	No. of Undertakings	Aggregate Units, 000's omitted	d.	d.	d.
Millions:									
200 million and over	10	8,690,726	6	2,086,322	4	1,604,404	1.79	2.64	2.13
100 but under 200	23	2,999,112	12	1,493,667	11	1,505,445	1.83	2.52	2.16
50 „ „ 100	32	2,120,494	27	1,714,672	5	405,822	1.78	2.32	1.87
25 „ „ 50	57	2,055,798	43	1,532,905	14	522,892	1.80	2.24	1.91
10 „ „ 25	75	1,186,074	55	870,464	20	315,611	2.14	2.60	2.27
5 „ „ 10	72	503,086	44	308,797	28	194,289	2.43	3.39	2.80
2.5 „ „ 5	66	234,186	49	177,844	17	56,342	2.71	3.45	2.90
1 „ „ 2.5	102	162,374	51	81,918	51	80,456	3.21	3.93	3.57
Thousands:									
500 but under 1 million	62	45,580	32	23,944	30	21,636	3.75	4.24	3.99
250 „ „ 500	65	23,786	32	11,666	33	12,120	4.15	4.99	4.57
100 „ „ 250	41	7,336	12	2,339	29	4,996	4.74	5.27	5.12
50 „ „ 100	14	1,081	2	169	12	912	5.11	5.34	5.30
Under 50,000	7	206	2	40	5	166	7.62	8.04	7.91
TOTAL	626	13,029,839	367	8,304,747	259	4,725,091	1.93	2.63	2.13

NOTE.—The last three columns show that, as far as average prices for lighting and domestic supplies are concerned, there is practically no difference between local authority undertakings selling 25 million units for all purposes and local authority undertakings above this size. Company undertakings actually show an increasing average price per unit from the range 25-50 million units to 200 million and over.

8. Amounts Paid by Authorised Undertakers in Respect of Rates and to Relief of Rates 1927/28-1934/35

Year	Total Sum Paid in Local Rates £			Percentage of Net Working Expenses (All Undertakings)	Total Sum allocated to Relief of Rates by Local Authorities £
	Local Authorities	Companies	Total		
1927/28 .	1,705,227	1,082,078	2,787,305	9.28	497,798
1928/29 .	1,852,688	1,100,661	2,953,349	9.45	469,700
1929/30 .	2,571,398	1,420,851	3,992,249	11.52	486,540
1930/31 .	2,619,304	1,561,792	4,181,096	13.96	296,578
1931/32 .	2,725,958	1,685,319	4,411,277	14.32	372,037
1932/33 .	2,628,061*	1,703,995*	4,453,065	14.92	480,817
1933/34 .	2,384,087*	1,639,302*	4,447,987	14.02	634,668
1934/35 .	2,738,669*	1,643,474*	5,635,337	15.78	549,608
Total .	19,225,392	11,837,472	32,861,665	12.70	3,787,746†

* Excluding amounts attributable to generation under the directions of the C.E.B.

† The total sum allocated to relief of Rates from 1921/22-1926/27 was £3,523,854, making the total for period 1921/22-1934/35, £7,311,600.

9. Systems of Generation and Distribution

Table showing Number of Stations Generating and Number of Undertakings Distributing: A.C. only, A.C. and D.C., D.C. only

Year	Generation				Distribution			
	Number of Stations Generating			Total Number of Stations	Number of Undertakings Distributing			Total Number of Undertakings*
	A.C.	A.C.&D.C.	D.C. only		A.C. only	A.C.&D.C.	D.C. only	
1922/23	193	107	227	473	109	176	207	492
1924/25	151	107	236	494	145	203	191	539
1925/26	155	104	232	491	165	209	190	564
1926/27	156	103	223	482	177	234	184	595
1927/28	167	103	220	490	202	247	170	619
1928/29	169	102	214	485	219	264	159	642
1929/30	180	105	215	500	236	274	145	655
1930/31	186	98	199	483	253	288	121	662
1931/32	192	92	180	464	269	286	104	659
1932/33	199	84	168	451	284	279	92	655
1933/34	205	82	150	437	282	283	77	642
1934/35	212	75	134	421	288	278	69	635

* Excluding Local Authorities giving supplies for public purposes only.

10. Total Connections, Maximum Load and Surplus Plant

Year	Total Capacity of Generating Plant in Public Supply Stations	Total Net Maximum Load	Total Connections		Total Surplus Plant	
			Actual	Percentage Net Maximum Load	Actual	Percentage Net Maximum Load
	(kW.)	(kW.)	(kW.)		(kW.)	
1920/21 .	—	1,629,520	4,614,977	283	—	—
1921/22 .	—	1,639,116	5,024,075	306	—	—
1922/23 .	3,093,679	1,829,557	5,484,106	300	1,264,122	69.3
1923/24 .	—	2,074,772	5,892,369	284	—	—
1924/25 .	3,723,514	2,298,182	6,434,942	281	1,425,332	62.2
1925/26 .	4,421,602	2,557,956	7,301,403	286	1,863,646	73
1926/27 .	4,682,069	2,700,594	8,137,796	301	1,981,475	73
1927/28 .	5,258,257	3,235,188	8,969,254	278	2,023,069	63
1928/29 .	5,801,770	3,369,166	9,970,133	295	2,432,604	72
1929/30 .	6,600,225	3,600,820	11,124,603	310	2,999,405	84
1930/31 .	6,945,805	3,801,342	12,864,411	338	3,144,463	83
1931/32 .	7,194,571	3,950,928	14,319,422	363	3,243,643	82
1932/33 .	7,365,869	4,156,410	15,826,511	382	3,209,459	77
1933/34 .	7,837,154	4,802,032	17,973,623	374	3,035,122	63
1934/35 .	7,785,206	5,297,462	20,106,615	380	2,487,744	47

11. Number of Generating Stations and Plant Installed

Year	Public Authorities		Companies		Combined Totals	
	Generating Stations	Generating Plant Installed	Generating Stations	Generating Plant Installed	Generating Stations	Generating Plant Installed
	No.	kW.	No.	kW.	No.	kW.
1922/23 . .	277	2,081,084	196	1,012,595	473	3,093,679
1924/25 . .	281	2,529,320	213	1,194,194	494	3,723,514
1925/26 . .	277	2,969,319	214	1,452,283	491	4,421,602
1926/27 . .	272	3,157,031	210	1,525,038	482	4,682,069
1927/28 . .	267	3,462,810	223	1,795,447	490	5,258,257
1928/29 . .	262	3,786,315	223	2,015,455	485	5,801,770
1929/30 . .	259	4,162,661	241	2,437,564	500	6,600,225
1930/31 . .	252	4,424,178	231	2,521,627	483	6,945,805
1931/32 . .	249	4,665,160	215	2,529,411	464	7,194,571
1932/33 . .	243	4,721,539	208	2,644,330	451	7,365,869
1933/34 . .	236	4,719,799	201	3,117,355	437	7,837,154
1934/35 . .	227	4,656,473	194	3,128,783	421	7,785,206

12. Generating Plant Capacity and Plant Extensions

Year	Total Capacity of Generating Plant in Public Supply Stations	Capacity of New Plant Sanctioned by Electricity Commissioners	Cumulative Total of (3) *	Percentage of (3) to (2) with 2 year lag
1	2	3	4	5
1919/1920 .	2,137,679	—	—	—
1920/1921 .	—	668,037	—	—
1921/1922 .	—	164,032	—	—
1922/1923 .	3,093,679	375,709	1,207,778	—
1924/1925 .	3,723,514	480,000	—	—
1925/1926 .	4,421,602	556,706	2,624,662	32.3
1926/1927 .	4,682,069	704,714	3,329,376	—
1927/1928 .	5,258,257	615,216	3,916,559	49.9
1928/1929 .	5,801,770	571,948	4,488,507	57.3
1929/1930 .	6,600,225	236,203	4,724,810	59.3
1930/1931 .	6,945,805	802,187	5,526,997	64.7
1931/1932 .	7,194,571	90,951	5,617,948	65.7
1932/1933 .	7,365,869	54,003	5,671,951	75.1
1933/1934 .	7,837,154	113,856	5,785,807	71.6
1934/1935 .	7,785,206	573,994	6,362,831	72.7

* Corrected from year to year.

13. Capacity of Generating Plant Operating at Standard and Non-Standard Frequencies

Classification	1927-1928			1934-1935		
	No. of Stations	Capacity of Plant kW.	% of Total	No. of Stations	Capacity of Plant kW.	% of Total
Standard Frequency						
50 cycles per second .	204	3,594,626	68.5	258	6,672,155	85.7
Three-phase, Two-phase and Single-phase . .	38	242,332	4.6	28	267,371	3.4
Total . . .	242	3,836,958	73.1	286	6,939,526	89.1
Non-Standard Frequency .	53	1,113,949	21.4	31	613,596	7.9
D.C.	333	307,350	5.5	209	232,084	3.0
Grand Total . . .	490*	5,258,257	100.0	421*	7,785,206	100.0

* Stations may have A.C. and D.C. Generating Plant installed together.

14. Fuel Consumption and Units Generated in all *Steam* Generating Stations belonging to Authorised Undertakers, Railway and Tramway Authorities and certain Non-Statutory Undertakings

Year	Total Coal Consumption (actual) (million lbs.)	Total Units Generated (millions)	lbs. of Coal used per Unit Generated	Thermal Efficiency (%)
1925/26*	17,923.78	7,090.76	2.53	13.14
1926/27	18,808.99	7,804.48	2.40	13.55
1927/28	19,702.42	8,128.35	2.43	14.55
1928/29	20,557.81	9,500.60	2.16	15.00
1929/30*	21,316.78	10,377.11	2.05	15.69
1930	22,615.51	11,436.60	1.97	16.15
1931	22,128.88	12,144.91	1.82	16.86
1932	22,698.73	13,037.81	1.74	17.51
1933	23,836.45	14,370.94	1.65	18.37
1934	25,644.28	16,138.40	1.58	19.30
1935	27,940.45	18,106.11	1.54	20.15

* Year ending March 31st.

15. The Twenty-five Most Efficient Steam Generating Stations in Great Britain, 1935

Station	Fuel Consumption per Unit Generated (lbs. of Coal)	Overall Thermal Efficiency (per cent)
Battersea (London Power Co.)	0.96	28.59
Barking B (County of London E.S. Co.)	1.09	28.07
Dunston B (North-Eastern E.S. Co.)	1.11	27.25
Clarence Dock (Liverpool Corporation)	1.12	26.21
Ironbridge (West Midlands J.E.A.)	1.42	25.59
Blackburn Meadows, New (Sheffield Corporation)	1.16	24.47
Spondon (Derby & Notts Power Co.)	1.37	23.97
Kearsley (Lancs. Electric Power Co.)	1.17	23.95
Deptford West (London Power Co.)	1.30	23.89
Hams Hall (Birmingham Corporation)	1.34	23.41
Brimsdown B (North Metropolitan E.S. Co.)	1.42	22.89
Kirkstall (Leeds Corporation)	1.35	22.63
Portishead (Bristol Corporation)	1.10	22.52
Portobello (Edinburgh Corporation)	1.44	22.19
Barton (Manchester Corporation)	1.29	22.10
Hackney Borough Council	1.37	22.07
Brighton Corporation	1.27	21.97
Barking A (County of London Co.)	1.41	21.78
Thornhill (Yorkshire E.P. Co.)	1.36	21.77
Sculcoates (Kingston-on-Hull Corporation)	1.52	21.55
Ferrybridge (Yorkshire E.P. Co.)	1.39	21.34
North Tees (North-Eastern E.S. Co.)	1.37	21.03
Croydon Corporation	1.41	20.72
Battersea Borough Council	1.46	20.72
Chadderton (Oldham Corporation)	1.44	20.68

16. Units Sold to Consumers by Authorised Undertakers, 1921/22 - 1934/35

Years	Units Sold to Consumers			
	By Public Authorities	By Companies	All Undertakings	Increase on Previous Year (Nearest million)
1921/22	2,023,658,696	1,098,120,375	3,121,779,071	—
1922/23	2,450,202,674	1,255,096,188	3,705,298,862	583.5
1923/24	2,889,199,105	1,578,327,030	4,467,526,135	762.2
1924/25	3,267,610,717	1,829,712,911	5,097,323,628	629.8
1925/26	3,609,731,268	1,996,409,246	5,606,140,514	508.5
1926/27	3,834,674,546	2,033,388,329	5,868,062,875	261.9
1927/28	4,477,239,480	2,526,260,443	7,003,499,923	1,135.4
1928/29	4,964,594,107	2,835,473,105	7,800,067,212	796.5
1929/30	5,437,091,264	3,228,929,747	8,666,021,011	866.0
1930/31	5,594,326,492	3,479,431,639	9,073,758,131	407.7
1931/32	5,963,913,696	3,537,288,429	9,501,202,125	427.5
1932/33	6,508,833,968	3,701,203,886	10,210,037,854	708.8
1933/34	7,372,728,602	4,094,614,028	11,467,342,630	1,257.3
1934/35	8,304,747,183	4,725,091,403	13,029,838,586	1,562.5
1935/36*	9,475,000,000	5,375,000,000	14,850,000,000	1,820.0

* Estimated.

17. Distribution of Electricity Sales by All Authorised Undertakers in Great Britain by Main Classes of Consumption

Year	Power (per cent)	Lighting and Domestic (per cent)	Traction (per cent)
1920/21	71.4	16.5	10.7
1921/22	67.4	19.5	11.5
1922/23	67.7	18.9	10.3
1923/24	69.1	20.0	9.3
1924/25	69.3	20.3	8.8
1925/26	67.1	22.2	9.1
1926/27	64.2	24.6	9.6
1927/28	64.8	24.4	9.2
1928/29	63.2	26.1	9.1
1929/30	62.4	27.0	8.9
1930/31	59.2	30.2	8.8
1931/32	57.2	32.4	8.5
1932/33	55.8	34.0	8.3
1933/34	55.7	34.2	8.2
1934/35	55.8	34.8	7.4

18. Total Number of Consumers in Great Britain (Including Bulk Consumers)

Year	Total for Great Britain	Year	Total for Great Britain	Year	Total for Great Britain
1925/26	2,007,604	1929/30	3,471,607	1933/34	6,109,595
1926/27	2,297,199	1930/31	4,014,895	1934/35	6,952,714
1927/28	2,599,617	1931/32	4,646,509	1935/36*	7,759,000
1928/29	2,993,939	1932/33	5,336,847		

* Estimated.

19. Units sold per Kilowatt of Connected Load and Units Generated per Kilowatt of Net Maximum Load for all Authorised Undertakers 1920/1-1934/5

Year (ending March 31st)	Units Sold per Kilowatt connected Load	Units Generated per Kilowatt of net Maximum Load
1920/1	761	2,623
1921/2	621	2,373
1922/3	686	2,482
1923/4	758	2,549
1924/5	792	2,620
1925/6	768	2,587
1926/7	721	2,589
1927/8	781	2,612
1928/9	782	2,767
1929/30	779	2,888
1930/1	705	2,880
1931/2	664	2,919
1932/3	645	2,971
1933/4	636	2,935
1934/5	648	2,942

20. Total Load (Kilowatts) Connected to Systems

Year	Public Authorities	Companies	Combined Totals	Load Connected in Excess of Plant Capacity
	kW.	kW.	kW.	Per Cent
1920/21 .	3,037,155	1,577,822	4,614,977	—
1921/22 .	3,310,824	1,713,251	5,024,075	—
1922/23 .	3,553,918	1,930,188	5,484,106	77.20
1923/24 .	3,865,453	2,026,916	5,892,369	—
1924/25 .	4,281,206	2,153,736	6,434,942	72.82
1925/26 .	4,806,748	2,494,655	7,301,403	65.13
1926/27 .	5,422,729	2,715,067	8,137,796	73.59
1927/28 .	6,076,459	2,892,795	8,969,254	70.57
1928/29 .	6,758,263	3,211,870	9,970,133	71.67
1929/30 .	7,523,129	3,601,474	11,124,603	68.55
1930/31 .	8,622,105	4,242,306	12,864,411	85.21
1931/32 .	9,415,494	4,903,928	14,319,422	99.03
1932/33 .	10,434,817	5,391,694	15,826,511	114.86
1933/34 .	11,871,488	6,102,135	17,973,623	129.35
1934/35 .	13,403,441	6,703,174	20,106,615	158.21

21. Average Revenue Per Unit Sold 1934/35

Average Revenue obtained per Unit Sold	No. of Undertakings	Division of Total	
		Public Authority Undertakings	Company Undertakings
Lighting, Heating and Cooking			
Under 1.5d.	18	17	1
1.5d. but under 2d.	84	75	9
2d. „ „ 3d.	209	153	56
3d. „ „ 4d.	145	75	70
4d. „ „ 5d.	78	28	50
5d. „ „ 6d.	57	13	44
6d. „ „ 7d.	18	4	14
7d. „ „ 8d.	9	—	9
8d. and over	7	2	5
Total	625	367	258
Power Supplies			
Under 0.5d.	10	3	7
0.5d. but under 1d.	209	162	47
1d. „ „ 1.5d.	148	99	49
1.5d. „ „ 2.0d.	93	47	46
2.0d. „ „ 2.5d.	72	30	42
2.5d. „ „ 3.0d.	41	9	32
3.0d. „ „ 4.0d.	20	4	16
4.0d. and over	10	—	10
Total	603	354	249

22. Revenue from Sale of Current—All Authorised Undertakers (including Central Electricity Board)

Year	REVENUE			
	Consumers	Per B.T.U. Sold	Intersales	Per B.T.U. Sold
	£	d.	£	d.
1921/22	32,531,582	2.48	1,178,569	1.28
1922/23	32,708,675	2.07	1,162,818	0.89
1923/24	34,522,092	1.86	1,457,201	0.90
1924/25	37,076,361	1.75	1,740,125	0.88
1925/26	38,520,851	1.65	2,017,468	0.81
1926/27*	43,008,813	1.76	4,722,889	0.93
1927/28	45,334,086	1.55	4,875,743	0.74
1928/29	46,993,620	1.44	4,988,515	0.62
1929/30	49,943,837	1.38	5,876,308	0.59
1930/31	52,247,545	1.38	6,981,115	0.58
1931/32	54,029,565	1.36	8,248,917	0.55
1932/33	56,633,906	1.33	10,511,832	0.46
1933/34	60,297,184	1.26	14,941,331	0.44
1934/35	64,911,676	1.20	28,271,487	0.42

* Central Electricity Board formed.

23. Capital Expenditure of all Authorised Undertakers (including Central Electricity Board)

Year	Generation		Transmission, Distribution, etc.		Total Expenditure	
	Amount £	Average per kW. Installed £	Amount £	Average per kW. Installed £	Amount £	Average per kW. Installed £
1921/22	66,361,518	—	77,354,742	—	143,716,260	—
1922/23	73,606,413	23.8	84,617,923	27.2	158,224,336	51.0
1923/24	80,746,729	—	93,111,335	—	173,858,064	—
1924/25	88,021,102	23.6	105,998,556	28.5	194,019,658	52.1
1925/26	95,248,155	21.5	121,790,151	27.6	217,038,306	49.1
1926/27	100,145,524	21.4	138,582,110	29.6	238,727,634	51.0
1927/28	111,410,715	21.2	157,591,378	30.0	269,002,093	51.2
1928/29	122,121,563	21.0	175,555,449	30.3	297,677,012	51.3
1929/30	130,381,575	19.8	196,688,578	29.8	327,070,153	49.6
1930/31	136,023,292	19.6	218,074,746	31.4	354,098,038	51.0
1931/32	140,914,758	19.6	239,454,403	33.3	380,369,161	52.9
1932/33	144,352,945	19.6	291,844,019	39.6	436,196,964	59.2
1933/34	146,141,087	18.6	320,071,388	40.8	466,212,475	59.4
1934/35	146,549,771	18.8	348,443,029	44.7	494,992,800	63.5

24. Capital Invested by all Authorised Undertakers

Loans Raised by Public Authorities, etc., including the Central Electricity Board; and Capital, including Debentures, etc., issued by Companies.

Year	* Public Authorities and C.E.B. £	† Companies £	Combined Totals £
1921/22 . .	87,175,933	44,942,470	132,118,403
1922/23 . .	95,860,885	47,348,256	143,209,141
1923/24 . .	103,896,440	50,959,398	154,855,838
1924/25 . .	114,087,565	57,901,028	171,988,593
1925/26 . .	125,663,093	62,556,756	188,219,849
1926/27 . .	138,470,023	75,674,441	214,144,464
1927/28 . .	155,331,158	86,156,896	241,488,054
1928/29 . .	168,816,623	98,938,516	267,755,139
1929/30 . .	181,634,318	110,563,040	292,197,358
1930/31 . .	197,890,180	120,415,274	318,305,454
1931/32 . .	228,148,724	124,885,995	353,034,719
1932/33 . .	258,867,784	131,997,572	390,865,356
1933/34 . .	276,820,283	137,863,105	414,683,388
1934/35 . .	295,820,456	142,660,988	438,481,444

* Exclusive of loans and also of temporary borrowings by bank overdrafts.

† The figures are incomplete in respect of a number of combined electricity and gas undertakings, for which particulars relating exclusively to capital raised for electricity purposes are not available. It must also be emphasised that the figures relate solely to authorised operating companies in Great Britain. The capital of "holding" companies and other non-statutory undertakings is excluded.

25. Average Cost of Energy 1934/5

Classified by Local Authority and Company Authorised Undertakers

Average Cost of Energy	No. of Undertakings	Division of Total	
		Local Authority Undertakers	Company Undertakers
Generation Works Cost per unit generated (excluding capital charges). Independent generation.			
Under 0.2d. per unit	15	3	12
0.2d. but under 0.3d.	29	23	6
0.3d. „ „ 0.4d.	19	11	8
0.4d. „ „ 0.5d.	17	8	9
0.5d. „ „ 0.6d.	9	4	5
0.6d. „ „ 0.7d.	14	3	11
0.7d. „ „ 0.8d.	12	8	4
0.8d. „ „ 0.9d.	14	6	8
0.9d. „ „ 1d.	11	5	6
1d. „ „ 1.5d.	44	25	19
1.5d. „ „ 2d.	14	3	11
2d. „ „ 2.5d.	11	6	5
2.5d. „ „ 3d.	5	1	4
3d. „ „ 4d.	8	3	5
4d. and over	19	9	10
Total	241	118	123
Bulk Supply Cost per unit purchased			
Under 0.3d. per unit	13	7	6
0.3d. but under 0.4d.	63	46	17
0.4d. „ „ 0.5d.	102	77	25
0.5d. „ „ 0.6d.	99	71	28
0.6d. „ „ 0.7d.	65	40	25
0.7d. „ „ 0.8d.	44	21	23
0.8d. „ „ 0.9d.	28	15	13
0.9d. „ „ 1d.	28	13	15
1d. „ „ 1.5d.	88	46	42
1.5d. „ „ 2d.	17	5	12
2d. and over	5	1	4
Total	552	342	210

Notes—

In the case of certain Companies where a combined average cost was rendered for two or more Undertakings, the latter have been dealt with as a whole and counted once only.

In cases where Undertakings depended in part on local generation and in part on bulk supplies, they have been counted in each section of the Table.

26. Summary of Domestic Retail Tariffs of Authorised Undertakers

(March 1936)

Scheme Area	Number of Undertakings	Number with Lighting Flat Rate over 6d.	Percentage with Lighting over 6d.	Number with no Assisted Wiring	Percentage without Assisted Wiring	Number of Undertakings where Prices are Abnormally High*	Percentage of such Undertakings	Number of Two-part Tariffs	Percentage of Two-part Tariffs	Number with ½d. Running Charge or Less	Percentage with ½d. Running Charge
South-East England	143	36	25.3	31	21.5	10	7.0	132	92.4	34	25.8
East England	11	6	54.5	2	18.2	5	45.5	11	100.0	—	—
Mid-East England	66	12	18.2	7	10.6	3	4.5	56	85.0	20	35.7
North-East England	25	4	16.0	3	12.0	1	4.0	22	88.0	3	13.6
North-West England	112	24	21.5	11	9.8	15	13.4	94	84.0	41	43.5
Central England	43	8	18.6	4	9.3	5	11.6	40	92.9	13	32.5
South-West England	94	63	67.0	16	17.0	48	51.0	83	88.3	7	8.4
South Wales	44	13	29.5	5	11.4	6	13.6	24	54.5	2	8.3
North Scotland	20	14	70.0	9	45.0	8	40.0	13	65.0	1	7.7
Central Scotland	27	6	22.3	9	33.3	1	3.7	22	81.5	7	31.8
South Scotland	6	5	83.3	—	—	1	16.7	6	100.0	—	—
Total	591†	191	—	97	—	103	—	503	—	128	—
Total Percentage	—	—	32.3	—	16.4	—	17.4	—	85.0	—	25.4

* i.e. with lighting flat rate over 6d. and no two-part tariff or, where a two-part tariff is in force, with a running charge in excess of 1d.
† This is a 95% sample. Percentage figures in last column refer to Number of Two-Part Tariffs as total.

27. Power Companies Statistics, 1934/35

Company	Capital Issued £	Number of Consumers	Units Sold (excluding bulk) kWh.	Bulk Sales kWh.	Power Sales (included in Col. 4) kWh.
(1)	(2)	(3)	(4)	(5)	(6)
Clyde Valley Electric Power Co.	2,900,000	38,401	188,756,916	92,674,004	169,418,277
Derby & Notts Electric Power Co.	3,000,000	33,112	139,264,457	67,450,137	124,485,537
Fife Electric Power Co.	970,000	15,969	27,728,235	1,364,702	18,193,985
Galloway Electric Power Co.		Supply not com	menced 31st D	ecember, 1934	
Kent Electric Power Co.	517,570	15,239	109,437,875	20,339,950	103,012,024
Lanarkshire Hydro-Electric Power Co.	250,000	1	—	85,178,611	—
Lancashire Power Co.	4,724,256	31,825	160,627,326	143,306,688	128,159,993
Lochaber Power Co.	3,277,381	121	167,861,426	—	167,339,524
London Power Co.	17,320,065	11	—	1,038,746,039	—
Lothians Electric Power Co.	420,000	7,983	10,046,021	1,645,172	6,375,378
Mersey Power Co.	1,296,475	17,277	46,979,716	10,956,200	41,609,782
Midland Electric Corpn. for Power Distbn.	900,000	28,378	101,666,794	—	91,554,143
North Metropolitan Electric Power Supply Co.	6,559,646	154,964	264,740,432	129,950,119	91,644,466
North Wales Power Co.	3,231,750	619	63,684,150	40,682,510	63,415,263
Scottish Central Electric Power Co.	750,000	2,289	37,578,927	12,393,980	35,642,443
Shropshire, Worcs. and Staffs Electric Power Co.	7,625,000	69,773	154,498,397	25,253,154	123,969,022
South-East Kent Electric Power Co.	110,000	2,989	2,563,543	2,742,420	1,245,414
South Wales Electric Power Co.	2,281,486	22,828	114,559,037	22,480,421	108,974,743
West Cambrian Power Co.	440,000	6,631	3,188,499	—	1,088,171
West Gloucester Power Co.	1,235,000	7,401	25,758,967	15,361,252	23,166,673
Yorkshire Electric Power Co.	4,673,000	1,475	160,520,044	108,097,133	160,520,044
	62,481,629	457,286	1,779,460,762	1,818,622,492	1,460,314,882

28. Holding Companies and their Subsidiaries, 1934/35

	Capital Issued £	Consumers	Units Sold (exclud. bulk) kWh.
British Electric Traction Co.			
National Elec. Construction Co.			
Musselburgh & Dist. E. Co.	(a)	1,380	961,376
Elec. Finance & Securities Co.			
Boston & Dist. E.S. Co.	138,000	3,817	2,968,983
Colne Valley E.S. Co.	160,000	12,816	8,052,318
Foots Cray E.S. Co.	30,000	2,024	1,231,844
Lothians E.P. Co.	420,000	7,983	10,046,021
Northwood E.L. & P. Co.	90,000	6,167	5,047,700
B.E.T. Electricity Supply Co.			
Birkdale Dist. E.S. Co.	76,000	3,432	2,762,453
Lewes & Dist. E.S. Co.	57,500	1,669	1,559,961
Merthyr E.T. & L. Co.	(a)	5,369	2,859,060
Penarth E.L. Co.	45,937	1,963	1,580,392
Sheerness & Dist. E.S. Co.	75,000	2,334	6,155,252
Weston-s-Mare & Dist. E.S.Co,	(a)	5,721	4,408,366
Wisbech E.L. & P. Co.	60,000	1,453	1,268,433
	1,152,437	56,128	48,902,159
British Power & Light Corpn.			
East Suffolk E. Dist. Co.	89,274	1,855	776,870
Electricity Dist. of North Wales and District	333,288	23,791	9,334,665
North Wales Power Co.	3,231,750	619	63,684,150
Ringwood E.S. Co.	41,312	1,198	418,683
South Somerset & Dist. E. Co.	143,554	2,382	1,403,841
Trent Valley & High Peak E. Co.	202,468	3,984	3,483,525
West Hampshire E. Co.	191,767	3,712	1,832,290
	4,233,413	37,541	80,934,024
Christy Bros. & Co.			
Aldeburgh E.S. Co.	11,195	500	271,693
Culm Valley E.S. Co.	70,000	1,253	584,114
North Somerset E.S. Co.	600,000	14,252	14,094,039
Burnham & Dist. E.S. Co.	20,000	980	840,245
Mid-Somerset E.S. Co.	7,000	912	406,173
West Devon E.S. Co.	250,000	2,780	1,320,059
Bude E.S. Co.	32,500	1,233	453,104
Holsworthy G. & E.S. Co.	12,000	250	109,490
	1,002,695	22,160	18,078,917
County of London E.S. Co.			
Bournemouth & Poole E.S. Co.	1,409,180	37,857	32,895,029
Blandford Forum & Dist. E. Co.	16,000	552	245,780
Milford-on-Sea E.S. Co.	14,400	418	126,186
Milton & Barton-on-Sea E. Co.	20,000	942	254,787
Richmond (Surrey) E.L. & P. Co.	200,000	7,065	8,107,349
Swanage G. & E. Co.	trans. to Bournemouth Co.		231,582
Chislehurst E.S. Co.	15,000	1,302	559,959
County of London E.S. Co.	16,586,614	199,537	393,116,174
Folkestone E.S. Co.	330,330	10,001	8,084,652
Horley & Dist. E.S. Co.	20,640	1,767	1,408,799
Kent E.P. Co.	517,570	15,239	109,437,875
Sevenoaks & Dist. E.S. Co.	119,648	8,280	5,030,306
County of London—*continued*			
South-East Kent E.P. Co.	110,000	2,989	2,563,543
South London E.S. Corpn.	863,520	23,953	41,943,970
S. Metropolitan E.L. & P. Co.	1,350,000	85,118	64,430,078
Weald E.S. Co.	250,000	8,716	5,902,179
West Kent E. Co.	300,000	15,788	19,014,602
Wickford & Dist. E.S. Co.	18,000	1,148	458,342
	22,160,902	420,672	693,811,192
Edmundson's Electricity Corpn., Ltd.			
Beds., Cambs. & Hunts. E.S. Co.	532,250	6,543	15,551,707
Newmarket E.L. Co.	40,760	843	938,920
Cambridge E.S. Co.	530,000	13,435	9,425,076
Ilfracombe E.L. & P. Co.	50,000	991	513,984
Isle of Wight E.L. & P. Co.	480,348	10,538	5,632,099
Lymington E.L. & P. Co.	74,425	1,181	489,735
Melton Mowbray E.L. Co.	67,100	1,677	1,043,030
Oxford E. Co.	350,000	5,791	11,284,686
Ramsgate & Dist. E.S. Co.	150,000	3,942	2,279,969
Salisbury E.L. & S. Co.	140,700	3,970	2,171,226
Wilton E.S. Co.	9,000	140	162,066
Shrops. Worcs. & Staffs. E.P. Co.	7,625,000	69,773	154,498,397
Banbury & Dist. E.S. Co.	75,000	2,802	2,419,071
Kidderminster & Dist. E.S. Co.	100,000	5,308	5,048,291
Ledbury E.S. Co.	14,185	408	218,836
Ludlow E.L. Co. (b)	—	—	—
South Wales E.P. Co.	2,281,486	22,828	114,559,037
Stratford-on-Avon E. Co.	57,000	2,055	2,410,943
Tewkesbury E.L. Co.	15,000	735	419,064
Tisbury E.S. Co.	6,000	158	37,666
Urban E.S. Co.	1,050,000	10,990	6,739,777
Bodmin E.L. & P. Co. (b)	—	—	—
Callington & Dist. E.S. Co.	7,430	398	134,015
Camborne E.S. Co.	20,000	1,043	363,964
Cornwall E.P. Co.	348,150	73	16,740,251
East Anglian E.S. Co.	312,581	19,839	8,239,823
East Cornwall E.S. Co.	12,000	2,806	666,783
Launceston & Dist. E.S. Co.	9,600	857	392,928
Liskeard G. & E. Co.	(a)	609	192,307
Newquay E.L. & P. Co.	50,000	1,467	735,980
Penzance & Dist. E.S. Co.	28,000	1,211	843,309
Truro E.S. Co.	15,000	994	521,030
West Cornwall E.S. Co.	37,504	8,017	2,423,896
Wessex Electricity Co.	1,200,000	27,221	27,152,162
Thames Valley E.S. Co.	50,000	1,896	1,295,238
Western E.S. Co.			
Abingdon E.S. Co.	42,695	1,812	1,204,509
Cirencester E.S. Co.	20,675	760	416,497
Cookham & Dist. E. Corpn.	39,252	2,343	1,273,638
Ruthin E.S. Co.	10,515	665	274,541
Stroud E.S. Co.	25,600	1,084	797,919
Wantage E.S. Co.	3,402	447	230,864
West Wilts. E.L. & P. Co.	226,530	10,160	17,931,222
Wycombe (Boro') E.L. & P. Co.	230,000	7,552	6,145,105
Yeovil E.L. & P. Co.	65,000	2,047	1,514,731
	16,402,188	257,409	425,334,292

	Capital Issued £	Consumers	Units Sold (exclud. bulk) kWh.
lectric Supply Corpn. Ltd.			
urgess Hill Electricity Ltd. .	52,250	1,049	278,878
entral Sussex E. Ltd. . .	180,000	2,578	1,529,671
lectric Supply Corpn. .	681,262	3,150	8,502,445
endon E.S. Co.. . .	772,140	32,563	1,056,881
eterhead E. Co. . . .	5,000	345	211,961
eaford & Newhaven E. Ltd..	90,000	1,682	1,829,281
eyning E. Ltd. . . .	110,000	1,677	6,905,388
ckfield G. & E. Co. . .	22,000	1,233	851,250
	1,140,512	11,714	20,108,874
eneral Electric Co., Ltd.			
ectric Development & Securities Trust			
uckrose L. & P. Co. . .	50,000	1,928	1,062,652
armarthen E.S. Co. . .	75,000	2,637	1,524,670
. Co. of Macclesfield. .	290,000	7,606	8,342,564
rinton-on-Sea & Dist. E.L. & P. Co. . . .	50,000	1,546	1,404,322
onmouth E. Co. . .	35,000	548	416,528
orthcawl E. Co. . .	30,000	1,092	588,033
horeham & Dist. E.L. & P. Co.	75,000	2,623	1,452,698
outh Cumberland E.S. Co..	50,000	1,924	6,374,939
outh-East Yorks. L. & P. Co.	120,000	2,460	1,690,405
Vest Cambrian P. Co. .	440,000	6,631	3,188,499
Vigtownshire E. Co. . .	40,000	1,625	1,476,663
	1,255,000	30,620	27,521,973
ncolnshire & Central E.S .Co.			
rincham E.S. Co. . .	251,600	11,614	11,643,272
d-Lincolnshire E.S. Co. .	200,000	7,326	19,445,326
urso & Dist. E.S. Co. (*b*) .	—	—	—
ndermere & Dist. E.S. Co.	66,700	1,853	697,247
eswick E.L. Co. . .	19,000	851	304,470
	537,300	21,644	32,090,315
wer Securities Corpn. Ltd. Balfour Beatty & Co.			
ncashire E.L. & P. Co.			
ancashire E.P. Co. . .	4,724,256	31,825	160,627,326
rmskirk E.S. Co. . .	49,000	988	861,983
anelly & Dist. E. Co. .	(*a*)	9,051	20,148,381
orseinon E.L. Co. . .	60,000	3,730	2,950,995
tropolitan E.S. Co. . .	3,509,800	55,550	103,375,116
entford E.S. Co. . .	75,000	2,814	5,390,068
esham E.L. & P. Co. .	180,000	6,161	6,448,101
ipping Norton E.S. Co. .	10,000	557	168,393
ham & Staines E. Co. .	500,000	13,680	12,914,433
ough & Datchet E.S. Co. .	275,000	7,896	9,253,904
tbridge & Dist. E.S. Co. .	575,000	26,948	46,898,346
indsor E.I. Co. . .	98,532	2,610	2,918,008
idland Counties E.S. Co.			
rby & Notts. E.P. Co. .	3,000,000	33,112	139,264,457

	Capital Issued £	Consumers	Units Sold (exclud. bulk) kWh.
Power Securities—*continued*			
Leamington & Warwick E. Co.	(*a*)	1,201	1,518,303
Leics. & Warwicks. E.P. Co. .	2,110,000	37,513	78,963,449
Midland E.L. & P. Co. .	150,000	28,378	101,666,794
Scottish Power Co.			
Arbroath E.L. & P. Co. .	70,500	1,574	1,354,993
Beauly E.S. Co. . . .	2,000	152	62,855
Crieff E.S. Co. . . .	15,000	424	210,353
Dunblane & Dist. E.S. Co. .	11,300	172	137,621
Duncan's E.S. Co. . .	(*a*)	642	124,968
Elgin E.S. Co. . . .	25,000	550	429,210
Fife E.P. Co. . . .	970,000	15,969	27,728,235
Grampian E.S. Co. . .	3,000,000	5,024	6,935,013
Grantown-on-Spey E.S. Co.	12,000	291	77,641
N. of Scotland E.L. & P. Co.	75,000	1,692	951,277
Ross-shire E.S. Co. . .	139,115	1,513	919,381
Scottish Central E.P. Co. .	750,000	2,289	37,578,927
Scottish Midlands E.S. Co. .	130,000	8,720	3,568,248
Scottish Southern E.S. Co. .	265,000	3,620	10,092,224
Strichen E.S. Co. (*b*) . .	—	—	—
	20,781,503	304,146	783,539,003
Southern Areas Elec. Corpn., Ltd.			
Brentwood Dist. E. Co.. .	85,100	4,000	3,461,544
Leominster E.S. Co. . .	13,969	476	274,458
Salcombe G. & E. Co. . .	(*a*)	469	186,727
Seaton & Dist. E.L. Co. .	30,306	985	192,854
Sussex E.S. Co. . . .	122,200	2,852	17,977,444
	251,575	8,773	22,093,027
Whitehall Securities Ltd.			
Bideford & Dist. E.S. Co. .	90,000	2,079	1,028,032
Dawlish E.L. & P. Co. . .	35,000	1,323	626,067
East Devon E. Co. . .	350,000	6,317	3,218,461
Exe Valley E. Co. . .	145,000	2,230	840,525
Minehead E.S. Co. . .	109,500	2,636	1,390,417
Paignton E.L. & P. Co. .	90,000	4,478	2,451,344
Porlock & Dist. E.S. Co. .	13,000	381	157,233
Teignmouth E.L. Co. . .	71,300	3,103	1,557,292
Wellington Dist. E. Co.. .	45,000	951	531,958
	948,800	23,498	11,801,329
Yorkshire E.P. Co.			
Barton-on-Humber E.S. Co. .	20,009	539	309,877
Electrical Dist. of Yorkshire .	2,200,000	72,668	36,971,733
Mid-Cumberland E. Co. .	148,400	2,722	2,246,614
Penrith E.S. Co.. . .	34,350	777	357,067
North Lincs. & Howdenshire E. Co.	99,007	1,247	367,390
West Gloucestershire P. Co. .	1,235,000	7,401	25,758,967
Chepstow E.L. & P. Co. .	5,510	690	1,074,568
	3,742,276	86,044	67,086,215
GRAND TOTALS .	74,380,741	1,812,912	2,232,358,201

Figures relating exclusively to electricity supply not available. (*b*) Non-Statutory undertaking.
These data do not include the capitalisation of the holding companies themselves nor that of subsidiary companies which are not operating supply undertakings. The figures shewn are as up to date as available information permits.

IV. INDUSTRY AND TRANSPORT

29. Total Number and Percentage of Factories in Great Britain under Electricity Regulations,* 1919-1935

Year	Total Number of Factories	Number of Factories under Electricity Regulations	Column (3) as a Percentage of Column (2)
(1)	(2)	(3)	(4)
1921	135,356	66,354	49.0
1922	137,858	72,820	52.8
1923	139,920	78,985	56.5
1924	142,494	82,659	58.0
1925	144,361	87,930	60.8
1926	145,411	91,319	62.8
1927	147,501	96,018	65.0
1928	149,532	100,964	67.6
1929	152,453	106,865	70.2
1930	154,102	111,893	72.6
1931	155,354	117,605	75.8
1932	157,891	122,288	77.5
1933	160,185	127,756	79.9
1934	162,922	132,295	81.2
1935	164,277	137,880	83.9

30. Growth of Generating Resources 1907-1930

(From Census of Production Statistics)

	Capacity of Electrical Generators							
	1907		1912†		1924		1930	
	kW. (millions)	Per cent	kW. (millions)	Per cent	kW. (millions)	Per cent	kW. (millions)	Per cent
Electricity Supply	1.002	61.4	1.454	53.8	4.018	64.2	7.434	74.6
Mines and Quarries	0.111	6.8	0.372	13.8	0.804	12.8	0.829	8.3
Iron and Steel: Engineering, Shipbuilding and Non-Ferrous Metals	0.246	15.1	0.340	12.6	0.641	10.2	0.675	6.8
Textiles	0.077	4.7	0.165	6.1	0.288	4.6	0.408	4.1
Food, Drink and Tobacco	0.026	1.6			0.080	1.3	0.115	1.1
Paper, Printing, etc.	0.026	1.6			0.098	1.6	0.249	2.5
Building and Building Materials	0.020	1.2	0.370	13.7	0.080	1.3	0.108	1.1
Public Utilities (other than Electricity Supply)	0.123	7.5			0.252	4.0	0.148	1.5
Total of above	1.631	100.0	2.701	100.0	6.261	100.0	9.966	100.0
Total (excluding Electricity Supply)	0.629	38.6	1.247	46.2	2.243	35.8	2.532	25.4

* Connected to public supply or generating their own current.

† The figures for 1912 are incomplete in respect of certain trades

31. Total Power Plant in Industrial Establishments (at 1924, 1930)

GROUP	Capacity of Prime Movers		Capacity of Motors Driven by Purchased Electricity		Total Power Capacity		Total Capacity of Electric Motors		Degree of Electrification	
	1924	1930	1924	1930	1924	1930	1924	1930	1924	1930
	Th. H.P.	Th. H.P.	Th. H.P.	Th. H.P.	Th. H.P.	Th. H.P.	Th. H.P.	Th. H.P.	%	%
Factory Trades:										
Chemicals	226.1	323.9	132.7	223.1	358.8	547.0	220.5	392.4	61.5	71.7
Iron and Steel	1,556.0	1,584.5	618.6	811.4	2,174.6	2,395.9	1,115.8	1,447.0	51.3	60.4
Engineering and Shipbuilding	275.5	219.3	849.5	1,131.7	1,125.0	1,351.0	1,069.4	1,358.0	94.8	100.5
Vehicles	60.3	55.0	165.4	260.7	225.7	315.7	210.5	310.8	93.2	98.7
Textiles	2,027.9	1,854.4	361.9	544.5	2,389.8	2,398.9	612.6	886.3	25.6	36.9
Food, Drink and Tobacco	249.3	247.8	255.1	371.5	504.4	619.3	341.0	502.8	67.6	81.2
Paper, Printing and Stationery	246.7	353.1	162.8	258.0	409.5	611.1	264.7	556.0	64.7	91.0
Other Factory Trades	680.6	612.9	509.0	858.4	1,189.6	1,471.3	744.2	1,193.1	62.6	81.2
Total—Factory Trades	5,322.4	5,250.9	3,055.0	4,459.3	8,377.4	9,710.2	4,578.7	6,646.4	54.7	68.5
Non-Factory Trades:										
Public Utility Services, Local Authorities, etc. (excluding Electric Supply Undertakings)	751.5	606.0	134.1	247.3	885.6	853.3	378.3	415.8	42.8	48.7
Mines and Quarries	2,866.6	2,689.6	462.5	545.0	3,329.1	3,234.6	1,507.0	1,796.5	45.2	55.5
Other Non-Factory Trades	76.4	70.5	77.4	99.5	153.8	170.0	82.2	102.4	53.6	60.3
Total—Non-Factory Trades	3,694.5	3,366.1	674.0	891.8	4,368.5	4,257.9	1,967.5	2,314.7	43.0	54.4
Total—All Trades (excluding Electric Supply Undertakings)	9,016.9	8,617.0	3,729.0	5,851.1	12,745.9	13,968.1	6,546.2	8,961.1	51.3	64.4

32. Railway Electrification in Great Britain

(Including Schemes now in course of execution)

April 1936

Railway	Total Route Mileage	Route Miles Electrified	%	Proposed under £35 million Scheme (a) R.M.	Proposed under £30 million Scheme (b) R.M.	% Electrified and to be Electrified of Total
Great Western	3,793	8	0.2	8	—	0.4
L.M.S.	6,940	113	1.6	—	10	1.8
L.N.E.	6,381	70	1.1	43	58	2.7
L.P.T.B.	124	124	100.0	5	—	—
Southern	2,185	450	20.6	—	252	32.0
Others	935	36	3.8	6	—	4.5
Total	20,358	801	3.9	62	320	5.8

(a) The £85 million plan announced in June 1935 covers mainly the London area where the Transport Board, the London & North Eastern Railway and the Great Western Railway have planned electrification improvements and extensions.

(b) The £30 million plan announced in November 1935 consisted mainly of the Southern Railway's scheme for conversion to electrical working of about a hundred miles of the old London & South Western sections of line; about sixty miles of the old London, Brighton & South Coast line and eighty-three miles on the old South Eastern & Chatham Line.

33. Consumption of Electricity by Electrified Railways in the United Kingdom

1932, 1933, 1934

Name of Railway	1932	1933	1934
Southern	297,876,001	350,334,005	366,062,072
Great Western	3,319,716	3,365,654	3,379,534
L.M.S.	114,263,404	125,354,758	131,988,186
L.N.E.	13,503,726	14,339,941	13,394,132
L.P.T.B.	342,474,729*	360,923,015	368,009,375
Other	38,321,240	36,685,451	37,076,912
Total	809,758,816	891,002,824	919,910,211

* Undertakings transferred later under the provisions of the London Passenger Transport Act 1933.

APPENDICES

i. Electric Lighting and Electricity Supply Acts in Force
ii. Typical Load Curves for Spring, Summer, Autumn and Winter Months
iii. Research and Development in Rural Electrification
iv. Principal Associations and Institutions in the Electrical Industry
v. The Joint Electricity Authorities and Joint Boards
vi. The Study of Distribution Cost

APPENDIX I

ELECTRIC LIGHTING AND ELECTRICITY SUPPLY ACTS IN FORCE

Electric Lighting Act 1882—45 and 46 Vict. Ch. 56.

Electric Lighting Act 1888—51 and 52 Vict. Ch. 12.

Electric Lighting (Clauses) Act 1899—62 and 63 Vict. Ch. 19.

Electric Lighting Act 1909—9 Edw. 7 Ch. 34.

Electricity (Supply) Act 1919—9 and 10 Geo. 5 Ch. 100.

Electricity (Supply) Act 1922—12 and 13 Geo. 5 Ch. 46.

Electricity (Supply) Act 1926—16 and 17 Geo. 5 Ch. 51.

Electricity (Supply) Act 1928—19 Geo. 5 Ch. 4.

Electricity (Supply) Act 1933—23 and 24 Geo. 5 Ch. 46.

Electricity (Supply) Act 1935—25 Geo. 5 Ch. 3.

Electricity Supply (Meters) Act 1936—26 Geo. 5 and 1 Edw. 8 Ch. 20

London Electric Lighting Areas Act 1904—4 Edw. 7 Ch. 13.

London Electric Supply Act 1908—8 Edw. 7 Ch. 167.

London (Westminster & Kensington) Electric Supply Companies Act, 1908—8 Edw. 7 Ch. 168.

London Electric Supply Act 1910—10 Edw. 7 & 1 Geo. 5 Ch. 140.

London Electricity (No. 1) Act 1925—15 & 16 Geo. 5 Ch. 62.

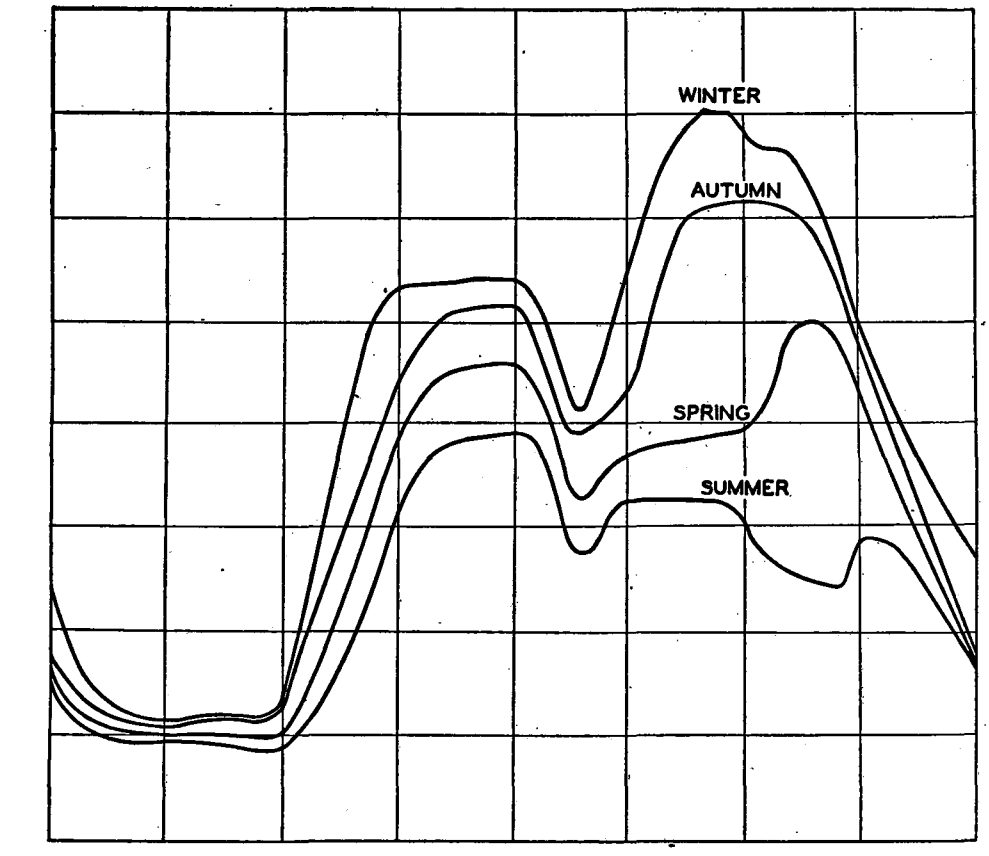
London Electricity (No. 2) Act 1925—15 & 16 Geo. 5 Ch. 63.

Electric Lighting (Scotland) Act 1890—53 & 54 Vict. Ch. 13.

Electric Lighting (Scotland) Act 1902—2 Edw. 7 Ch. 35.

APPENDIX II

TYPICAL LOAD CURVES FOR SPRING, SUMMER, AUTUMN AND WINTER MONTHS



MIDNIGHT 6 AM. 12 NOON 6 PM. MIDNIGHT

APPENDIX III

RESEARCH AND DEVELOPMENT IN RURAL ELECTRIFICATION

A.—Scheme for Setting Up Working and Experimental Electric Farms.
B.—Proposal for Agricultural Training of Staff Developing Rural Areas.

(A)—Introductory—Methods of Operation—Electro Farming Apparatus—Details for Establishing and Operating Experimental and Working Farms—Co-operation with Farmers—Subjects for Experimental Work—(B) Proposal for Agricultural Training of Staff Developing Rural Areas

(A)

Introductory

Informed agricultural opinion deplores the present conditions, in which, during a period of intense mechanisation of agriculture and general re-organisation, there is inadequate knowledge of the economics of farm operations and of the comparative cost of farm processes using different forms of power and equipment. Under such conditions the farmer may be exploited by the manufacturer of equipment whose claims cannot be readily verified or tested at some independent and competent establishment. At the same time, there is a shortage of trained agricultural economists and an almost total lack of trained agricultural engineers, familiar with the most up-to-date electrical practice as well as with modern mechanical practice.

Any plan for improving the conditions outlined will require first of all a study of the facts. It calls for continuous survey by agricultural economists of the most economic methods of farm planning and operation by regions, and, as an ancillary scheme it is recommended that the systematic study of the electrical operation of farm processes and of farm units should be undertaken. Such a study may be initiated in various ways. A first step might be for the electricity supply industry, either through the proposed Electrical Development Authority or otherwise, to collaborate with the Ministry of Agriculture in examining the field and the major problems to be investigated. The regional economists of the Ministry, attached to the principal universities with agricultural faculties, would be in a position to advise, from regional knowledge, what the chief farm economic problems are in their areas, and suggest the lines along which research into electrification of farm processes and application of electrical equipment and methods might best be applied. In this work they would need the collaboration of the agricultural engineer, and there is a very serious deficiency of agricultural engineers who have a thorough training in electrical technique. Pending the filling of this gap, those few electricity supply engineers who have made a special study of farming might be invited to assist and advise the economists.

The importance of the economist is that he would act as an impartial observer and recorder of the running of farms and of farm operations by different processes, mechanical

and electrical, and upon the relative economies of farms using electricity wholly or in part compared with those using mechanical methods. He should be in a position to suggest fresh lines of research and development after a period of observation and study of practice.

In this scheme would be needed at such centres as agricultural colleges, and agricultural faculties at universities, both the facilities of research laboratories and of farms for testing out electrical equipment on different processes. At these centres there should be agricultural engineers trained in electrical methods.

In the following pages, a tentative plan is outlined for guiding the development of the work of electro-farming into the most useful lines. Harm has been done in the past to the electricity supply industry by the over-enthusiastic and the over-commercial protagonists of its case. What we need now is fundamental research and development work.

Working farms should be electrified on a practical scale, and run as ordinary profit-making enterprises, cost and profit records being carefully maintained. The farms should be accessible to visitors studying rural electrification—farmers, professors and students from agricultural colleges, and supply engineers. The records of these farms and their operations would provide data for use by the supply industry. A second type would be used for experimental purposes such as trying out new electrical methods of operation, testing equipment, or using various types of apparatus and of wiring.

In each of these two types it would be desirable to have, eventually, farms in the different classifications of dairy, poultry, mixed, arable, fruit and market gardening, the farms being of varying size so that a representative variety of conditions of operation would be available. In these six classifications there would be sub-divisions in some classes, particularly the poultry, dairy and market gardening classes, which may call for two or more units, so that 12 to 24 working farms might be needed, and the same number of experimental farms where different types of equipment may be tried out.

Methods of Operation

This scheme for developing electrified farms of different types might be operated in several ways. It might be organised in a zone within the area of supply of one particular supply undertaking or it might be scattered over the areas of several undertakings. This scatter might be confined to a single region where close observation can be maintained from a central point, or the farms might be distributed all over the country in different regions.

Considering the position in Great Britain to-day it is suggested that the chief independent body which has carried out research and development in the rural electrification field, the pioneering Oxford University Institute for Research in Agricultural Engineering, should be invited to undertake the major work involved. One possible scheme falls into two parts: (1) The gradual equipping of a number of farms in a zone within, say, a 50-mile radius of Oxford, the Institute being given responsibility and annual financial grants for the purposes of developing these farms; and (2) the equipment of other farms either at, or under control of, the chief agricultural centres of education in the country.

It is anticipated that the inception and successful operation of this scheme would be followed by voluntary developments along similar lines by supply engineers with rural areas in many parts of the country. While it may not be possible to extend the scheme to all centres of farm training, co-operation with those important centres which run their own farms would be part of a major scheme of development. The University centres are at Reading, Oxford, Cambridge, London (Wye), Aberystwyth, Bangor, Edinburgh, Glasgow, Aberdeen, Bristol, Leeds and Newcastle-upon-Tyne; the Agricultural Colleges are Harper Adams, Newport (Shropshire); Midland, Sutton Bonington (Loughborough); Royal Agricultural College, Cirencester; Seale-Hayne, Newton Abbot; Edinburgh and East of Scotland; West of Scotland (Glasgow); North of Scotland (Aberdeen); and Studley (Warwickshire). In addition, the various Farm Institutes, Research Institutes, Fixed Dairy Schools and similar institutions such as the County Council Farm Institutes and Schools all over the country, need to be kept in touch.

Electro-Farming Apparatus

In co-operation with manufacturers of rural electrification equipment, efforts would be made to prevent new equipment or apparatus coming on to the market which is unsuitable, too expensive, or in need of testing on site, or of design modifications, before being offered to the agricultural community, and to improve existing patterns and systems. Measures of co-ordination and test should be explored to this end.

Some manufacturers still produce equipment without full regard to conditions of use, price-levels of competing apparatus, and the purchasing power of the farmer. It should be possible to test out equipment and gain practical criticisms and suggestions from farmers co-operating in the general scheme suggested. The output and sale of unsuitable, expensive or badly-designed apparatus in the electro-farming business damages prestige and loses goodwill at a stage in growth which cannot afford setbacks. There is no control over the variety of apparatus produced, and while, in the present state of the industry, the regulation of such production would be a very difficult matter and not necessarily desirable, attempts might be made to secure better apparatus through forms of test on selected farms as outlined, and through greater use of existing laboratory test facilities. At present, new apparatus may be tested by the Ministry of Agriculture through such bodies as the National Physical Laboratory and the Oxford University Institute, but the extent to which these facilities are used by manufacturers is variable. The industry needs to prevent loss of development, slowness of installation of new equipment, and ill-will among farmers, by protecting the user from inferior equipment.

With this broad outline of the scheme a more detailed consideration of the objectives, and methods of reaching them, may follow.

Details for Establishing and Operating Experimental and Working Farms

The plan aims at providing a number of farms, representing different types of farming, adequately fitted with electrical equipment, with the main objects of (*a*) studying the economics of operating fully- or partly-electrified farms of different types and class of product in various regions, (*b*) providing opportunity for detailed investigation of the cost of running various operations and processes by electrical methods to provide a basis of

proper comparison with other methods. Other objectives are (*c*) to afford facilities for observing different methods of farm operation and for suggesting and trying modifications in practice which may be better suited to electrical working; (*d*) to try out new or modified electrical apparatus and equipment which may be put forward by manufacturers; (*l*) to apply methods or apparatus suggested by the results of laboratory research; (*f*) to provide examples of the best electrical practice in farm operations for the purposes of general demonstration and of educating agriculturists, farmers and supply engineers and staff operating rural areas.

The individual supply undertaking, interested in farm load, is not in a position to carry out experimental research on any scale. Farms would have to be wired by it in routine manner, lacking the arrangement of circuits separately metered, and there would be no form of control by which modifications could be carried out for experimental purposes, which might change normal farm routine. Further, such modifications might cause temporary increases in energy consumption, and would always involve continual inspection and taking of readings.

The scheme becomes practicable when it is organised by a central body in co-operation with modern farmers who understand its purposes, and are ready to collaborate, given reasonable compensation and safeguards.

Initial Outlay.—Wiring, part-wiring, equipping and part-equipping of the farms. (Firms might co-operate, but it is probably preferable, if funds permit, to buy in a free market.)

Meters—recording ammeters, indicating ammeters, voltmeters and watt-meters, earth-testing meter.

Running Cost.—Travelling (£200 per annum should be allowed for this), hire of watt-hour meters, goodwill and retaining fees to farmers, compensation for extra cost of current on experimental work, cost of modifications in wiring of or wiring-in new apparatus.

Expenses will vary, according to the extent of activities undertaken, and upon the number of farms set up as part of the scheme. Farms chosen may be already partially equipped and wired, so that the actual amount of money needed will depend greatly upon the process of selection. A capital sum of £1,000 and an annual expenditure of £500 can be visualised, at a rough estimate, as the initial cost. These figures could be higher or lower according to the scale of operation involved, and the rate of development of the scheme.

For research work the farms of the agricultural colleges possess two advantages over the individually-owned farms: (1) the farms would be under direct control of agricultural experts, familiar with scientific processes; (2) the agricultural students taking courses would become familiar with modern electrical practice. At the same time, ordinary working farms, outside academic control, are necessary as centres where the average visiting farmer can meet another farmer, who is running his farm on a working profit basis, dissociated from any institution.

In this scheme, with an adequate grant for equipment, and the co-operation of manufacturers, it will be possible to bring the equipment of selected farms up to a reasonably complete state. With adequate funds and the effective co-operation of supply

undertakings, the metering difficulty would be removed. Further, official arrangements with the farms would provide for sufficient flexibility to permit an adequate amount of experimental investigation to be carried out.

Co-operation with Farmers

A first practical consideration would be to secure the right type of farmer to co-operate, and the advice of regional universities and economists would be sought to obtain those modern farmers who farm successfully in the various regions and can use electricity intelligently. It would be preferable for a farmer to be already electrically equipped. If the farm were not equipped or supplied, some arrangement should be made to supply and equip it. If the cost of this is met partly by the funds supplied, the value might be taken by the farmer as full compensation for the facilities afforded. If the farm were supplied and partly equipped, an arrangement could be made to supply additional equipment, the value of which would be accepted as full or part compensation for the facilities afforded. If the farmer were supplied and reasonably well equipped already, an annual retaining fee might be paid to the farmer as compensation.

It is imperative that the farms should be definitely "working" farms, and that the electrical equipment should be complete without any degree of over-equipping for "show" purposes, which would be uneconomic. The electrical circuits should be wired or re-wired to have a watt-hour meter inserted in every circuit. The lighting system, heating systems and every motor or appliance would be separately metered. On farms where a portable motor is to be used, every outlet should be metered. In addition, every power point should be provided with a series-plug outlet to allow a portable recording ammeter to be inserted when required.

On the farms owned by individual farmers, routine readings of the consumption recorded on every meter would be made by a visiting observer. This should be done at intervals of not less than one week; with longer intervals there would be a tendency for discrepancies in readings to become unaccountable by the farm hands responsible. At regular periods each farm would be subjected to a more detailed observation for, say, a week at a time, during which time recording meters would be used and work done would be more accurately recorded by measurement where practicable. On the farms operated by university colleges of agriculture the resident engineering staff would probably carry out the work of the visiting observer.

Dealing with individual farmers the observer would familiarise himself with the methods used on each farm, with the attitude of the farmer and the hands, and with the machines and appliances used. He would encourage the farmer to make comments and suggestions for modifications of practice where this appeared necessary. The aim of the observer would be to have each farm running as smoothly and effectively as possible, making the utmost use of the conveniences afforded by electrical operation. At the same time he should see that methods wasteful of electricity are modified. It should be made quite clear that the scheme is not an experimental and publicity ground for manufacturers, but if a new machine with distinct claims to consideration is put forward, it might be introduced into one of the farms and its performance observed and reported upon. There should be provision for trying methods put forward by any research worker,

which are suggested by his laboratory research. In these instances the method would be tried on one of the farms under the control of the investigating body, and with the collaboration of the particular research worker or body concerned.

Subjects for Experimental Work

Apart from the routine determination of running costs there should be, from time to time, fairly large-scale experimental investigation work, the successful outcome of which would be increased development. Some of the subjects that can be considered for active work are:

Dairy

Determination of the costs of using electrical sterilisers and means of effecting savings; determination of the comparative value of separate storage water-heaters and combined sterilisers and water-heaters; determination of the value of electrical boilers.

Soil Heating

Demonstration of large-scale methods and determination of modifications for large-scale practice.

Poultry

Reducing the cost of rearing by batch control with thermostat-determination under control of the best type of electrical heating for rearing.

Market-Gardening

Determination of the possibilities of using small electrically-driven cultivating sets and the laying out of a model establishment suitable for using these. Effect of Neon and similar lighting upon plant growth.

Finance and Cost

The foregoing pages outline a scheme which requires finance to put into effect. We suggest that these development and experimental research proposals are long-term development activities which could be financed jointly from the funds of the proposed Electrical Development Authority and of the various marketing boards which are interested in advancing research in their different branches of farming.

(B)

Proposal for Agricultural Training of Staff Developing Rural Areas

We have referred to the desirability in the building up of the future agricultural load, of close contact with the chief centres of agricultural education. It is desirable that their working farms should have adequate electrical equipment and resources, so that the farmers and agriculturists of the future will understand electrically-operated methods, and be in a position to compare them with mechanical systems.

Educational work seems to be needed as much among the supply undertakings as among agriculturists. When the problem of cultivating the farming community as a market is considered, a wide difference in outlook between the engineer and the farmer

becomes apparent. Since success in building this load depends very much upon personal contacts and upon understanding the farmer's way of life and the technique of agricultural processes, it is evident that there is a need for special training to bridge the gap.

In the U.S.A. some attention has been given to this matter by progressive supply undertakers. For example, the Virginia Electric and Power Company was awarded the Martin Award of the Edison Electric Institute for the best rural electrification development in 1933. The award is offered, through the Edison Electric Institute, to the electric utility company recording the greatest accomplishment during the year "in the advancement of rural electrification as an aid to agriculture within the company's territory due to (1) the uses of electricity; (2) the co-operation with other agencies; (3) to extension of rural lines; and (4) to organisation and plan for conducting rural electric development.',

The Virginia Company considered that the winning of this award was largely due to the fact that practical farmers are working on their staff. The company has a staff of five agricultural engineers who are also farmers and have studied scientific methods in agriculture at the Virginia Polytechnic Institute. These men give personal service to the farmer, and their functions are: (*a*) to assist him in solving his problems, whether he is a consumer or not; (*b*) to assist in promoting the welfare of the rural communities; (*c*) to give the farmer information about the service and policies of the Company; and (*d*) to advance agricultural interests generally.

These agricultural engineers are stationed at the various divisional headquarters of the Virginia Electric and Power Company's area, each being responsible for a certain zone, and are employed in advising farmers on all types of rural problems, electric or non-electric.

This illustrates the point of education we are considering. There is, however, no system of educating supply undertaking staff in farming matters. Through contact with the agricultural bodies mentioned in this appendix, arrangements could be made for short courses in agricultural training for the rural development staff of supply undertakings. One might consider the making of grants by the Electricity Development Authority for this purpose, if compensation for loss of time of staff were considered necessary, but undertakers with vision should not need such inducements to progress.

Canvassers and mains engineers should possess some degree of agricultural knowledge to deal successfully with farmers and understand their methods of working and ways of living. Goodwill between the electricity supply industry as supplier and the agricultural community as consumer, depends to a large extent upon intelligent appreciation of each other's difficulties; and the first step must lie with the supplier.

APPENDIX IV

PRINCIPAL ASSOCIATIONS AND INSTITUTIONS IN THE ELECTRICAL INDUSTRY

Association of Supervising Electrical Engineers (A.S.E.E.)

Formed in 1914, registered as a trade society in 1918. Objects: To provide an organisation for qualified supervisory employees engaged on electrical work; to improve the status and safeguard the interests of the profession.

British Electrical and Allied Industries Research Association (E.R.A.)

Registered on September 27, 1920, this Association has as its object research into all technical matters relating to the generation and distribution of electricity and to electrical apparatus. Its members include representatives of Government departments, manufacturing firms, electricity supply undertakings and large users of electricity. Its expenditure, which amounts to some £50,000 each year, is met partly by the Government and partly by subscription.

British Electrical Development Association (E.D.A.)

Formed in 1919 by the Institution of Electrical Engineers and incorporated as a Company 1920. Its objects are: "To promote, encourage, foster, develop and protect electrical industry and enterprise in the British Empire, and to further and develop the use of, and the demand for, electrical energy for industrial, commercial, public, domestic, agricultural and other purposes as an end in itself and as a means of increasing the demand for electrical apparatus and supplies of British manufacture." Until July 1933 the Association was managed by a Council representative of all branches of the Electrical Industry. Since then membership has been restricted to authorised electricity undertakers. A Council of sixteen now manages the Association, six of whom are appointed by the C.E.B. and five by the I.M.E.A. (q.v.). Co-operation committees have been set up to ensure co-operation between the various sections of the industry in extending the use of electricity and special committees to deal with separate aspects of the application of Electricity.

British Standards Institution (B.S.I.)

Originally formed under the title of the Engineering Standards Committee in 1901, it assumed the above name in 1933. Its objects are to co-ordinate the efforts of producers and users for the improvement and standardisation of engineering and industrial materials. A General Council presides over the divisional councils and the numerous sub-committees. The Electrical Industry Committee also constitutes the British National Committee of the International Electro-technical Commission.

Electrical Association for Women (E.A.W.)

Incorporated November 1924 by the Women's Engineering Society. Its objects are: To promote the wider use of electricity in the service of women; to collect and distribute reliable information on modern electrical appliances; to bring home to women a better understanding of the service of electricity in private and public life by means of lectures and demonstrations; to encourage the study of Electrical Housecrafts in Universities, etc.; to hold tests and examinations and to grant Certificates and Diplomas in Electrical Housecraft and to publish and distribute literature relating to domestic applications of electricity. All women are eligible for membership.

Electrical Power Engineers' Association (E.P.E.A.)

First formed 1913 and reorganised 1918, it is a protective association for technically trained staff engineers in the electricity supply industry. The Association, which is divided into seven divisions, each with a number of sections, is controlled by a National Executive Council.

Electrical Trades Union (E.T.U.)

Founded in 1889 and has grown with the industrial growth of the uses of electricity. It has a membership of over 34,000 workers, mainly skilled men and known in the trade as key men.

Incorporated Association of Electric Power Companies (I.A.E.P.C.)

Registered in May 1905. Objects: To encourage, expedite and facilitate the development of the industry of supplying electrical energy for power, light and other purposes; to protect the interests and further the objects of companies possessing electric power Acts, etc. Management is vested in a Council.

Incorporated Municipal Electrical Association (I.M.E.A.)

Founded 1895 and incorporated 1901. The association was formed to promote the interests of municipal electrical undertakings. Management is vested in a Council.

Institution of Electrical Engineers (I.E.E.)

Formed in 1871, incorporated by Royal Charter in 1921, to promote the general advancement of electrical and engineering science and its application and to facilitate the exchange of information and ideas on subjects connected with that science.

It has a membership of nearly 17,000 consisting of engineers engaged in all branches of the electrical industry in this country and many from abroad. The Institution is the centre of activity in electrical engineering progress.

London Electricity Supply Association (L.E.S.A.)

Formed in 1905, its membership was restricted to the chief officials of London Electricity Supply Companies. Its objects are to co-operate in the bringing or defending of any action at law which may effect the general interests of the Companies as a whole; to collect and distribute among the Companies general information on matters of conse-

quence to them arising out of the various Parliamentary Acts and Regulations; to consider draft Provisional Orders on Bills submitted to the Electricity Commission or to Parliament, so as to eliminate any proposals adversely affecting the interests of the Companies or the industry. In addition, the Association deals with general questions relating to taxes, rates, publicity and the relationship between the Companies and their employees.

Provincial Electric Supply Association (P.E.S.A.)

The Association, representing 150 Companies, was formed to provide a central and representative body to afford a ready means of co-operation in protecting and furthering the financial, commercial and legislative interests of provincial Electric Supply Companies.

APPENDIX V

THE JOINT ELECTRICITY AUTHORITIES AND JOINT BOARDS

The Joint Electricity Authorities—Joint Electricity Boards—The London and Home Counties Joint Electricity Authority—The West Midlands Joint Electricity Authority—The North-West Midlands Joint Electricity Authority—General Considerations—Organisation Research Needed

In discussing the various undertakings carrying out the work of electricity supply, some reference was made to the Joint Electricity Authorities and Joint Boards.

At the present time there are three Joint Electricity Authorities and five Joint Electricity Boards, viz.:

Joint Electricity Authorities*

1. London and Home Counties J.E.A.
2. West Midlands J.E.A.
3. North-West Midlands J.E.A.

Joint Electricity Boards

4. Alderley Edge and Wilmslow E.B.
5. Dearne District E.B.
6. Stalybridge, Hyde, Moseley and Dukinfield Tramways and Electricity Board.
7. Stretford and District E.B.
8. Ayrshire E.B.

The Joint Boards of local authorities or electricity boards were constituted under special orders to represent the various councils involved and to supply electricity as distributors in their combined areas. The Boards take over or "are deemed to have taken over" the undertakings which existed in the area covered by their special order.

The London and Home Counties Joint Electricity Authority

The London and Home Counties Electricity District and the J.E.A. were constituted by special order under the 1919 Act in 1925. The Authority was given wide powers relating to the construction and acquisition of generating stations and distribution systems. It may take over by agreement from other authorities or companies the generating stations, main transmission lines, and distributing undertakings owned by them.

The constituent bodies and others having powers to appoint or elect members of the Authority include the County Councils of London and Middlesex, Local Authority Undertakers inside the County of London, and a number outside the county, and Company Undertakers within the district, workers in the industry and the Railway Companies' Association.

* The J.E.A. for the North Wales and South Cheshire District has no powers to supply but possesses advisory duties with regard to the organisation for the supply of electricity in its district.

Under the London Electricity Act of 1925 the undertakings of the London Electricity Companies are transferable to the Authority in 1971.

There are 45 local authority undertakers and 36 company undertakers (including 5 power companies) authorised to supply electricity within the area extending over 1820 square miles and serving a population of 423,000 people. The Authority supplies energy in bulk to 13 authorised undertakers and operates 18 generating stations by arrangement with the authorised undertaking concerned to supply the electricity required by them for distribution in addition to bulk supplies from the Central Electricity Board. The Authority also gives general supplies as a distributor over an area of 190 square miles to 20 urban districts and boroughs, or parts thereof, and in addition to 3 rural districts. It owns 6 distribution undertakings in the districts of Dorking, Leatherhead, Surbiton, Sutton, Twickenham and Weybridge.

For the year ending March 31, 1936, the Authority supplied 112 million units through its 6 distribution undertakings to 103,000 consumers.

The West Midlands Joint Electricity Authority

This Authority was established in 1925 and has 24 representatives from constituent bodies, which are Authorised Undertakers, colliery owners, workers in the industry and railway companies. The Authority's area is about 1,000 square miles in extent, covering large parts of Staffordshire, Shropshire and Worcestershire. The Authority has powers to construct generating stations and main transmission lines and to acquire by agreement electricity undertakings in the district. The Authority supplies electricity direct to ordinary consumers in an area which is mainly rural and covers 108 square miles in the north-east of Shropshire, and sold 9.9 million units to 5,344 consumers in the year ending March 31, 1936. Over the same period the Authority supplied 363 million units in bulk supplies to four undertakers—Wolverhampton, Walsall and West Bromwich Corporations, and the Midland Electric Corporation.

The North-West Midlands Joint Electricity Authority

This Authority was constituted in 1928, and supplies energy in bulk to Authorised Undertakers in the district, which covers a number of boroughs as well as urban districts and rural districts in Staffordshire, Shropshire and Cheshire. The Authority has taken over the generating stations of the Stoke and Stafford Corporations and has constructed main transmission lines between these stations and the stations of other authorised undertakers which were already in existence within their area for the purpose of giving the latter supplies in bulk. The Authority is itself actually engaged in carrying out a distribution scheme in the remaining part of its area, 629 square miles in all, which was not covered by any authorised distributor.

This Authority sold 120.5 million units in the year ending March 31, 1936, to eight undertakers. It has constructed 316 route miles of transmission and distribution lines and 202 transforming and switching stations.

The total units generated at the power stations of Stoke and Stafford reached 126.2 million.

General Considerations

The Joint Boards are composed entirely of local authority members, and are to this extent homogeneous in character, and are primarily distribution undertakings.

The Joint Electricity Authorities, however, have co-ordinating powers of regulation and control over private and local authority undertakings within their areas as well as the operation of the generating stations: the latter function is now, however, under the direction of the Central Electricity Board. It should not at this stage be assumed that the J.E.A. is necessarily the best type of unit to operate a combined undertaking under these conditions. There are apparently certain disadvantages in this type of body as it exists to-day, and it may need modifying in respect of its constitution, its organisation and its functions.

Organisation Research Needed

Research is needed into the problem of the most efficient form of organisation to control and operate a territory, representing the mixed interests of local authority and private company bodies. This includes the study of existing public service hybrids in the light of accepted principles of organisation and management. Since the success of any future organisation policy will depend finally not only upon the financial basis of the reorganisation of supply undertakings but also and still more upon the efficiency of management, such a study should investigate methods of representation, forms of authority, administration and organisation structures, and operating principles.

If the future of the industry requires the amalgamation and co-ordination of separate interests, such an investigation should precede the actual formation of any new type of undertaking.

APPENDIX VI

THE STUDY OF DISTRIBUTION COST

We have referred in the foregoing Report to the problems of costs, and have stated that there is not enough information available on Distribution Costs. This is one of the principal problems which the supply industry needs to solve to-day.

The relevant questions are:

(1) What are the actual costs of providing a given service to a particular class of consumer? How do they vary in different districts served by the undertaking? And can normal or standard figures be established to help in estimating ahead, in setting tariff rates for different classes of customer, and in relating costs to revenues?

(2) Similarly, what is the cost to the undertaking of developing a certain type of load, and what are the local variables involved? The study of actual costs of developing and building new forms of load such as refrigeration and heating, applied in different fields of use, is important, and does not appear to have been extensively undertaken. It is a difficult task, introducing complex problems of costing and cost analysis, but will need greater consideration as competition intensifies.

(3) How can we compare the actual costs of carrying out particular types or classes of operation, of developing certain types of load, or of providing a given service, as between one undertaking and another? For this a uniform system of accounting is necessary, so that we may know that a certain classification in one zone means the same thing in another zone, despite possible differences in character and form of control. Is it not time to attempt, within the limits of what is practicable, the setting up of a uniform system or framework of cost accounting throughout the supply industry?

(4) To what extent is it practicable to establish normal or standard costs for the principal operations and processes, with which actual performance can be compared? Certain types of operation are easily made the subject of routine costing and are less variable from district to district than others, but this subject should be explored.

(5) What level of cost in service and equipment must be reached in order to bring supply within the reach of the poorest class of consumer on an economic basis? Is this class being supplied economically in all urban centres to-day, where slum clearance electrification schemes are in operation, and is the experience in serving this consumer-group now sufficient to give us basic data for a cost-of-service study for the industry?

If we could answer all these questions confidently, the supply industry would be in a more favourable position to develop load and meet competition than it actually is. Cost research can help the industry in many ways; before we can attempt to reduce costs we must know more about them; in load building, particularly, the industry is much in the dark about the true profitability of certain types of load, and proceeds much on the "swings and roundabouts" principle, aided in some instances by special studies, but seldom, if at all, by routine detailed analysis which, in terms of unit costs over a long period, enables standards to be set up, deviations from normal to be noted and studied, and the relative profitability of different loads, services, classes of customer and zones to be accurately determined.

The problem of increased consumption per consumer to enhance the return per £ of distribution capital employed, is not only one of increased selling effort, but of increased cost control. Policy in load-building presupposes an adequate knowledge of costs and returns, and at present such knowledge is inadequate. In certain advanced undertakings extensive cost accounting and statistical studies are practised, but such undertakings are few and their results are not available to the supply industry as a whole.

While costs are not the sole factor in determining tariffs, they set the limits within which the right price must be found by experience and judgment. It is therefore desirable to know the actual costs of giving any specific service, in order to know to what extent modifications of the standard cost-basis of price are permissible.

There are, then, three main problems to consider: (i) A uniform system or framework of cost classification throughout the industry; (ii) The development of normal or standard costs; (iii) Standard methods of dealing with joint costs in order to obtain comparable costs as between one undertaking and another.

With regard to (i), it appears that some undertakings do not separate generation and distribution costs, and that, even when this is done, all transmission is usually regarded as forming part of distribution as a cost. It follows that the economic burden involved in providing a particular type of supply cannot be accurately known, so that the tariff for such a service will probably contain too high a margin of safety, or alternatively may be below the added cost involved. There is no guarantee that each specific service is making its appropriate contribution to the aggregate costs.

Further, the inclusion of all transmission costs in distribution makes comparisons between large undertakings having extensive transmission systems and small companies which have no transmission lines impossible.

To meet this difficulty an interesting main sub-division of costs has been suggested by the authors of a recent Report on "Cost of Distribution by Electricity," published by the Federal Power Commission of U.S.A. (Power Series No. 3). The classification used includes (1) Generation, (2) Transmission, (3) Sub-transmission, (4) Distribution. The new term Sub-transmission corresponds to secondary transmission, and is applied to overhead lines of voltage ranging from 11,000 to 66,000 in the U.S.A., although the upper limit for such lines is more often 33,000 volts.

The term Distribution Cost in the Federal Power Commission's study then becomes a defined portion of total costs; it relates to those "costs involved from the point of

delivery of energy to the primary lines at the distribution substation to the point of delivery to the customer, and includes annual fixed charges on capital; operation and maintenance charges; commercial, new business, and collection expenses; a share of general administration expense and taxes, other than federal income and excise, chargeable to the distribution system service. Cost of energy received from the substation and cost of distribution system energy losses are not included."

It is evident that the problem of defining terms and making definite classifications must be studied in order to set up a uniform system of cost accounting in the supply industry.

The second major problem is that of normal or standard costs. In order to establish such unit costs we need first to define cost accounting classifications and then to collate the experience and results of a large number of undertakings, noting differences in regional costs for identical classifications, and seeking the causes of unusual or characteristic variations from a range of normal performance.

In some instances the methods of arriving at a certain process or operation cost will be direct, and, in other instances, the problem of the allocation of indirect or joint costs will arise. Since joint costs are apportioned by judgment rather than according to any accepted rules, collaboration and study is needed on this problem to determine uniform principles and methods which may find general acceptance among supply undertakers.

When a public utility has reached a fairly stable condition of development and becomes subject to regulation through national agencies, and its public interest increases, uniform cost accounting methods and facilities for cost comparison become more necessary.

The electricity supply industry has reached such a condition: regulation by the Electricity Commissioners exists on the one hand, and generation is controlled by the Central Electricity Board on the other; closer regulation of dividends and prices is contemplated than has previously been undertaken; tariff and service charges have become a public interest, and the general rate structures of undertakings are being critically examined by consumers.

This is an urgent problem for the supply industry to examine, with guidance from the Electricity Commissioners.

SOURCES

In the preparation of this Report the following official publications have been consulted and acknowledgment is made to them for information which has been used :—

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Electricity Commissions Annual Reports, Returns of Engineering and Financial Statistics

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REPORT ON THE BRITISH COAL INDUSTRY

2

P E P (Political and Economic Planning) is an independent non-party group, consisting of more than a hundred working members who are by vocation industrialists, distributors, officers of central and local government, university teachers, and so forth, and who give part of their spare time to the use of their special training in fact-finding and in suggesting principles and possible advances over a wide range of social and economic activities. By means of the fortnightly broadsheet, PLANNING, P E P keeps in continuous touch with a large number of men and women interested in social and economic reconstruction. The group has issued some seventy broadsheets on a considerable variety of subjects and has also published full-scale reports on the cotton and iron and steel industries, housing and building, retirement pensions and continued education from the age of 14. Details of these are given inside the back cover.

The present Report on the coal industry may be read either as a self-contained contribution to one of the most stubborn of British industrial problems, or as an integral part of a new industrial and employment policy now being worked out by P E P . This policy is outlined from time to time in PLANNING and is more fully developed in the full-scale reports already mentioned.

No particular originality is claimed for this Report, but it seeks to put down so far as possible in an orderly and coherent manner the main facts about the industry and the consensus of informed opinion about the next stages in its development. Acknowledgment is due to the many authorities in the industry who have generously given time and taken trouble in preparing and criticising this statement. According to the usual practice of the group no attempt has been made to apportion or to claim personal credit to anyone for what is in fact part of the common stock of material and ideas which should be available to all interested in coal.

P E P welcomes constructive criticism, inquiries and suggestions, which should be addressed to:

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P E P (POLITICAL AND ECONOMIC PLANNING)

INDUSTRIES GROUP

REPORT

ON

THE BRITISH COAL INDUSTRY

A survey of the current problems of the
British Coal-Mining Industry and of the distribution of coal,
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SUMMARY AND CONCLUSIONS

PRODUCTION

The industry consists of over 2,000 separate working units, and over 1,000 separate colliery owners. It produced in 1934, 220 million tons of coal compared with 258 million tons in 1929 and 287 millions in 1913.

Natural conditions vary widely between districts, and geographical situation and the predominance of different types of coal give each coalfield a very different economic character. South Wales, East Scotland, Durham, and, to some extent, South Yorkshire, are the most important export coalfields. South Wales is vitally interested in the steam coal and anthracite trades, and Durham in gas- and coking-coals. Lancashire and Durham are particularly dependent on the iron and steel industry. The Midland district is chiefly concerned in supplying household and industrial coal to London and the South. Northumberland chiefly produces house and steam coals and has developed an important coastwise trade.

As regards natural conditions, seams in Scotland and on the North-East coast are thin and difficult to win but are particularly suitable for machine-cutting. In South Wales, where the coal is easily won and the mines are gassy, there has been little mechanisation, and the same tends to be true in thick-seam districts such as Warwickshire and South Staffordshire.

Costs and Proceeds

These differences in mining conditions and in the nature of the coal produced make for wide differences as between districts in the level of costs and proceeds. For the industry as a whole, the credit balance per ton in 1934 before allowing for such items as interest, bank charges, amortisation and taxation (which together amount to at least 3d. per ton) was 5d., the highest figure since 1926; losses were made in 1927 and 1928. The credit balance was highest in 1934 in Yorkshire (10¾d.), Nottinghamshire and North Derbyshire (1s. 0¼d.), and South Derbyshire, Leicestershire, Cannock Chase and Warwickshire (1s. 3¾d.); while losses were shown in Northumberland (1d.), Durham (3d.), and South Wales (1¼d.), these being largely export coalfields. As a guide to the prosperity of the industry these figures, being averages, should be accepted with reserve. Collieries with moderate capitalisation and indebtedness, with efficient equipment and working under favourable conditions underground and in relation to markets, make fair profits even to-day.

The industry as a whole has achieved a reduction of 3.4 per cent or 7d. per ton in costs since 1929. This is a remarkable achievement in a period when output has fallen by 14 per cent, though if the quota has prevented concentration of output in the most efficient mines, there has, at least, been a tendency to concentrate production on the best working faces. On a rising demand, a further fairly rapid improvement in cost efficiency might be expected, though some of the collieries which to-day show the lowest costs have been able to do so largely through buying quota and working up to capacity, and in such cases there may be

room for further technical improvement. An important factor in costs is the layout of the mine, and if this has originally been bad (usually through greediness and incapacity to endure an unproductive development period of three or four years at the outset), substantial economies in cost will never be achieved.

The reduction in costs has been achieved almost entirely by a reduction in labour costs due to mechanisation, and to the consequent improvement in output per man-shift. This has proceeded furthest in Northumberland, Fife, South Derbyshire, North Staffordshire and Lanarkshire, where 84 per cent, 83 per cent, 82 per cent, 81 per cent and 79 per cent respectively of the output was cut by machine in 1934. The average for the whole country in that year was 47 per cent compared with 28 per cent in 1929, 13 per cent in 1920 and 8 per cent in 1913. Districts showing a percentage below the average in 1934 were Bristol, Kent and Forest of Dean 9 per cent, Somerset 10 per cent, South Staffordshire and Worcestershire 11 per cent, South Wales 15 per cent, Shropshire 21 per cent, South Yorkshire 36 per cent, Durham 37 per cent, West Yorkshire 43 per cent, Lancashire and Cheshire 46 per cent.

Mechanisation.

Further economies in production costs depend very largely on pushing forward with mechanisation. The advantages of the use of machine-cutters in thin-seam pits such as prevail in Scotland and Northumberland have long been appreciated, and the possible limits of mechanisation in such districts are being nearly reached. It is only of recent years, however, that mechanisation has been at all widely introduced in districts where the seams are thicker and easily worked by hand. Mechanisation in Great Britain has taken place mainly by the introduction of machine-cutters, in contrast to practice on the Continent where the use of pneumatic picks is practically standard. Mechanisation on this latter system requires to be very seriously considered in this country as the most efficient method in thick seams and in South Wales. The number of picks and drills used trebled between 1929 and 1934, but it is still small in relation to the total output of coal.

Lately, even greater progress has been made in the introduction of mechanical conveyors than in the case of machine-cutters. 37 per cent of the output was mechanically conveyed in 1934 against 12 per cent in 1928, the first year for which figures are available.

While reduction in costs at the productive end of the industry seems to depend almost entirely on the extent to which the process of mechanisation can be pushed forward, it must be recognised that this process involves the displacement of labour on a considerable scale, and for this reason a development which may seem eminently desirable on purely economic grounds, may have to be modified to some extent by social considerations. It is very important that the social effect of mechanisation should, as far as possible, be estimated and provided for in advance.

Cost reduction by mechanisation does not, of course, include the reduction in the average costs of the industry which could be anticipated from amalgamation and the concentration of production in the most efficient mines. These are questions of structural, rather than technical, developments. Overhead costs are, however, invariably increased by mechanisation.

Size of Companies

There are, at the present time, not more than approximately twenty colliery companies producing at a rate of more than 2 million tons per annum; while only about half a dozen produce more than 3 million tons, and one more than 10 million tons. Approximately one-third of the total output in 1934 was produced by not more than 25 companies out of a

total of more than 1,000 companies working more than 2,000 mines. There is in nearly every district a fair concentration of output, but this only serves to emphasise the extremely small average size of units outside the leading concerns. Concentration has proceeded furthest in South Wales, where Powell Duffryn Associated Collieries, together with the Ocean Coal and Tredegar groups, Ebbw Vale and Cory Bros., account for about two-thirds of an output of 29 million tons of bituminous coal; while Amalgamated Anthracite accounts for two-thirds of the anthracite production. In Northumberland about half the total output is in the hands of three groups; in Durham four groups, including two iron and steel companies, produce 40 per cent of the district output; in Lancashire two concerns control up to 50 per cent of the district output. In the Midland district concentration is less marked, mainly owing to the very much larger average size of undertakings. There is a considerable number of pits in South Yorkshire, Nottinghamshire and North Derbyshire, with outputs in the neighbourhood of one million tons. The four collieries forming the Yorkshire Amalgamated Group produce between 3 and 3½ million tons per annum; while the next largest producer, the Bolsover Colliery Company, is not far behind. In West Yorkshire, however, the average size of collieries is much smaller. There are some big companies in Scotland, of which the Fife Coal Co. and Baird and Dalmellington Ltd. are the most important, though the average size of Scottish undertakings tends to be small, especially in the Lanarkshire district. In the other English districts there are no very outstanding producers, but there is a number of important companies in North Staffordshire.

Although the concentration of output in many districts has not, therefore, proceeded very far (though further than is sometimes supposed), there are in the coal-mining industry a great many connections between colliery companies, often in different districts, through directorial and financial interests. These interlocking interests do not necessarily indicate any unification of policy, but have grown up historically as a result of family and personal ownership or investment, rather than in an attempt to secure economies through the association of neighbouring or competing concerns.

STRUCTURE

The industry has been controlled for some years by the provisions of the Coal Mines Act of 1930, as amended in 1934. This followed the Mining Industry Act of 1926, itself a sequel to the report of the Samuel Commission in 1926 and to the prolonged stoppage of 1926. The purpose of the 1930 Act was dual. It was intended primarily as a temporary expedient, to spread and maintain employment, and with this object mainly in view, the output of every coalowner was subjected to regulation by quota under Part I of the Act. In order to render the scheme more elastic and probably with the idea of facilitating amalgamations, it was provided that these quota were to be transferable between owners within each district, and many collieries are, in fact, able to produce near to capacity because they are able to purchase the quota of less efficient mines. It is believed, however, that the net result of this provision has been to discourage permanent amalgamations and the closing down of redundant pits, since the marginal producers have virtually been presented by Act of Parliament with a new and easily realisable asset. There is, accordingly, a strong case for revision of the quota system, either by making quota unsaleable except by acquisition of all the assets of the collieries to which they are attached, or by introducing a sliding scale whereby quota allotted to non-producing pits are gradually reduced and finally eliminated and made available to working

mines. In this way Part I of the Act could be transformed from its original defensive purpose of spreading employment, which it has done satisfactorily enough—and perhaps to the detriment of the economic progress of the industry—to the more constructive purpose of assisting instead of retarding the reorganisation of the industry. The 1934 amendment to the Act gave it a more constructive twist by the separation of inland and export quota in order to insure adequate supplies to the export trade, but it is well to regard the Act in its true light as a temporary and experimental piece of legislation, drawn up to meet a particular situation, and to acknowledge that constant amendment may be necessary in the face of altered circumstances—that it should, in fact, be a changing means to a changing end.

Minimum Prices

Part I of the Act also attempted to provide for the maintenance of certain minimum prices. In this object it was partially successful for the first two years, but there were certain structural defects and as the loopholes were discovered, this portion of the Act became more and more of a dead letter. The maintenance of minimum prices is certainly highly desirable but is likely to be achieved more readily by the introduction of central selling agencies, such as the industry has promised to set up by July 1, 1936, than by adjustments of the minimum price regulations. It is important that the central selling agencies should, at an early stage, seek agreement among themselves on the question of inter-district competition, which was partially responsible for the breakdown of the minimum price system, and, above all, that they should not use their newly-found strength in perpetuating this competition.

Amalgamation

Part II of the 1930 Act dealt with amalgamation. While the 1926 Act had been content to remove some of the legal and financial impediments to voluntary amalgamation—and led to some fusions—Part II of the 1930 Act set up the Coal Mines Reorganisation Commission for the express purpose of preparing schemes of amalgamation for those districts which would not do so voluntarily. Such schemes could be legally enforced on unwilling participants if they satisfied the Railway and Canal Commission on certain counts. One of these—namely that a scheme must not be financially injurious to any of the undertakings involved—which was introduced as an amendment by the House of Lords during the Bill's passage through Parliament, has made the Reorganisation Commission's task practically impossible. Such a provision cuts right across the utilitarian conception of the greatest good of the greatest number on which practically the whole of British economic and social legislation, and, in fact, most of the Act, is based.

The Reorganisation Commission has not yet tried out its powers of compulsory amalgamation, and in view of the unfavourable legal background may never do so. It has been working towards an ideal structure of the industry, consisting of a ground floor of complete amalgamations with an upper storey of loose associations between the amalgamated units. The West Yorkshire Federation Scheme, which failed to satisfy the Court in the summer of 1935, represented an attempt to erect such an upper storey, though without the ground floor of complete amalgamations, since it provided for the co-operative control of all collieries working in the district without involving any of them in the surrender of their independence. The scheme, which was generally described as one of "partial amalgamation," would probably have been turned down anyhow on secondary issues, but the prime cause for its rejection by the Railway and Canal Commission was that it did not constitute an amalgamation at all and was, therefore, *ultra vires*.

In these circumstances, if it is still the opinion of the Government that amalgamations are essential to the long-term efficiency of the industry, it is strongly recommended that the state of the law regarding amalgamations should be re-examined, since the Reorganisation Commission is, in the present circumstances, bound hand and foot.

It must be emphasised that Parts I and II of the 1930 Act are essentially mutually conflicting. The quota scheme embodied in Part I, however expedient it may have been as an instrument of national policy at a time when unemployment was rapidly increasing, does not face the real problems of the industry, and does not represent a long-term policy. There was fundamental antagonism from the start between the policy of Part I and the policy of Part II. Though the authors of the Act probably intended that Part II should gradually become effective in counteracting Part I; there can be little doubt that up to the present time the policy of Part I has prevailed. Part II, moreover, involves drastic interference with the existing organisation of the industry and, as with all measures of this kind, can only be carried through if it receives the full support of Parliament. Under the conditions in which the Reorganisation Commission was set up, Parliament did not accept full responsibility for the scheme and the Commission was hedged around by a number of conditions limiting its powers, and was confronted with the necessity of having its plans approved by the Railway and Canal Commission. It is important that any future scheme for the reorganisation of the industry should not suffer from the same weakness.

With regard to immediate policy, it must be recognised that if Part II was expressive of the right long-term policy for the industry, Part I was wrong and therefore requires such amendment as is necessary to give it a constructive aspect. The alternative solution is to abandon altogether attempts to reorganise the industry on the lines of Part II of the 1930 Act, and to seek other means. Hopes have been expressed that the nationalisation of royalties will, in some way, provide the opportunity.

Royalties

The nationalisation of royalties, which was recommended by the Samuel Commission in 1926, has always been favourably regarded by many mine owners and figures in the present Government's legislative programme. The total annual charge on the industry on account of royalties amounted in 1934 to £4.8 millions, or an average of 5.86d. per ton, though the rate per ton varies considerably between districts, being greatest in South Wales. It is not anticipated that it will be possible to reduce the average rate of royalty payments. It is assumed that the State will compensate the royalty owners from the proceeds of an issue of bonds, but will continue to collect a royalty from the industry to provide for the interest and redemption of such bonds. Some attempt might be made to spread the burden more equitably, but any attempt at discrimination on these lines would have to be pursued with the greatest caution; a colliery paying a high royalty on a rich seam may be better off than a colliery paying a lower royalty on a much poorer seam. To this extent, differences in the rate of royalty paid may be justified by the fact that they act in many cases as a corrective to inequalities in natural and economic conditions. If any attempt is made to reduce rates of royalty in individual cases, it is highly probable that the finance of the scheme would require that someone else should pay more.

The way in which the existing system hits colliery owners hardest is over the question of minimum rents. With varying degrees of foresight and of bargaining strength, colliery owners have undertaken to pay annual sums for the occupation of mineral properties whether

any coal is raised or not. Collieries which close down before the expiry of their leases are consequently obliged to go on paying quite substantial sums in minimum rents, as are the lessees of unworked areas. In many cases the collieries have only themselves to thank, having entered into royalty agreements with too little foresight and too much greed, intent at all costs on preventing areas of minerals on their boundaries from falling into the hands of other owners. This has not only rebounded on their own heads in the form of an obligation to pay minimum rents but has also prevented the most economical development of many areas of coal. A colliery company holding a number of leases and wishing to reduce its production costs by concentrating its production in one area, may often be compelled to spread its production in order to cover its minimum rents. With the substitution of a single royalty owner—the State—for a number of separate royalty owners, each of whom is, in fact, in the position of competing to get his own coal worked quickest, it will be possible to leave colliery companies free to work their leases as they please so far as is consistent with efficient mining methods.

Administration of the royalties, when nationalised, might well be vested in the Reorganisation Commission, a body well fitted for this task by reason of its previous experience in the working and valuation of collieries acquired in the course of its present functions. As suggested above, the Commission might conceivably make a constructive weapon out of the nationalisation of royalties if it were left free to offer special terms to groups of collieries on condition that they amalgamate. It might also be able to do something in the way of straightening out colliery boundaries and ensuring that undeveloped areas of coal are worked in the most economical manner, even, if need be, by collieries other than those holding the present leases.

On the financial side, the most practical method of acquisition would appear to be by purchase for cash at a valuation based upon present income. It is important in this connection, in order to secure complete control of the working of the coal, that the Government should buy out, not merely the original royalty owner, but also any intermediate lessee between the original owner and the party working the coal. Since it will probably prove possible to buy out royalty owners at least on a 5 per cent basis, and since the Government should be able to raise the funds for this purpose at a rate not much above 3 per cent, a substantial proportion of the present income from royalties, assuming that rates remain unchanged, would be available for purposes other than payment of interest on the loan raised. Some provision would probably have to be made for sinking fund, but the length of the amortisation period chosen will determine what, if any, is likely to be the surplus of income which could be used for an immediate all-round reduction of rates or any other purpose, and how soon the State will be free of the debt arising from its action in acquiring royalties. When this happens a fund of nearly £5 millions will be available to be returned to the industry in some form (unless it is pocketed by the State as a revenue, which is, of course, strongly to be deprecated).

CONSUMPTION

The industry cannot look forward to any considerable increase in inland consumption, and any policy for the industry must give primary consideration to this fact. The increasing efficiency of fuel utilisation is chiefly responsible. Coal consumption per head of population was 71 cwts. in 1934 (having fallen as low as 66 cwts. in 1933) compared with 78 cwts. in 1929 and 89 cwts. in 1913.

Iron and Steel

The coal consumption of the iron and steel industry fell from 31.4 million tons in 1913 to 23.43 million tons in 1929 and 17.21 million tons in 1934. Up to two-thirds of these amounts is accounted for by the consumption of coke-ovens producing metallurgical coke. There has, in the last few years, been a much needed modernisation of coke-oven plant, and a tendency to erect or reorganise steel-producing plants under conditions where they are self-contained in respect of coke supplies. From the point of view of making available to the iron and steel industry cheap supplies of suitable fuel and of securing efficient steel production by the full use of surplus gases, this tendency is to be encouraged in preference to the erection of colliery coking plants, although the latter can still be regarded as economic in certain cases, particularly where a local gas undertaking is willing and able to take supplies of surplus coke-oven gas for public distribution. The rising consumption of metallurgical coke outside the iron and steel industry, and particularly under domestic boilers, and certain experiments which are now being undertaken in the chemical treatment of coke to give ready ignition in domestic grates, point, however, to a more diversified demand for the output of coke-ovens than has been experienced hitherto. Most of the coke at present being used for domestic purposes is gas-works coke. To this extent the development of colliery coke-ovens may be justified, though it is urged that they would work more efficiently if centralised in somewhat larger units, particularly in respect of the disposal of their coke-oven gas and the working up of by-products.

The iron and steel industry itself, however, is likely to be a decreasing, rather than an increasing, consumer of coke. In the first place, pig-iron production has not increased *pari passu* with steel production. Prior to the War the average furnace charge did not contain more than 30 per cent of scrap; by 1930 this figure had risen to 47 per cent and by 1933 to 54 per cent, the consumption of pig-iron per ton of steel being, of course, proportionately reduced. The transition may have been accelerated by the exceptional amount of scrapping of plant and shipbreaking in recent years, but the Chairman of the United Steel Companies has pointed out that the increasing use of steel in semi-consumption goods such as motor cars, bicycles and tinplates is likely to lead to a permanently larger recirculation of scrap. In the second place, the average consumption of coke per ton of pig-iron produced has decreased in recent years with the modernisation of many blast furnaces. British practice, on the average, is still behind Continental and American prictice in this respect, so that further economies in coke consumption may be anticipated, though the process is likely to be to some extent neutralised by the necessity of using increased quantities of low-grade Lincolnshire and Northamptonshire ironstones which require an increased consumption of coke per ton of pig-iron as compared with hematite and higher-grade ores. In the third place, the decline of the wrought-iron industry since the War has resulted in the virtual disappearance of the demand for pig-iron from that source.

Gas Industry

Coal consumption by the gas industry has remained remarkably stable in recent years, varying only between 16 and 17 million tons. Similarly, sales of gas have not maintained the steadily rising tendency that they displayed prior to 1927 in spite of an increase of 1,300,000 consumers since that year, as per capita consumption has declined. It is possible that this decline may be arrested by the introduction of the two-part tariff system, or by a cheapening of the price of gas such as might be possible if the consumption of coke in open grates continues to gain ground and enables a larger profit to be made on coke sales. Similarly, the use of gas as an industrial fuel is far from having reached its maximum expansion. It is, nevertheless,

possible that the consumption of gas will not expand much above the level reached in 1930 if the technical progress of the last ten years is continued, and if the increase in the distribution of purchased coke-oven gas is taken into account. It is, therefore, unlikely that much increase in coal consumption will be forthcoming from this industry.

Electricity Industry

Coal consumption by the electricity supply industry has practically doubled since the War and now amounts to 11.7 million tons (by authorised undertakings). If account is also taken of private industrial plants, the coal consumed in the generation of electricity is probably in excess of 20 million tons. It is extremely unlikely that the expansion in the demand for electricity, which is increasing cumulatively at the rate of 10 per cent to 15 per cent per annum, will be overtaken for some time by the effects of fuel economy. Large fuel economies have been made in the past by the co-ordination and interconnection of generating plant, by improvements in the design and operation of generating units, notably through the increase of pressures and temperatures and the efficient utilisation of waste heat, and by the use of cheap low-grade fuel which has been made possible by the improvement of pulverised fuel systems, chain-grate stokers, and in other ways. The improvements in power station design are likely to continue, and there is likely to be a continuance of the movement in favour of the use of slack and other low-grade coals with improved combustion technique, especially if there is a general increase in the price of coal; but the day of the achievement of large technical economies in electrical generation is probably over. The general conclusion is that the demand of the electricity supply industry will continue to expand for some time, though it may be increasingly for a lower and cheaper grade of coal.

Railways

Locomotive consumption, which was more than 12 million tons in 1934, is dependent mainly upon the volume of traffic and consequently upon general activity. But it may be remarked that if electrification of the railways is introduced on a large scale, their coal consumption is likely to fall, since the efficiency of combustion in the best generating plants and of electrical distribution is somewhat greater than the combustion efficiency of a locomotive, though the cost is greater; while the quality of the coal consumed will certainly be inferior and the price realised lower than that of locomotive coal.

Competition of Oil

The direct competition of fuel oil with coal is hardly as serious as has sometimes been made out. In fact, while fuel oil accounted for only 0.5 per cent of the total heat output of the two fuels in 1913, its proportion had only increased to 2.3 per cent in 1934, though it must be remembered that the efficiency of oil-burning appliances has tended hitherto to be rather greater than that of coal-burning appliances, except in the largest installations. Oil has made some inroads on the home market particularly among commercial users and among industrial users where cleanliness and accurate temperature control is of primary importance. Such inroads appear to have been definitely checked within the last two years with the improvement of coal-burning appliances owing, among other reasons, to the work of the Coal Utilisation Council. There is now little to choose between coal and oil-burning appliances in the matter of efficiency and ease of temperature control.

Shipping

It is in consumption by shipping that the competition of oil has been most severely felt owing to the scrapping of many old coal-burning ships and the construction of new oil-fired or diesel motor ships, a tendency which has been stimulated in this country by the Government's "scrap and build" scheme. Coal shipped in foreign bunkers has fallen from a level of 21 million tons in 1913 to 16.3 million tons in 1929 and 13.5 million tons in 1935, though this is due in part to the decline in the volume of international trade. By the middle of 1935 only 51 per cent of the world's tonnage recorded in Lloyds Register remained coal-burning compared with 61 per cent in 1929 and 96 per cent in 1914. The gross tonnage of coal-burning ships has fallen from 44 millions in 1914 to 40 millions in 1929 and 32½ millions in 1935; only 20 per cent of the tonnage constructed under the rules of Lloyds Register in the year ending June 30, 1935, was coal-fired. Moreover, the coal-fired ships that remain are, on the average, considerably more efficient in design and operation than their predecessors, and since their average speed has increased by 2 or 3 knots since 1914, and their average consumption of coal per sea mile has fallen by 10 per cent to 15 per cent, they are obviously less dependent upon bunkering stations.

Coal is, without much doubt, still the most economical fuel for tramp steamers, and with a revival of international trade, the demand for bunker coal would also be likely to revive. It is felt, however, that the replacement of coal by oil in shipping may have gone further than is desirable on national and even on technical grounds. There has, for instance, been a considerable increase in diesel-driven coastal shipping. Too little attention has also been paid to the considerable improvement in automatic stoking appliances and coal combustion technique as applied to shipping. On grounds of national defence alone, the Admiralty ought to be induced to experiment with coal-firing on at least one fairly large warship. Experiments with a view to evolving a practical coal-oil fuel have hitherto been disappointing, though it is believed that a South Wales firm has recently obtained much more promising results.

Oil from Coal

Much attention has been drawn to the possibility of replacing imported oil supplies not directly by coal, but by oil derived from coal. The total home production of motor spirit in 1934, from the Scottish shales, and from the by-product output of gas-works, coke-ovens and low-temperature carbonisation plants, amounted to 54½ million gallons or 4½ per cent of the national consumption.

It is believed that the low-temperature carbonisation process will eventually prove an efficient means of producing smokeless fuels, though not until the most economical processes have been developed, and the large amount of money invested in unsuccessful processes has been written off; but the production of "oil from coal" by low-temperature carbonisation can probably never of itself be an economic proposition on such a scale as would make any serious contribution to the national oil supplies. These remarks should be qualified by pointing out the considerable progress made in the last few years by Low-Temperature Carbonisation Ltd. and in the hydrogenation of low-temperature tar on a large scale. Smokeless fuels have already proved themselves very popular with the public and command very high—almost scarcity—prices, but their use is, of course, largely competitive with raw coal, though the net return to the industry from utilising coal in this way may be higher, and their output is probably limited by the elasticity of the markets for by-products.

The hydrogenation of coal has only been undertaken in this country by Imperial Chemical Industries Ltd. at Billingham. The plant is calculated to produce 150,000 tons of petrol per

annum and cost in the first instance approximately £3 million pounds, although no outlay was necessary on hydrogen generation plant since a surplus of hydrogen was already available from existing plant. The cost is likely to work out in the neighbourhood of 7d. to 9d. per gallon (against an average price at the port of 3½d. per gallon for the natural product in 1934), so that the plant can only operate by reason of the preferential rebate of excise duty which is to aggregate 3s. per gallon spread over 10 years. It is hoped that it will have been possible to write off most of the capital cost of the plant before this preference expires.

There is no doubt that the production of petrol from coal by one process or another could be increased, provided that sufficient assistance is given from the Exchequer by the remission of excise duty and the taxation of imported oil.

But it is believed that it is easily possible to exaggerate the importance of low-temperature carbonisation and hydrogenation both from the point of view of national self-sufficiency and as a means of providing additional employment to the coal-mining industry.

National Fuel Policy

Consideration of the coal and oil position generally, as well as of the relationship of the coal-mining industry with the gas and the electricity supply industries, and of the mixture of motives which has inspired the Government's taxation of fuels since the War, points once more to the urgent necessity of evolving a national fuel policy. Such a policy needs to be based primarily on one consideration—that for each major use the most suitable fuel should be determined, where it is possible so to determine it, leaving a wide margin for error, and that in such cases steps should be taken to prevent the uneconomic competition of fuels that are not suitable. This amounts merely to a division of function along the most economic lines, and would limit, for instance, the continued competition of gas for lighting and of electricity for heating water. The Samuel Commission appears to have had something of this kind in mind in recommending the setting up of a National Fuel and Power Board. The National Fuel and Power Committee, however, beyond its original report dealing mainly with the progress of fuel economy, has confined its attention to matters of detail.

The general conclusion has been reached that there can be no immediate prospect of an increase in domestic coal consumption extending much beyond the level attained in 1929, and perhaps not even as far as that. There is, however, a very significant change taking place in the quality of demand which the industry must be prepared to meet. Where coal is burnt raw, demand is shifting in favour of a prepared product in preference to run-of-mine coal. Consumers requiring efficient combustion desire a cleaned and sized coal and in some cases even wish to buy on a chemical analysis. Moreover, the introduction of automatic stokers, the decline of ship bunker trade, and the increased consumption of carbonised fuels in domestic grates, or of gas and electricity, is creating a demand for small coals that threatens to outrun the supply. Since the make-up by sizes of run-of-mine coal is only controllable within limits by the method of working and the direction in which the coal face is advanced, colliery companies may soon have seriously to consider the introduction of crushing machines in order to cope with public demand on a very much larger scale than they have done hitherto, although progress in this direction has already been considerable. Much progress has already been made in the introduction and improvement of washeries, but it cannot be sufficiently emphasised that if collieries wish to retain their present business, attention must be concentrated in the future on the production of a high-grade product and on a more scientific study of consumers' requirements than has hitherto been prevalent.

THE COAL EXPORT TRADE

The British coalfields have many natural advantages in the export trade, but the very extent of their trade with export markets made it inevitable that they should be specially severely affected by the restrictionist movement stimulated by the trade depression. There has, however, been a long term tendency towards the decline of British export trade, dating particularly from the immediate post-war period when British coalowners unwisely exploited their temporary monopoly of export markets and from the prolonged stoppage in the coalfields in 1926. This decline has been accentuated by the increase of foreign output, by the increased utilisation of hydro-electric power and fuel and diesel oil, and above all by the much more rapid improvement in productive efficiency abroad. In 1913 output per man-shift in Great Britain was 21.5 cwts. which was exceeded only by Polish Upper Silesia. Between 1913 and 1934 the increase in output per man-shift was 7 per cent in Great Britain. But it was 77 per cent in the Ruhr, 63 per cent in Belgium and 105 per cent in Holland. British output per man-shift is now substantially lower than that of the Ruhr, Polish Upper Silesia and Holland. This is mainly due to the much greater progress of mechanisation on the Continent. As a result wage costs per ton of output are often much below the British level. Similarly the margin between British money earnings per shift and money earnings per shift on the Continent in terms of sterling was being steadily reduced up to 1931 and has been reduced still further since the depreciation of sterling, so that in some Continental countries at the present time money earnings per shift in terms of sterling are higher than money earnings per shift in Great Britain.

Trade Agreements and Contested Markets

British export markets at the present time may be divided into the markets regulated by trade agreements on the one hand, and contested markets on the other. In the former, there have been very heavy declines in exports to France and Germany (though the German market is improving). The trade agreements with the Scandinavian countries have partially filled the gap by regaining the trade lost in 1926, but the benefits have gone entirely to the East Coast ports of shipment and have indirectly acted to the disadvantage of South Wales (which is not interested in these markets) as German and Polish competition in the "free" markets of the Mediterranean has been intensified. Foreign exporters are receiving assistance in various ways from their governments, such as the subsidisation of export rail freight rates in Germany and Poland, and benefit from special barter arrangements and agreements for the utilisation of blocked currency balances. Competition in the "free" markets, for instance in the Mediterranean and South America, is consequently very keen and only fractional increases in British exports to them can therefore be anticipated.

Unquestionably there will one day be a resumption of exports on a much larger scale to the "restricted" markets, notably France, where artificial conditions of shortage may be said to have been created within recent years in order to maintain employment in domestic coal production to the greatest possible extent. The removal of these artificial conditions, however, lies beyond the power of the British coal industry and depends mainly upon the solution of international currency problems. The restrictions that have been placed upon British and other imported coal elsewhere may be attributed almost entirely to maladjustments of the exchanges and are not likely to disappear until such maladjustments have been removed. The prospects of a large expansion in British coal exports accordingly depend, along with those of

the other great export industries, upon the stabilisation of currencies and the resumption of multi-lateral trade.

A promising development which took place towards the end of 1934 was the conclusion of an agreement between British and Polish exporters for the establishment of a fixed relationship between the exports of the two countries. The agreement includes provision for the improvement of prices which has so far proved incapable of taking much effect, as long as Germany remains outside. At the present time the Polish agreement is likely to prove of more value in breaking the ice of unlimited competition than for the practical benefits derived from it; it has proved that international co-operation between coal exporters is possible.

International Coal Cartel

It is unfortunate that at the World Economic Conference in 1933, when Germany was anxious to form an International Coal Cartel, British coalowners were indifferent. Since the British attitude has now changed there is some hope of reviving the project, but in view of the headway that has been made by other exporters in the meantime and, in particular, the establishment of their trade in Italy on a reciprocal basis, it is questionable whether the British industry could secure as favourable terms as would have been possible in 1933.

British coalowners have hitherto hesitated to respond to invitations to discuss an International Cartel in view of their knowledge that the continued decline in British exports would involve their taking a smaller share in any pooled market than they considered appropriate. Such progress as is possible in the regaining of markets by piecemeal trade agreements has now mainly been made, while any efforts on these lines to stabilise or increase the market in one direction generally result within a short time in an outbreak of more intense competition elsewhere. For instance, in view of Great Britain having reserved a large proportion of the Scandinavian and Baltic markets, the British exporters would have to concede to foreign exporters a far larger share of Mediterranean trade than might otherwise have been the case, if Cartel negotiations were now begun.

The British industry has also found it difficult to proceed with the constitution of an International Coal Cartel through the absence of any body capable of handling negotiations with the better organised industries of other countries. The absence of such a body is now being used by the German exporters as a reason for not entering into negotiations. The German industry's eagerness to organise a Cartel has, moreover, been considerably modified since German exports to free markets have begun to expand.

British Coal Export Association

The organisation of the British export trade under a British Coal Export Association has been urged as desirable for internal reasons in the section dealing with distribution. The creation of some such body would also be an essential preliminary to the successful operation of, and probably also to the formation of, an International Coal Cartel. An international agreement on coal exports along these lines would be the logical development of the Polish agreement; and the success which has attended the efforts of other industries in this direction, notably the participation of the steel manufacturers in the international Ship-plate Agreement, the recently dissolved International Tube Cartel, the International Rail Makers' Association, and more recently the accession of the industry as a whole to the International Steel Cartel, would at any rate justify the coal industry in making the experiment. The chief advantage would be the extent to which it would probably be possible to raise export coal prices and

restore the coal trade to a profitable basis, which would also form a logical parallel to the raising of prices in the inland market through the formation of central selling organisations. Since Great Britain, Germany and Poland control the bulk of the export markets the organisation of a comprehensive agreement should not be difficult.

But the constructive aspects of an International Coal Cartel and of a British Coal Export Association need to be emphasised. While British exports of coal have suffered from the competition of foreign exports, there is little doubt that the coal exports of all countries have suffered from the competition of hydro-electric power and of oil. Active sales development work, including the provision of technical advice to foreign consumers on appliances and the most suitable grades of coal to be used in them, would be an essential function of a Coal Export Association. Improvements in the method of handling export shipments and the organisation of the bunker trade on an international basis to meet the competition of oil, would be appropriate subjects for action on an international basis to be initiated by an International Cartel.

DISTRIBUTION, TRANSPORT AND PRICES

The distribution of coal needs to be considered from two aspects—its sale at the pithead and its transport, wholesaling and retailing to the consumer. The trade embraces three divisions —the colliery sales organisation, the wholesaler or factor and the retail merchant. Much coal does not pass through all these hands; some passes through more. Public utilities and large industrial consumers often buy direct from the colliery, smaller industrial consumers from the factor; the largest retail merchants do their own wholesaling and some collieries have entered the entire distribution process up to the final consumer.

The sales management side of colliery management has been in an unsatisfactory state for some time. In the first place, the existence in the coal-mining industry of a great number of small competing units which are confronted by a smaller number of buyers of considerably greater bargaining power has led inevitably to violent price-cutting, which has reacted to the temporary advantage of large consumers. For this the provisions of Part I of the 1930 Act are largely responsible, seeing that minimum prices were fixed at the pithead and not at a point nearer to the ultimate consumer, which tended to penalise the unfavourably-situated colliery and led inevitably either to evasion or to the fixing of minimum prices at such a low level that their object as a minimum was largely defeated. Evasion was made the easier since the distributors were not invited to co-operate under the Act and have inevitably been tempted to take advantage of loopholes in their own interests as buyers. The institution of central selling schemes, such as has already taken place in Lancashire and Cheshire, and which have been promised by the other districts, should prove capable of solving these problems provided that they are conceived with vision and operated with efficiency.

In the second place, pithead prices have suffered from the fact that in coal mining, unlike many manufacturing industries, efficiency in selling has definitely been subordinated to efficiency in production. The chief emphasis has always been laid on large output as an essential factor in low-cost production. The sales manager, being the "under dog," usually has little voice on the matter of output and has to sell whatever he is given. In these circumstances, it is not surprising that small economies achieved on the production side have had to be thrown away in cutting prices to get the coal sold at all. As a corollary of the subordination of selling to production, the nature of the position of a colliery sales manager and the nature of the

remuneration offered have not on the whole been sufficiently good to attract a personnel of the technical efficiency in salesmanship that the situation requires. Moreover, many coalowners have been accustomed to take very little interest in the requirements of the ultimate consumer, although those who have done so have generally found their reward in increased profits. Such an attitude would not be possible in any other industry, and the practice of the coal industry in this respect requires to be reversed.

Central Selling Organisations

There is reason to believe that the introduction of genuine central selling organisations will achieve this object. By genuine central selling organisations is meant organisations which will take sales entirely out of the hands of the collieries and place them under the control of a central marketing agency which will pool all profits, on the lines of the scheme set up by the coalowners of Lancashire and Cheshire. With such schemes, it will be possible to make use of the most efficient salesmen in each district and to secure from outside the industry men with experience of selling on a large scale if they cannot be obtained within the industry itself.

There is a danger that some districts may be induced to bring forward schemes involving merely the central control of sales by a district committee or some such body, the actual selling being left in the hands of the individual collieries. This is a type of organisation which should be strongly resisted; it would not in any way improve the average sales efficiency of the industry and would doubtless contain many loopholes through which its provisions, particularly with regard to minimum prices, could be evaded.

The functions of a central selling organisation should be the negotiation with buyers of all orders coming to the district and the allocation of such orders, having regard to the quality of coal required and the point of delivery, to a suitable pit in the coalfield, keeping a continual watch upon daily stocks and orders on hand. All profits on the sale of coal should be pooled and distributed among the participants on a tonnage basis. It is essential that the central selling organisations of the various districts should co-operate with a view to securing an agreed settlement of the problem of inter-district competition and that they should not use their newly-found strength in intensifying it. For this purpose a national co-ordinating body should be created, representative of each district and including representatives of distributors and a certain number of independent members, in the interests of consumers, whose main business would be to watch the relative position of prices.

Much valuable information on the best technique of managing central selling schemes is to be learnt from the experience of the Rheinisch-Westfälisch-Kohlensyndikat, which markets the whole of the output of the Ruhr coalfield. Under this system markets are divided into "non-contested" and "contested" areas according to the extent to which they are protected by rail or water freight charges, and part of the profits on sales in the former areas are used to subsidise sales in the latter. The practical effect over a series of years has been to reduce materially, by agreement between the coalfields, the size and number of the contested areas.

One of the first actions of the new central selling organisations must be to secure a better balance of prices by raising the price of coal to public utilities and large industrial consumers, who have hitherto been getting it in some cases at less than cost, with the ultimate object of reducing the price of house coal. This latter has risen disproportionately since 1914, as the industry has always followed the line of least resistance in taking the lowest profit from consumers, such as public utilities, showing the least elasticity of demand and most profit from the household consumer, who has many claims to be considered the most elastic market. Unfortunately, the reaction to recent events in the industry in the shape of a demand by

the miners for a larger increase in wages than the industry could provide out of profits, has been, in accordance with tradition, to place the largest increases on the household consumer. It is essential that this should be regarded as a short-term measure taken only on account of an exceptional temporary situation. Such is the inefficiency of the distributive process that in the long run it should not prove impossible to lower the price to consumers and, at the same time, to maintain a higher level of pithead prices than at present. Some time might, however, elapse before a general reduction in the price to the consumer would become possible, as the improvement in the technical efficiency of the distributive trade and the provision of adequate service to consumers should have first claim after the improvement of pithead prices.

The institution of central selling organisations is likely to have important effects in accelerating the reconstruction of the industry. Under the present quota system, prosperous collieries have hesitated to buy out their less successful neighbours for the reason that, although they acquire thereby the right to raise and dispose of a certain tonnage of coal, they have no guarantee that they will be able to market it. Under a scheme drawn up on the Lancashire model, every participant is guaranteed a fixed share of the market or proportionate compensation; collieries which are confident that they can produce cheaply can, therefore, afford to offer a good price for collieries which can produce less cheaply in the knowledge that they are buying a real asset.

Lest it should be thought that the raising of the price of fuels to the public utilities may have a crippling effect on industrial activity, it may be pointed out that an all-round increase of 1s. per ton in coal prices, which would rather more than treble the average profit of the industry in 1934, would have a hardly appreciable effect on the costs of production of nearly every coal-using industry. In the case of the gas industry, for instance, the effect would be to increase the price of gas by two-thirds of a penny per thousand cubic feet or one-sixth of a penny per therm or, on the average, 1s. 8d. per consumer per annum.

Excessive Number of Distributors

The distributive trade proper is statistically practically unexplored, but it is believed that there are at least 27,000 separate retail outlets through which coal is sold. The average turnover is consequently very small indeed, and the merchant doing a turnover of 1,000 tons per month is considered to be in a big way of business. There are very many dealers who do not handle more than one truck-load per week.

The standard of service to the consumer is extremely low and the average cost of distribution extremely high. The largest merchants are making strenuous efforts to improve the former state of affairs, and the large profits which they have made appear to be due, to no small extent, to efficiency of management coupled with a large turnover in a trade where average efficiency is low and average turnover is small. House coal may sell at the pithead in the Midland district for around 27s. per ton. The cost of railing to the London area is not less than 10s. per ton and of bagging and cartage about 6s. The retail price is 48s. or over, so that the margin left to the distributor to cover overheads as well as profits is approximately 5s. per ton. The establishment expenses of six London merchants were found by the Samuel Commission to have averaged 4s. 6½d. in 1925. Coal distributors are often accused of profiteering at the expense of the coalowner and the consumer alike. In the sense that individual distributors make large fortunes out of selling coal, this allegation will hardly bear examination. It is, however, undeniable that an excessive charge per ton has to be made in order to support

an excessive number of persons engaged in the industry, and that many small merchants make a living out of small turnovers which would not provide a living if the distributive margin were not excessive.

Under the present system there is little prospect of securing any reduction in the high cost of distribution. The average retail merchant and factor of any size have to maintain sidings and depots and transport as well as a labour staff, which cannot be reduced below certain limits although there is a pronounced seasonal element in the trade. But he has to withstand the competition of the small dealer or hawker who can operate with a hired or borrowed lorry and a truck-load of coal, possibly obtained on credit, which he hawks around the streets. The coal sold is often of indifferent or unsuitable quality, and cases of short weight and misdescription are frequent. But the capital necessary to conduct this type of trade is very small—from £20 to £50—and the trade itself is casual, as the men occupied in it during the winter often carry on a different business, such as fruit hawking, in the summer. Dealers of this type apparently have little difficulty in finding factors to supply them, although they may sometimes leave a trail of bad debts behind them. Their competition is particularly severe in the vicinity of coalfields where they can obtain lorry-loads of coal at the landsale depots of collieries at the pithead price. It is difficult to see why the collieries, in their own interests, allow this to continue.

It is therefore apparent that, under the present system, the margin between the price of coal at the pithead and at retail is unduly high, though it is believed that this is due to the present high costs of distribution, rather than to profiteering on the part of the distributor, as is commonly held. The influence of the size of turnover upon distributive costs is very marked. For instance, the cost of bag-filling and delivery may vary from as much as 11s. 6d. per ton on a turnover of 20 tons per week to 4s. 3d. per ton on a turnover of 100 tons per week. It is held, therefore, that the concentration of the distributive trade in fewer hands, and a corresponding increase in the average turnover would prove very easily capable of reducing the cost of distribution by as much as 4s. per ton. As a preliminary step, the licensing of all distributors of coal should be made compulsory in order to prevent the exploitation of the consumer by what amounts, in many cases, to nothing less than illegal practices. It is believed that such a measure would receive strong support from the Weights and Measures departments of local authorities.

Co-operation of Producers and Distributors

Much may be done by co-operation between producers and distributors. A noteworthy attempt was made between 1928 and 1931 to secure a working agreement between the producers of the Midland District and the Coal Merchants' Federation, which was to have limited the number of distributors, raised pithead prices, and controlled the retail price of household coal by mutual agreement between producers and distributors. It is believed that with the institution of central selling organisations, the revival of such schemes should be possible and should be undertaken at an early date. A beginning has already been made in Lancashire which involves the fixing of one retail price for the whole area and the limitation of the distributive margin. In this manner it should be possible eventually to concentrate the trade in the hands of the more efficient distributors.

It is not contemplated that the functions of the distributor would be in any way altered except that the formation of larger units would probably involve the identification of the factors and the wholesalers, who are fewer and larger than the retail merchants, with certain

retail outlets, as is, in fact, already the case with the large merchants. The very much larger merchanting units would then deal direct with the central selling organisations of the colliery districts, and arrange the distribution of coal to such industrial consumers as are not large enough to deal direct with the collieries, and, via their own sidings, depots and road transport, to the domestic consumer.

Export Sales

The export trade would require to be handled rather differently. In the past, the exporter was largely an intermediary between the foreign buyer and the colliery company. He performed a useful function in that he usually contracted to take in advance a certain proportion of a colliery's output at a definite price, being confident that he could place it from time to time in foreign markets. The collieries, in consequence, tended to have little direct interest in or knowledge of export markets. Since the War, export business has had to be solicited much more vigorously and the "business connections," which have always been the principal asset of the export merchant have frequently failed. The colliery companies, anxious to prevent the decline in their exports, have consequently tended to take a direct hand in exporting themselves, and have found strong natural allies in the larger type of exporter who has always maintained his own depots and bunkering stations abroad, and has, in fact, generally done more than merely buy coal from a colliery and sell it to a foreign importer from the inside of an office in a coal shipment port. The intrusion of the collieries has naturally been much resented by the older type of export merchant, but the tendency is one towards mass distribution which is common to many industries, and which is essential for the success of export trade in modern conditions. This tendency has been most marked in South Wales.

The experience of the British Steel Export Association suggests that the institution of a British Coal Export Association on similar lines would be appropriate to the conditions of the coal export trade. Such an organisation would deal with all incoming orders and would dispose of them to the central selling organisations of the export districts, which would allocate them like inland orders to the various colliery companies. These latter, in conjunction with the export merchants, would remain responsible for the arrangement of shipments in the normal way. The Association would enjoy much greater bargaining power in quoting prices to foreign buyers than a number of competing sellers could possess, and though it would have power to cut prices in order to secure large orders, it would not be likely to have to do so as often or as severely as individual collieries selling independently since it would only have to reckon with foreign competitors and not with the competition of other British exporters. In an organisation of this size contact with and development of foreign markets can also be efficiently organised.

Transport

Both the export and the inland trade would benefit from a reorganisation of the coal transport system which at present shows serious inefficiency at several points. There are according to the latest available figures (which are not recent) more than 4,000 wagon owners and 754,000 wagons of very many different types of construction, many of them more than 30 years old (30 years is the average efficient life of a wagon), 80 per cent of them being of 8 to 12 tons carrying capacity only. Railway freight charges for coal are between 40 per cent and 50 per cent higher than in 1913.

Apart from the increased incidence of railwaymen's wages, the influence of which is probably being gradually reduced by economic reorganisation within the railway companies, the principal causes of the high railway rates are as follows:

(i) High haulage costs owing to small capacity of wagons.

(ii) High handling costs owing to the necessity for frequent shunting due to

(a) the great number of consignees;

(b) the great number of consignors to whom, under the private ownership system, the same wagons have to be returned each time for refilling or repair.

(iii) The low number of trips per wagon per month consequent upon (ii), though the quota system has tended to aggravate this factor.

20-Ton Wagons

The general introduction of the 20-ton wagon, which has been used extensively on the North-East Coast for some years, and more recently in South Wales, was recommended both by the Samuel Commission and in the first report of the Standing Committee on Mineral Transport. Compared with a 10-ton wagon, a 20-ton wagon is only 33 per cent to 50 per cent heavier in tare, and 16 per cent to 30 per cent greater in length for a 100 per cent increase in capacity. Its resistance in running is proportionately so much less that a locomotive can haul a 10 per cent greater gross load when 20-ton wagons are employed, which means 25 per cent more coal per train. Shunting is reduced, there is greater economy in siding accommodation and there is a 25 per cent reduction in capital cost per ton of capacity. The railways have done much to encourage the introduction of 20-ton wagons, but terminal facilities, such as colliery screens, sidings and shipping appliances are, in many cases, not able to accommodate them. More than 50 per cent of the collieries in the country cannot use them owing to the height of existing screening plant or the radius of curves. Alteration, where alteration is possible, would, according to the Standing Committee, cost £2½ millions in the case of the collieries alone, and £8¾ millions for all terminal facilities.

Private ownership and the excessive number of wagons (though this must not be reduced too much as the wagon provides the only economical method of storing coal), obviously greatly complicate the business of shunting and sorting empties and the organisation of repairs, besides tending to lead to an endless variety of types. The railways have made efforts to encourage the use of common-user wagons in consequence.

Common-user System

It would appear to be a useful development for all wagons which wear out in future to be replaced by common-user wagons of standardised design and, if possible, of 20 tons capacity, though the latter step may not result in any general economy until the requisite £9 millions has been spent in standardising terminal facilities. In the meantime, every encouragement should be given to the pooling of wagons by local owners which, in effect, results in the introduction of a common-user system within districts. It is anticipated that the new central selling organisations will exert a healthy influence on the reorganisation of coal transport.

The economies to be achieved should not, however, be exaggerated. The universal introduction of 20-ton wagons would probably permit a reduction of 10 per cent in existing

rates, with possibly another 10 per cent if the common-user system were introduced. But 20 per cent off existing rates means a reduction of 2s. per ton in the cost of distributing coal to the London market. This would only be obtainable under ideal conditions.

Attention must also be drawn to the condition of shipping appliances at many ports, particularly on the North-East Coast. Many of these are of considerable age and were designed in the times when mostly run-of-mine coal was shipped, and breakage in shipment was not a matter of serious importance. Nowadays, however, when the consumer is increasingly demanding clean, sized coal, it is important that shipments should reach him in as nearly as possible the same state as they have left the colliery. Anti-breakage appliances have already been introduced at some ports, at considerable expense, but much further progress in this direction is necessary before the two *desiderata* of rapid loading and minimisation of breakage will be achieved, and a really satisfactory coal-shipping appliance has yet to be found. At the present time, the condition of British coal, which is far cleaner at the pithead, is often alleged to be much inferior to that of foreign coal by the time that it reaches the export consumer. As British coal is more friable than many foreign coals, it is the more important that the conditions of shipment should be as perfect as possible.

WAGES AND HOURS OF WORK

The position of labour in the coal-mining industry has been the subject of much legislation and many disputes. It is believed that the very complication of the existing system of wage payment has been responsible for much misunderstanding.

Wages, labour conditions and hours of work were regulated by government intervention during the War and immediately after the War. In 1921 the industry was decontrolled and from 1921 to 1926 labour conditions were regulated by a national agreement between the owners and the men. A general wage increase was conceded at the beginning of 1924 but with the depression of the export trade towards the end of 1924, the owners asked for a reduction of wages and an increase of hours in certain districts. In order to avoid a strike the Government granted a subsidy out of which wages were maintained and appointed the Samuel Commission to find a solution acceptable to both sides. The report of the Commission did not cause either side to modify its demands and the prolonged stoppage of 1926 followed. Under the conditions on which work was resumed a return was made to the principle of district agreements and the working day was increased from 7 to 7½ or 8 hours per day, according to district. The working day was reduced by half an hour in 1930, but a similar reduction which should have taken place in 1931 was postponed until such time as the International Convention on the Limitation of Hours in Coal Mines comes into force. Since 1926 district minimum wages have been maintained everywhere except in South Wales, where the percentage addition to the basis rate was reduced from 28 per cent to 20 per cent in 1931 and raised again to 22½ per cent in October 1934.

Application for Wage Increase

During 1935, the miners put in an application for the return to the principle of national negotiations and for a flat-rate wage increase of 2s. per shift for adults and 1s. per shift for juveniles. In support of their claim the miners advanced the following arguments:

(i) That existing weekly wages did not afford a living wage for very many men engaged in the industry. Average earnings per person employed (including, however, all unskilled surface and juvenile workers) were no more than £115 11s. 6d., or about 44s. 6d. per week in 1934.

(ii) That although the profits of the industry as revealed by the ascertainments (which the men accuse of giving an inaccurate picture) were palpably insufficient to meet the full increase demanded (estimated to cost £18½ millions per year against an apparent profit of £4 millions in 1934), coal miners were entitled to something in advance. They have waited in vain for nine years for the promised fruits of reorganisation. Even if the institution of central selling schemes leads effectively to higher prices and higher proceeds for the industry, it would be some time before the miners could expect an automatic wage increase, owing to the existence of substantial overpayments to the credit of the owners under the minimum wage system.

(iii) That consumers of coal have been obtaining coal at uneconomically low prices at the direct expense of miners' wages and could easily afford to pay more to enable miners' wages to be raised.

(iv) That since 70 per cent of the total cost of production of coal represents wage costs, the relation between wages in different districts is the paramount factor affecting inter-district competition. In order, therefore, that inter-district competition should not proceed at the direct expense of wages, it is essential that the level of district wages should be a matter for national and not for purely local discussion. If prices and other factors are to be co-ordinated and dealt with on a national basis, it is difficult to see how the national negotiation of district wage agreements can be avoided.

The mine owners have replied to these arguments—

(i) That statements based upon the average earnings in the industry are misleading, seeing that the industry employs about 110,000 youths under 20 and 125,700 surface workers, mainly unskilled men. In fact, taking a 5½ day week as a condition of normal trade, the average weekly earnings of all coal-face workers would be 62s. 0d., excluding allowances which in some parts of the country are considerable. Average earnings per shift for coal-face workers were 11s. 3¼d. per shift contrasted with 9s. 2d. for all employees. The men employed in the most arduous occupations were, therefore, earning well over 50s. 0d. per week which was neither "scandalously low" nor a "starvation wage."

(ii) That the net profit of the industry as a whole after meeting all capital charges was less than £2 millions in 1934, and although a few companies declared a modest dividend, the industry was palpably incapable of meeting any wage advance. The men have full access to colliery books through their accountants for the purpose of drawing up the ascertainments, so that no question can arise of the ascertainments not giving a correct picture.

(iii) That their promise to introduce central selling organisations in each district by July 1, 1936, would lead to an improvement in inland prices as a result of which inland districts might, individually, be prepared to discuss wage increases.

(iv) That the existence of district wage agreements prevents the Mining Association, legally, from negotiating nationally as long as the district agreements remain in force. The principle of a national agreement is, moreover, repugnant to all owners who remember the way in which disputes were dragged into the political arena from 1921 to 1926. They would prevent the recurrence of this at all cost and believe that the sole purpose of the Miners' Federation in putting forward their demand for a national agreement is to enhance their own prestige. The fixing of wages by districts has played no part in intensifying inter-district competition, as there have been no changes except in South Wales since 1926 and there will be even less possibility of this occurring with the introduction of central selling.

As a result of the persistence of the miners, and the considerable measure of public support which they obtained, the owners eventually conceded wage increases in every district, varying from 1s. per shift for men and 6d. per shift for juveniles in the Midland district and Lancashire and Cheshire to an increase from 22½ to 25 per cent in the minimum percentage on basis rates and an increase of 5d. in the subsistence wage, from 7s. 8d. to 8s. 1d. per day, in South Wales. These increases are expected to cost about £6 millions per year. In order to obtain the funds to pay the increases immediately the coalowners were able to secure promises of a voluntary increase of 1s. per ton on existing contract prices from most large industrial consumers, with the exception of the railways, and immediately raised the price of household coal, in many instances by more than 1s. per ton, even allowing for the usual seasonal increase. The increased prices are expected to bring in at least an extra £6½ millions. They should be regarded as a crisis measure, undertaken temporarily, and the heavy increase in the price of house coal particularly must be regarded with misgiving.

Short-time

These negotiations have served to emphasise the real problem of the coal-mining industry, the crux of which is the short time that is being worked in the industry largely as a result of the Government's policy of spreading the work and reducing the apparent volume of unemployment. If the concentration of production could be achieved, which would mean automatically the displacement of many thousands of men, there would be no problem for the remainder. The Mining Association has cited figures of earnings based on a working week of 5 shifts, which it calls a condition of normal trade, and draws from them the fairly legitimate conclusion that under conditions of normal trade wage rates are sufficient to provide a reasonable level of weekly earnings. But the fact must be faced that the coal trade is not normal. During the first six months of 1935 an average of only 4.84 shifts per week was being worked. On this basis, coal-face workers (38.8 per cent of the total) at 11s. 3¼d. per shift would actually have earned an average of 54s. 6d. per week and the remaining 61.2 per cent of workers would have averaged no more than 38s. 5d. per week. Earnings of this level would not be unreasonable for a juvenile or a wholly unskilled man without dependents, but even by public assistance standards they must be considered wholly inadequate for a man with a number of dependents. With a view to raising the earnings of the lowest-paid workers in order to provide them with a living wage, and not merely to securing the increase of all wages, the Miners' Federation might well investigate

the possibilities of a family allowance system of payment such as has been widely introduced on the Continent. If only a limited fund is available for increasing wages, this is probably the most economical method of seeing that the greatest needs are satisfied first.

The problem of the relationship between employment, wage-rates, and earnings is not one which the coal-mining industry can decide on its own. At the present time, under the provisions of Part I of the 1930 Act, the industry is virtually subsidising unemployment relief by continuing to carry more men than it can economically afford to do in view of its decreased output and the requirements of maximum efficiency. It has only been able to do so by spreading the work and paying a bare subsistence wage to a high proportion of men employed. The question which now has to be decided as a matter of national concern is whether the industry should be made to continue to bear this burden at the expense of its own efficiency and the well-being of many thousands of its employees, or whether the social problem arising from the existence of a surplus of labour in the industry should not be recognised nationally and treated on a national scale. There can be little room for doubt that the second course is the right one. But if the burden is to be removed from the coal industry other shoulders must be prepared to receive it. For this reason, this report concludes with an examination of the possible methods by which the problem of surplus labour may be dealt with, which, though not an industrial problem, is inextricably bound up with the future of the industry.

National Agreements and Conciliation Machinery

In the matter of the national negotiation of wage agreements, the first step would seem to have been made towards a return to this principle in the agreement by the coalowners and the men to set up a National Joint Standing Consultative Committee with wide, though as yet not very clearly defined powers, which, however, will include "general principles applicable to the determination of wages by district agreements." In this connection the recent negotiations have made two facts clear. In the first place it was fairly obvious, whatever devices were adopted to preserve the façade of district agreements, that negotiations were, in fact, on a national basis. In the second place, the fact that widely different offers have been made in the various districts cannot fail to have effect on the mutual competitive position of districts and shows that the district negotiation of wages unless subject to national control could have profound effects on inter-district competition.

Full sympathy can be extended to the owners for their desire not to risk a repetition of the experience of 1921 to 1926, in which the principle of national negotiation was without doubt greatly abused. On the other hand, it is felt that the re-introduction of the principle of national agreements, which seems logically inevitable, only awaits the evolution of adequate conciliation machinery. It has been pointed out that other industries, notably engineering, which is no less complicated than coal-mining, have operated national agreements with success. The type of conciliation machinery that has been evolved by the engineering industry, which seems to have succeeded in ensuring that disputes are discussed in an impersonal and business-like atmosphere, appears to be a suitable model on which a scheme for the coal-mining industry might be based.

EMPLOYMENT AND WELFARE

The decline in coal-mining employment amounted to 132,914 between 1922 and 1926, 123,214 between the end of the stoppage and the end of 1929 and 185,028 between the end

of 1929 and the end of 1934, a total of 441,156 since the War. Employment, which was more than 1,100,000 in 1913 and reached its zenith in 1920 at 1,225,929, had fallen by 1929 to 969,801, and by the end of 1934 to 784,773. The number of coal miners recorded as wholly unemployed at December 17, 1934, was 185,830, and of those temporarily stopped 41,417, a total of 227,814.

Although employment and unemployment statistics are not wholly comparable, it is clear that a great number of mine workers, probably in excess of 200,000, have ceased to be attached to the industry since the War, through transference, death or retirement. Many of those who have transferred are, no doubt, still unemployed but appear on the schedule of another trade, in which at one time or another they have had a job, notably public works contracting.

Reasons have been given in the sections dealing with Coal Consumption and the Export Trade, for believing that no striking increase in output can reasonably be expected in the near future. Perhaps the best that can be expected, even in the most favourable circumstances, is a recovery to the 1929 level, though this implies such a recovery in exports as cannot be foreseen without radical changes in the international trade and currency situation.

But even with a recovery to the 1929 level of output, there would not be a recovery to the 1929 level of employment. The progress of mechanisation since that year has very much reduced the labour force necessary to produce a ton of coal, and if the 1929 level of output is to be at all readily achieved, this process and the increase of output per man-shift and reduction of costs will have to proceed still further. For this reason, and because the industry could produce a very much larger output than at present without taking on new men, by working up to full time, it is doubtful whether many of the 168,000 men who were displaced between 1929 and the end of 1934 would be reabsorbed by a return to the 1929 level of output. A very high proportion of the 227,000 men remaining unemployed at the end of 1934 must consequently form a permanent surplus of labour, much of which will be concentrated in the Special Areas, notably South Wales, Scotland and Durham, as well as in Lancashire and South Yorkshire.

Social Problem of the Permanent Labour Surplus

The existence of this surplus of labour represents a social problem of national concern rather than merely an industrial problem of the coal-mining industry. The latter has, since 1930, suffered from a number of disadvantages as a result of the Government's policy of "spreading the work," and it has been suggested in several places in this report that these should be removed as speedily as possible. But any such transition of policy demands a very much more vigorous attitude towards the depressed area problem than the Government has yet been disposed to adopt. Unfortunately also, trends in the industry are tending to make this problem more difficult. If the industry were able to meet its new labour requirements by absorbing the older men, the problem of transference would be made easier. But it is somewhat disquieting to find that the demand in the industry may be for an increasing percentage of juveniles which threatens to create a hard core of older unemployed men who are unwilling to leave their districts, and incapable of being retrained to do other work. The solution of the social problem of the coal-mining areas must, therefore, be found to lie partly in the provision of palliatives to make continued unemployment less intolerable as well as in attempting to provide alternative employment.

Such a prospect is uninviting in the extreme. But it cannot be sufficiently emphasised that if the coal-mining industry is to return to permanent prosperity, however moderate, it can only do so on the basis of a smaller personnel, less capital, fewer pits and a smaller output than it has been accustomed to in the past. Social considerations have required already in the last five years that employment should be spread and maintained above a level that the industry could economically support and, at the same time, pay a living wage to each man, but this has only been done, to some extent, at the expense of the eventual reconstruction of the industry and of average earnings.

If this tendency is reversed, and it inevitably will be reversed if any attempt is made on the economic reorganisation of the industry, it would be well to make provision in advance for the social consequences, and to initiate measures for the retraining and transference of such men as are transferable. As a preliminary, some attempt should be made to measure the extent to which retraining and transfer will be possible in view of the human element, and to assess the cost.

Action by the Industry

The industry itself can help to some extent by the adaptation of its recruitment and retirement policies. It is desirable, on the one hand, that the intake of boys should be regulated so that it does not exceed the possibilities of their permanent absorption, and, on the other hand, that the minimum age of entry into the industry should be fixed at 15 years for surface workers and 16 years for underground workers. This would free a certain number of jobs (perhaps 11,000 in Great Britain) for older boys and men. Where additional workers are being taken on by mines with expanding output, the existing practice (based on the Coal Industry Act of 1927) of recruiting from ex-mine workers should be adhered to, and every effort should be made to retain employees over 35 as long as it is economically possible to do so. The practice of taking men on in their early twenties and of dispensing with them in their late thirties is strongly deprecated.

The coal industry is not an old man's industry, and there are not enough light jobs to go round for those who cannot keep pace with younger men. Of the 88,486 insured coal miners who had been out of work for more than a year on July 26, 1935, 43,256, or nearly 50 per cent, were over 45 years of age and 23,399 over 55 years of age. Nevertheless, there is still a large number of elderly men working in the industry. At the time of the 1931 Census, there were 141,348 men over 55 attached to the industry, of whom 90,444 were actually working and 50,904 were unemployed.

The dismissal of mine workers in late middle life, in the absence of a pensions scheme, involving as it does the certainty of dependence upon Public Assistance for the remaining years of their life, cannot be faced with equanimity. In the present economic position of the industry, it cannot be expected to carry the burden of an adequate retirement pensions scheme on its own shoulders. If the industry worked out a scheme for the retirement on pension of miners of over 65 years of age and showed willingness to make some financial provision, there would be a strong case for Government assistance. Granted an adequate scale of pensions, there is no reason why the normal retirement age for coal miners should not be 55, as it is already in France. If such a scheme were put into operation there would be vacancies for several thousand younger men.

At the same time colliery companies with industrial interests and associations can play

a small but useful part by transferring unemployed miners to jobs in associated undertakings and by using their influence to attract new undertakings to their neighbourhood.

Action by the State

The policy of the State in the face of the surplus of labour in the industry should have two objectives—the reduction of the surplus as much as possible and provision for the welfare of those who cannot be absorbed into other occupations. Reduction of the labour surplus might be achieved in four ways:

(i) Raising the age of entry in to the industry.

(ii) Introducing early retirement pensions for mine workers.

(iii) Transferring surplus mine workers to other occupations and other areas.

(iv) Attracting new industrial undertakings to mining districts or to undeveloped areas near mining districts.

Retirement Policy

The total number of men over 55 attached to the industry to-day is probably lower than the 140,000 recorded in 1931, and the number over 55 actually working is almost certainly lower, but it is reasonable to suppose that at least 50,000 employed men and the majority of the unemployed men over 55 would be in a position to take advantage of the offer of early retirement pensions, creating vacancies for perhaps 25,000 to 30,000 younger men. P E P has already published proposals for an additional pension for all industrial workers retiring at the age of 65. Objections may be raised to the introduction of a permanent scheme benefiting one industry at the expense of the State, for which reason the offer of pensions to miners over 55 might be made temporary.

The cost of such a scheme would depend on the number accepting, but if it were accepted by 50,000 men actually working and 40,000 unemployed, the apparent cost, allowing for a very high proportion of married men would be in the neighbourhood of £6 to £7 millions per year, though the net cost, allowing for the saving in benefit, allowances and assistance, not only on account of the 40,000 unemployed men accepting the pension, but also on account of the 25,000 to 30,000 younger men reabsorbed, might be no higher than £2 millions per year for the first few years, after which it would certainly decline unless the offer of pensions at 55 were kept open indefinitely.

Transference

There has already been a considerable voluntary emigration from the depressed coalfields, estimated at a net figure of 290,727 for South Wales and 243,520 for Northumberland and Durham in the period 1921 to 1924. Most of this has taken place since 1926 and many of the men have gone to the newer coalfields, but there has also been a general movement to London and the South of England, involving a change of occupation. Since 1928 the Ministry of Labour has assisted transference from the depressed areas, and up to the end of 1934, 24,705 juveniles (of whom 10,049 were boys) and up to November 1935, 139,587 adults (of whom 115,849 were men) had been helped to move. But there has been a high percentage of failures, as 41,137 of the men transferred are estimated to have returned ultimately to their own districts. Generally speaking, only men under 35 years of age, and preferably single, are suitable subjects for transference, but provided only that the depressed areas are not entirely depleted

of the most vigorous class of their population, transference must obviously continue. More attention ought also to be paid to the welfare of transferred men in their new surroundings.

Recruitment Policy

Apart from the possibility of raising the age of entry into coal mining by voluntary action on the part of the industry, age minima could be enforced by Statute. Much the same effect would be produced if the Government accelerated its proposals for raising the school-leaving age to 15 and made it clear to local authorities that employment in or about coal mines below the age of 15 should not be considered as beneficial employment for exemption purposes.

There is, however, a case for still more thoroughgoing treatment of this problem. P E P has already published a comprehensive "Fourteen to Eighteen" policy, recommending *inter alia* the raising of the full-time school age to 15, without exemptions, and the introduction of compulsory half-time attendance in day continuation schools between the ages of 15 and 18. As applied to the coal industry, these proposals would mean that no boy could be employed until he was 15, and that boys between the ages of 15 and 18 would spend alternate weeks in a day continuation school and at work. Even if it were not possible to introduce these proposals on a national scale, there is a case for introducing them in mining areas provided that the financial burdens were to be shouldered mainly by the State.

As an alternative to a state-assisted scheme of retirement pensions evolved by the industry, the State might introduce a retirement pensions scheme for all insured workers. P E P has already made proposals to the effect that the existing Widows', Orphans' and Old Age Contributory Pensions Scheme should be extended so that insured men retiring at 65 should receive an extra 10s. per week, or 20s. a week for single men and 30s. for married men. It was contemplated that the additional cost should be financed by equal contributions of 3d. per week from employers, employees and the State. As there probably are fewer than 16,000 men of more than 65 in the coal industry to-day the effect of the scheme in reducing the surplus of labour would be limited unless the scheme were temporarily extended to cover all mine workers over 55, in which case the State would probably have to bear the extra cost.

Re-employment

While the transference of large numbers of miners may be a necessity, it is much more desirable that young men should be absorbed by the attraction of new industries to coal-mining districts or to areas within a reasonable distance. Otherwise an enormous amount of social capital will be wasted. In a few cases of complete dereliction, complete evacuation will probably have to be faced. The State is already doing a little in this direction through the Special Areas Commissioners, but a far more thoroughgoing and comprehensive scheme of development for the Special Areas is called for.

Any scheme for the re-employment of miners in other industries, whether in their own districts or elsewhere, raises the question of the necessity for reconditioning and training. The Government has already set up a number of Instructional Centres where courses designed to restore and maintain employability are arranged, and men between the ages of 18 and 45, with preference for single men under 35, are taken in. In addition, a number of industrial Training Centres have been set up in which men wishing to transfer to other industries, are given a course of instruction in one of a number of trades. Since the commencement of the

schemes, 66,000 men have passed through Instructional Centres and over 50,000 through Training Centres, 85 per cent of the latter having subsequently found employment. The cost to the Government in 1932-33 of industrial training per man was approximately £15 for an average course of 9 weeks at an Instructional Centre and £46 for an average course of 24 weeks at a Training Centre.

Both employers and trade unions have complained that these Centres turn out only half-trained men who undercut Union rates and are incapable of undertaking fully skilled work. While these grievances require investigation and correction, an extension of both types of Centre is obviously desirable as a corollary both of industrial transference and of industrial development in the Special Areas.

There can be little doubt that if vigorous State action were taken along the lines suggested, considerable inroads could be made into the large surplus of labour attached to the industry. The raising of the full-time school age to 15 and the introduction of half-time day continuation schools to 18, should provide nearly 20,000 jobs for unemployed miners between the ages of 18 to 24. The introduction of a retirement pensions scheme might provide work for between 25,000 and 30,000 men in middle life and remove from the labour markets some 40,000 unemployed men of over 55. The possibilities of transference and re-localisation of industries are only too easily exaggerated, but it might be possible by means of a conservative transference policy to find work for 10,000 miners under 35 in other industries in the next few years, and to create an equal number of new jobs inside the depressed colliery districts. There is no denying that the cost will be considerable, though the net cost may well be smaller than first impressions would indicate; but money will have to be spent in any case if a complete collapse of social life in the mining areas is to be avoided. There is, at any rate, a good case for maintaining that if public money has to be spent in the industry it can be spent most economically and beneficially on making alternative provision for the surplus of labour.

Welfare

Welfare in the mining industry is already the concern of a number of progressive colliery companies working on their own initiative, and of the administrators of the Miners' Welfare Fund, which was established under the Mining Industry Act of 1920 and enjoyed in 1934 an income of £660,982 derived from a levy on output and on royalties, and from interest on past investments. In the future, it cannot be too strongly stated that adequate provision for the welfare of unemployed men in the mining areas is one of the major responsibilities of the community. Although the suggestions already put forward are capable, if adopted in full, of materially reducing the labour surplus in coal mining, there will still be a large number of unemployed, including a considerable number of elderly men permanently retired on small pensions, whom the more constructive proposals can never touch. With a view to adding to their effective income, allotments, group holdings, and several forms of subsistence production have steadily been developed in the mining areas, often on a considerable scale. In the year ended August 31, 1935, assistance was given to 120,600 unemployed cultivators through the Central Allotments Committee and the Society of Friends, and £600,000 worth of garden produce is estimated to have gone into unemployed homes. In 1932, the Land Settlement Association was formed at the request of the Ministry of Agriculture, and a series of experiments have been carried out in settling the unemployed on small holdings, though it has already become apparent that such ventures can offer no solution in themselves. There

have also been several experiments in "subsistence production" schemes of which the Upholland experiment near Wigan, the scheme in the Eastern Valley of Monmouthshire and the Homecroft experiment near Cheltenham, are the best known. Some Government assistance is already received by voluntary bodies undertaking these various branches of activity, but it could with advantage be increased. Further assistance should also be given to local authorities and local bodies for the provision of amenities of all kinds, such as is already being given through the National Council of Social Service and by the Special Area Commissioners. The funds required for these purposes are seldom large and the return in social value is comparatively great; it is very desirable that wisely-planned projects of this kind should be extended. At the same time, preoccupation with the Special Areas should not be allowed to impede the improved social planning of the more prosperous coalfields, which may otherwise degenerate into the depressed areas of the future.

SUMMARY OF RECOMMENDATIONS

It may, in conclusion, be appropriate to give a brief picture of the structural changes which have been envisaged.

On the production side, the raising of output per man-shift and the progressive reduction of production costs must proceed by the concentration of output in the more efficient mines and the further development of mechanisation. To aid this process, Part I of the 1930 Act must be modified to facilitate amalgamations, and the powers of the Reorganisation Commission to compel amalgamations under Part II must be strengthened if the objective is not achieved in other ways. It must be possible for coalowners to pursue a policy of concentration fearlessly in the knowledge that the social problem created by the displacement of surplus labour is being adequately provided for. The nationalisation of royalties, though it may not, at first, result in any direct financial relief to the industry, should in many instances remove one source of difficulties to colliery owners and may provide the means whereby the Reorganisation Commission, if it is entrusted with their administration, can make its influence felt.

On the distribution side, the concentration of pithead sales under the control of genuine central selling organisations, adequately co-ordinated by a national controlling body, should have far-reaching effects in accelerating concentration of output. Its chief contribution, however, will be the improvement in pithead prices, which should result from the elimination of price-cutting and inter-district competition; and the reduction of distribution costs, which it should be possible to effect through the concentration of the distributive trade by co-operation between producers and distributors.

If inland sales are to be handled centrally, it is no less imperative that the whole of the export trade should be brought under the control of a single British Coal Export Association which would not only seek to employ its superior bargaining strength in the improvement of British export prices but would also take a leading part in the organisation of an International Coal Cartel and undertake constructive market development work abroad in favour of coal in general and British coal in particular.

It is felt that more substantial economies are to be gained by the concentration of the inland distributive trade and the raising of average turnover than at any other point in the progress of coal from the seam to the consumer. While in the long period, it is desirable, and should be possible, to reduce the price of coal to the ultimate consumer at the same time as raising pithead prices, it is vital, in the first instance, if even the existing market is to be retained, that there should be an improvement in the service offered to the consumer.

The transport of coal offers opportunities for economies, and with the object of achieving these, the use of 20-ton wagons and the pooling of wagons should be further encouraged.

Concentration of the industry will involve the displacement of labour, but the earnings of those who remain will be automatically improved by a return to a normal working week. In the meantime, advantage should be taken of the improvement in the relations of owners and men to evolve adequate national conciliation machinery and to return to a system of national wage agreements. To provide for the men who must inevitably be displaced without hope of reabsorption if the industry is to be run with reasonable technical efficiency, an active social policy must be pursued by the Government with a view to regulating the entrance into and exit from the industry and to provide for the surplus labour in the most economical manner. Such a policy will probably be cheapest in the long run.

Finally, it is felt that the time has come when progress on the most economic lines awaits an attempt by the Government to formulate and adhere to a National Fuel Policy which would co-ordinate the functions of coal, oil, electricity and gas in the national economy.

The above summary only gives a condensed account of the report, and for fuller treatment of any particular point reference should be made to the section concerned.

I. COAL PRODUCTION

Total Output of Coal 1913 and 1934

There are, according to the Mines Department's classification, twenty-five coalfields in Great Britain which produced in the aggregate nearly 220¾ million tons of coal in 1934, compared with nearly 287½ millions in 1913. Of the twenty-five, nine are of major importance. South Wales, Durham and South Yorkshire each produce between twice and three times as much coal as any other coalfield; the next in order of importance, all producing more than 10 million tons annually, are Nottinghamshire; the Lanarkshire district, which includes Linlithgow and Stirlingshire; Northumberland; Lancashire and Cheshire; North Derby; and West Yorkshire. The most important developments since 1913 have been the decline of the Durham coalfield through the working out of certain pits, the decline of South Wales through the falling-off of the steam-coal trade and the collapse of the Welsh steel industry, the decline of Lanarkshire through the working-out of certain pits and the depression of the Scottish steel industry, and the rising importance of South Yorkshire, Nottinghamshire and Kent, where much development has taken place. The production of Lancashire and Cheshire has also declined heavily through depression in the cotton trade. The position in the individual coalfields is surveyed in more detail later in this chapter.

There were, in 1934, no less than 2,234 coal mines registered under the Coal Mines Act, 1911. Many of these are very small, and little more than surface workings, but as many as 2,123 were reported as working in 1934 against 2,126 in 1933 and 3,267 in 1913. Their distribution throughout the country is shown in the table on the following page.

These figures show how extraordinarily low is the average output per mine. This is so particularly in the older districts. In the newer coalfields such as South Yorkshire, Nottinghamshire and Derbyshire the average size of units is considerably larger.

Working Costs and Profits

It is not often appreciated that the years 1927 to 1929, which constituted a period of not inconsiderable prosperity for many industries, were for coal mining years of deep financial depression, in which extremely heavy losses were incurred. The figures on page 32 show how much the position has improved since that time. It should be understood that the item "Other costs" in this table includes only the cost of management, salaries, insurance, repairs, office and general expenses, contributions to the Miners' Welfare Fund, remuneration of working proprietors and depreciation. It does not include such items as interest on debentures or loans, bank charges, amortisation and taxation, which together take a heavy toll of profits and are estimated by the Mining Association to amount to a charge of at least 3d. per ton of coal sold. The item "Wages" includes subsistence and other allowances, while "Royalties" include the rental value of freehold minerals where they are worked by the proprietor. "Proceeds" represent the amount received for coal (and ancillary minerals) disposed of commercially per ton of coal sold after deducting expenses of selling and delivery.

Production of Coal and Number of Working Mines in Each Colliery District

Great Britain 1913 and 1934

(000 tons)

District	1913			1934		
	Mines at Work	Output	Output per mine	Mines at work	Output	Output per mine
England						
Northumberland	134	14,819	111	102	13,831	135
Durham	304	41,533	134	228	30,590	134
Cumberland and Westmorland	40	2,321	58	26	1,564	60
Lancashire and Cheshire	303	24,629	81	170	13,758	81
South Yorkshire	342	27,682	127	121	28,761	238
West Yorkshire		15,997		118	11,092	94
Nottinghamshire	35	12,394	554	46	14,309	311
North Derbyshire	115	16,889	147	99	11,798	119
South Derbyshire	12	1,244	104	14	712	51
North Staffordshire	452	6,594	33	81	6,262	77
Cannock Chase		5,764		39	4,938	126
South Staffordshire and Worcestershire		2,571		70	1,542	22
Leicestershire	30	3,175	106	16	2,348	147
Warwickshire	29	5,072	175	20	5,150	257
Shropshire	67	846	126	41	676	16
Forest of Dean	88	1,342	34	34	1,205	35
Somerset		1,160		13	696	54
Bristol		464		3	179	60
Kent	8	59	7	4	2,031	508
Wales						
North Wales	44	3,506	80	27	2,786	103
South Wales	621	56,830	92	459	35,173	77
Scotland						
Fife and Clackmannan	69	10,132	147	46	8,312	181
Lothians	39	4,322	111	32	4,887	153
Lanarkshire, etc.	332	23,313	70	232	14,122	61
Ayrshire, etc.	110	4,689	43	60	4,011	67
Total Great Britain	3,267	287,347	88	2,123	220,726	104

Average Costs of Production, Proceeds and Profits of the Coal-Mining Industry, and Tonnage of Coal Disposable Commercially from 1922

Annual Average	Proceeds per Ton s. d.	Costs of Production per Ton of Coal Disposable Commercially: Wages s. d.	Stores and Timber s. d.	Other Costs s. d.	Royalties s. d.	Total s. d.	Balance: Credit s. d.	Balance: Debit s. d.	Output per Man-shift cwts.	Approximate Tonnage of Coal Disposable Commer'ally mil. tons.
1913	10 1½	6 4	—	—	—	8 7½	1 6	—	20.3	287.4
1922	19 1½	12 1¾	2 3¾	3 2½	0 7	18 1¾	0 11¾	—	18.0	227.5
1923	19 9½	12 4¼	2 2	2 8¼	0 6¼	17 7½	2 2	—	17.8	252.6
1924	19 9¼	13 3	2 1½	2 10	0 6¼	18 7¼	1 2	—	17.6	243.9
1925	17 1	(a 12 9½)	1 10¾	2 10¼	0 6¼	(a 17 11¼)	0 3¼	—	18.0	221.7
1926*		(b 11 8)				(b 16 9¾)				
	15 8¾	(a 12 4)	1 9¾	2 8¼	0 6¼	(a 17 2¾)	1 3	—	18.4	80.8
		(b 9 7)				(b 14 5¾)				
1927	15 1¼	10 7½	1 9¾	2 8¾	0 6¼	15 7	—	0 5¾	21.0	230.9
1928	13 3¼	9 5¾	1 7¼	2 8¼	0 6	14 2¼	—	0 11	21.3	219.3
1929	13 11	9 2	1 6¾	2 4¾	0 6	13 6½	0 4½	—	21.7	239.3
1930	14 1	9 3¾	1 7¼	2 5	0 5¾	13 8¾	0 4¼	—	21.6	222.5
1931	14 0¼	9 2¾	1 6½	2 6½	0 6	13 8¾	0 3½	—	21.6	203.4
1932	13 10	9 0¾	1 5¾	2 8½	0 6	13 8	0 2	—	22.0	192.2
1933	13 6½	8 9½	1 5	2 8¼	0 6	13 3¾	0 2¾	—	22.5	191.5
1934	13 4½	8 7¼	1 5½	2 6	0 5¾	12 11½	0 5	—	23.0	204.9

* Jan.–April only. (a) Including subvention (b) Excluding subvention.

Analysis of Cost Reductions

The industry has hardly received the credit it deserves for the reduction in costs of 7d. per ton that it has achieved since 1929 in spite of a fall in sales from 239 to 205 million tons and a fall in average proceeds of 6½d. per ton. In other words, the industry has reduced its costs of production by 3.4 per cent at a time when the volume of output has fallen by more than 14 per cent. It is reasonable to assume that the reduction per ton would have been much more substantial had the last six years formed a period of expanding and not contracting output; if and when production again begins to expand a very rapid improvement in cost efficiency might reasonably be expected. This cost reduction has been achieved as a result mainly of a form of concentration of production. Although little progress has been made in the concentration of output in the broader sense of the concentration of production in fewer mines, the extent to which concentration of output within the pit upon the better working faces has been pursued has been generally overlooked. Although this form of concentration may be justified as a means of weathering a relatively short period of depression, it cannot be recommended as a long-term policy, since it will tend to lead to the exhaustion of the richer seams, and must be considered a poor second best to the broader policy of working the better mines at full capacity and closing down the least efficient.

The question of concentration of output must also be considered in relation to mechanisation. In coal mining, as in most other industries, the financial results of installing machines to perform processes that previously employed a higher quantity of manual labour depend very largely upon ability to work the machines at their full capacity. It will be noticed that since 1929 the decline in wage costs and stores and timber has exceeded the decline in total costs, other costs having actually risen. There is little doubt that overhead costs are increased by mechanisation, and that mechanisation may not therefore be wholly successful unless accompanied by concentration of output. The experiences of mines which have installed machinery and have afterwards been compelled to take it out again, of which there are a few examples, are probably attributable to this combination of circumstances.

Coal-mining Profits

The mistake must not, however, be made of judging the relative prosperity, or lack of it, in the industry entirely on the size of the profit or loss per ton of coal shown in the ascertainments. These figures, being averages, do not reveal the proportions in which profits combine with losses in producing the final result. The extent to which a given profit per ton may enable a colliery company to cover its interest and amortisation charges and to show a reasonable profit afterwards obviously depends also upon its capitalisation. Moreover, although a district as a whole may be showing an average loss on each ton of output produced, there are, in nearly every district, colliery companies favoured by natural conditions, market conditions, exceptional managerial ability, or a combination of the three, which enable them to sell at a profit.

There are, in fact, a number of colliery companies which are fairly prosperous, in spite of the general depression in the industry, though this is not to say that they would not be more prosperous still if they were to be relieved of their present responsibility under the quota system for sharing their prosperity with their less successful fellow-members of the industry. Generally speaking, the successful companies are the owners of the more recently developed pits which enjoy certain advantages in layout and equipment. In contrast to many of the older pits, also, they are not so often saddled with large bank overdrafts or compensation claims, nor are they struggling, with insufficient funds, to undertake develop-

ment work and technical improvements, which should properly have been provided for out of past profits, when profits were being made. Many of the financially most successful concerns also owe part of their success to the development of coking and by-product plants or brickworks. The following table gives the most recent financial results of a selection of some of the largest colliery groups throughout the country, which shows that for large concerns coal mining is not necessarily unprofitable. It should be added that there are also some small companies, working under favourable circumstances, which have been able to make regular profits.

Company, Year of Registration and District	Financial Year Ending	Profits £	Ordinary Dividend Per cent	Issued Capital
Airedale Collieries, Ltd. (1919)	Feb. 28, 1934	74,111	7½	Ord. £800,000
West Yorks	Feb. 28, 1935	74,972	7½	
Amalgamated Anthracite Collieries, Ltd.	Dec. 31, 1933	143,140	Nil	7% Cum. Pref. £1,964,821
(1923) South Wales	Dec. 31, 1934	144,322	Nil	Ord. £6,718,248
Bullcroft Main Collieries, Ltd. (1913)	Mar. 31, 1934	63,700	6	6% Cum. Pref. £50,000
South Yorkshire	Mar. 31, 1935	39,067	5	Ord. £700,000
The Butterley Co., Ltd. (1888)	Mar. 31, 1934	90,589	5	Ord. £1,800,000
North Derbyshire and Notts	Mar. 31, 1935	93,964	5	
Fife Coal Co. (1895)	Dec. 31, 1933	78,392	5	5% Cum. Pref. £417,813
Fifeshire	Dec. 31, 1934	120,195	7½	Ord. £1,224,393
Horden Collieries, Ltd. (1900)	Sept. 30, 1934	76,213	5	Ord. £1,500,000
Durham	Sept. 30, 1935	75,029	5	
Madeley Collieries, Ltd. (924)	Mar. 31, 1934	15,790	2	7½ Cum. Pref. £175,000
North Staffordshire	Mar. 31, 1935		Nil	Ord. £175,000
Manchester Collieries, Ltd. (1929)	Mar. 31, 1934	113,259	2½	7% Cum. Pref. £1,230,879
Lancashire	Mar. 31, 1935	169,844	3	Ord. £4,247,585
Manvers Main Collieries, Ltd. (1899)	June 30, 1934	84,896	4	5½% Cum. Pref. £200,000
South Yorkshire	June 30, 1935	103,785	4½	Ord. £700,000
Ocean Coal & Wilsons, Ltd. (1908)	Dec. 31, 1933	222,901	3	5% Cum. Pref. £1,396,000
South Wales	Dec. 31, 1934	173,266	2	Ord. £5,000,000
				Employees £201,106
Pease & Partners, Ltd. (1898)	Mar. 31, 1934	46,923	Nil	
Durham and South Yorkshire	Mar. 31, 1935	78,563	Nil	Ord. £171,729
Powell Duffryn Steam Coal Co. (1864)	Mar. 31, 1934*	378,991*	5.2	6% Pref. £155,795
South Wales	Mar. 31, 1935	321,032	6	6% 2nd Pref. £105,141
				Ord. £3,671,667
Sneyd Collieries, Ltd. (1900)	June 30, 1934	38,193	10	6% Cum. Pref. £127,500
North Staffordshire	June 30, 1935	74,870	12½	Ord. £300,000
South Hetton Coal Co., Ltd. (1898)	Mar. 31, 1934	25,423	Nil	5% Pref. £300,000
Durham	Mar. 31, 1935	41,348	1	Ord. £500,000
Tredegar Iron and Steel & Coal Co., Ltd.	Mar. 31, 1934	75,117	"A" 3	"A" Ord. £616,000
(1873) South Wales			"B" 3	"B" Ord. £1,115,103
	Mar. 31, 1935	40,015	2½	
Warwickshire Coal Co., Ltd. (1911)	Dec. 31, 1933	101,519	17½	Ord. £45,000
Warwickshire	Dec. 31, 1934			
Welsh Associated Collieries, Ltd. (1930)	Dec. 31, 1933	183,252	Nil	7½% Cum. Pref. £197,821
South Wales	Dec. 31, 1934	301,526	Nil	Ord. £550,000
Wemyss Collieries Trust, Ltd. (1897)	Nov. 11, 1934	45,457	Pref. 5	5½ Cum. Pref. £242,000
Fifeshire			Def. 8	Pref. Ord. £120,000
	Nov. 11, 1935	44,275	Pref. 5	Def. Ord. £130,000
			Def. 8	
Wigan Coal Corporation, Ltd. (1930)	Dec. 31, 1933	7,306	Nil	7% Pref. £266,743
Lancashire	Dec. 31, 1934	23,907	Nil	"A" Ord. £591, 294
				"B" Ord. £887,888
Yorkshire Amalgamated Collieries, Ltd.	Mar. 31, 1934	7,624	Nil	Ord. £2,914,783
South Yorkshire	Mar. 31, 1935	50,273	2	Def. £851,112

* Fifteen months' period.

The Progress of Mechanisation

It is fairly evident that the greater part of the economies which have succeeded in reducing the cost of coal production from 13s. 6½d. to 12s. 11½d. per ton since 1929 has been realised through technical improvements rather than managerial or distributive economies, since the reduction in labour costs (6¾d. per ton) accounts for the whole of the improvement except for a mere farthing. Since there has been no general reduction in wage rates during this period, and since there has actually been a decrease in hours worked since 1930, these economies have clearly been realised by the replacement of labour by machinery.

In an industry such as coal mining, where labour costs amount to 70 per cent of total costs, the productivity of labour must obviously be the most powerful factor determining costs of production. In fact, the cost of coal production varies almost exactly in inverse proportion to the rate of output per man-shift, as the chart on page 36 shows. It is therefore probable that the progress of mechanisation, by increasing output per man-shift, will lead to a general reduction in costs, provided, as has already been mentioned, that output is sufficiently concentrated to minimise the increase in overhead costs which accompanies mechanical mining.

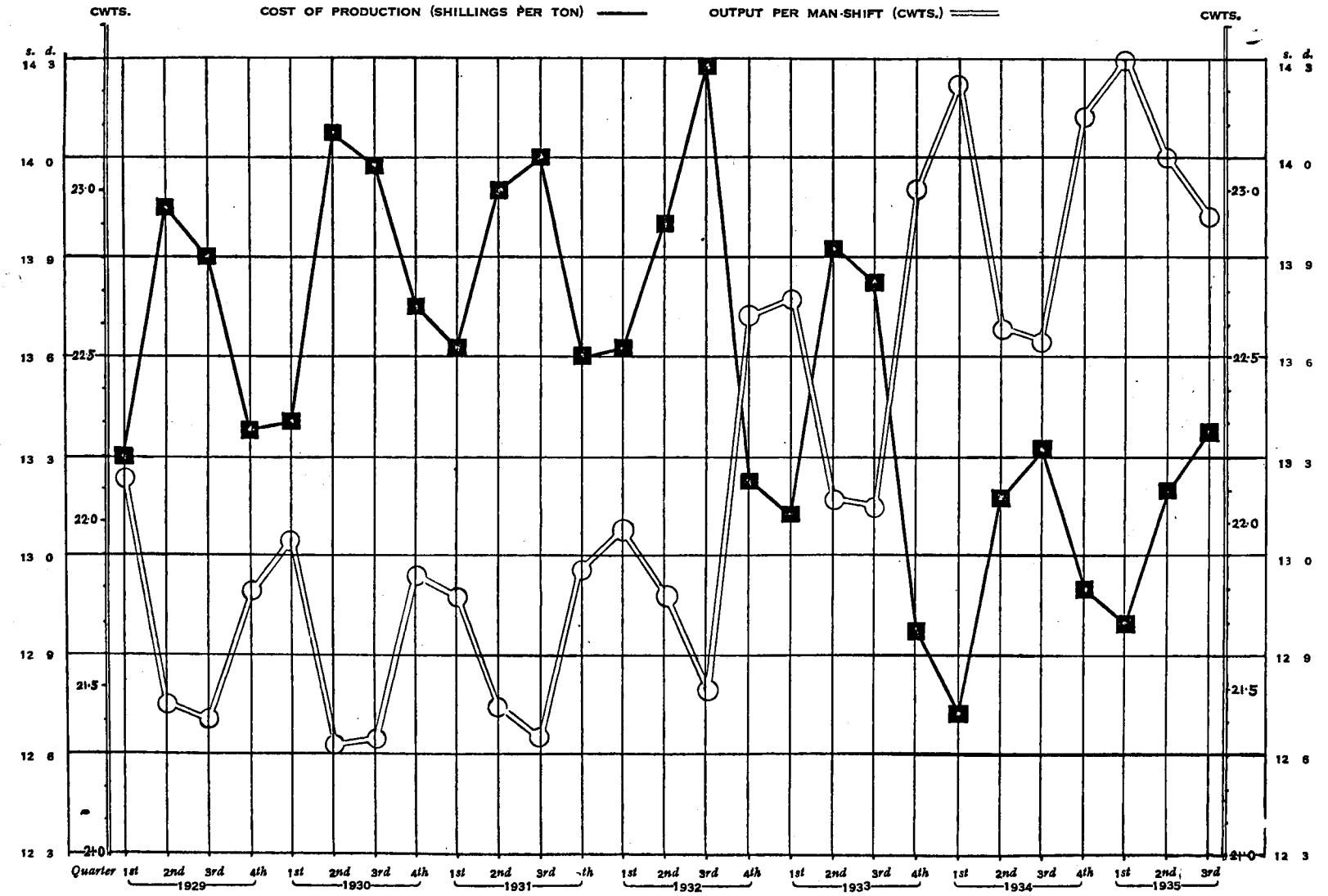
The extent to which mechanisation in mines has advanced in recent years is shown in the following table. 47 per cent of the total output was won by machines in 1934, compared with 28 per cent in 1929, the actual output of machine-cut coal having risen from 72 to 103.7 million tons. The use of mechanical picks for coal-getting, which has been almost universal on the Continent, has been making rapid strides in Great Britain in recent years. In spite of the increase in the tonnage of coal got by machine-cutters, there has actually been an increase of only 45 in the number of machine-cutters in use since 1929—an increase from 7,361 in 1929 to 7,406 in 1934, accompanied by a big change-over from compressed air to electricity for motive power. The number of pneumatic picks in use for coal-getting and for getting down coal undercut by machines has, however, increased threefold—from 1,383 in 1929 to 4,465 in 1934. Progress in the rate of installation of mechanical conveyors has also been greater in recent years than the increase in the use of machine-cutters. Only 14 per cent of the total output was mechanically conveyed in 1929, compared with 35 per cent in 1934; the actual tonnage rose from 37.1 to 81.5 million tons.

GREAT BRITAIN
MECHANISATION AND OUTPUT

	1925	1929	1934
No. of mines at work . . .	2,721	2,419	2,123
No. of mines using machine cutters . .	915	881	840
Percent. of mines using machine-cutters	34	36	40
Total output of coal (000 tons) . .	243,176	257,907	220,726
Output cut by machine (000 tons) . .	48,133	71,950	103,701
Percent. of total output cut by machine	20	28	47

It would appear, however, that the number of mechanised pits has not increased as rapidly as either the output of coal won by machine or the proportion of machine-cut coal to the total output. This is illustrated by the above table. It may therefore be concluded

COST OF PRODUCTION AND OUTPUT PER MAN-SHIFT



that the mechanised mines are gradually winning a larger proportion of the market and that the increase in the tonnage and proportion of coal cut by machinery is not due so much to the installation of more machines as to the decline in the output of unmechanised mines.

Coal-mining Methods

In order to appreciate the significance of the advance of mechanised mining and to weigh up the future prospects of the industry which might result from the continuation of this trend, it is necessary to know something of mining methods. Such knowledge is also essential if the problems of amalgamation of mines are to be discussed later in a practical manner, having due regard to the complications introduced by the vast differences in mining conditions.

Coal is a stratified mineral probably formed by the deposit of vegetation at a time when the world was for the most part covered by tropical swamps. It must, in the first place, have been very unevenly spread, and it has subsequently been disturbed to a greater or less extent by erosion and washing-out or by dislocation of the earth's surface subsequent to its deposit. There are, consequently, in mines practically infinite variations in moisture content; in the composition of the roof, which may vary from solid rock to loose shale; in the composition of the floor, which may consist of solid rock or of clay which tends to be forced upwards by the lateral pressure after the coal seam has been removed; in the occurrence of dust; in the risk of spontaneous combustion; in the presence of gas (methane, carbon dioxide or sulphuretted hydrogen); in the likelihood of encountering "Faults," "Nip-outs" and "Stone-baulks." Moreover, no two coal seams are exactly alike in composition; they may vary in depth from outcropping at the surface to the limits of possible working under present mining conditions; in width, in this country, from a few inches to 36 feet (in the ten-yard seam of South Staffordshire); and in inclination to the horizontal. Some seams are hard and relatively difficult to hew, some are full of "backs" and dirt "partings" and must be got carefully.

Some of these considerations may appear of relatively minor significance to the layman. Such factors, however, as a high risk of spontaneous combustion may necessitate an entirely special system of mining in order to avoid all avoidable movements and subsidences of the ground which might cause friction and generate heat.

No system of mining succeeds in getting all the coal out of the ground. Some must, of necessity, be left behind in pillars, though methods of mining which would enable the area of the pillars to be reduced or eventually worked out are constantly being discussed.

Plant and Equipment in use at Mines under the Coal Mines Act

	Number of Mines at Work	Coal-cutting Machines: Number driven by Comp'd. Air	Coal-cutting Machines: Number driven by Electricity	Coal-cutting Machines: Tonnage Cut 000 Tons	Coal-cutting Machines: Tonnage Cut Per cent of Total	Electric Motors in Use: Below Ground No.	Electric Motors in Use: Below Ground 000 H.P.	Electric Motors in Use: Above Ground No.	Electric Motors in Use: Above Ground 000 H.P.	Mechanical Picks and Drills in Use: Pneumatic Picks Coal getting*	Mechanical Picks and Drills in Use: Pneumatic Picks Ripping, etc.	Mechanical Picks and Drills in Use: Drills for boring Shotholes
1913 .	3,267	1,590	1,305	24,368	8	—	371	—	257	5,679†		
1929 .	2,419	3,574	3,787	71,950	28	20,268	918	17,530	836	1,383	1,622	5,876
1930 .	2,328	3,597	4,040	75,756	31	21,589	955	18,390	862	2,214	1,953	6,057
1931 .	2,243	3,345	4,026	76,864	35	21,858	961	18,804	873	2,557	2,173	6,112
1932 .	2,158	3,167	3,970	80,286	38	22,282	970	19,476	885	2,665	2,243	6,069
1933 .	2,126	2,938	4,211	87,826	42	22,914	984	20,309	904	3,576	2,367	6,392
1934 .	2,123	2,955	4,451	103,701	47	24,310	1,022	21,032	927	4,465	2,709	6,615

	Mechanical Conveyors in Use Below Ground: At Coal Face Comp'd. Air	At Coal Face Electricity	Elsewhere Comp'd. Air	Elsewhere Electricity	Tonnage of coal Conveyed	Per cent of total output	Coal Cleaning: No. of Plants in Use Wash-eries	No. of Plants in Use Dry Cleaning	No. of Plants in Use Froth Flotation	Coal Treated 000 tons	Coal Treated Per cent of Total‡
1913 .	359		—	—	—	—	—	—	—	—	—
1929 .	1,534	1,064	350	270	37,150	14	562	74	6	71,331	28
1930 .	1,676	1,315	394	362	42,495	17	583	91	6	72,715	30
1931 .	1,661	1,476	394	422	47,308	21	570	109	6	66,655	30
1932 .	1,665	1,600	381	474	52,666	25	594	128	6	71,576	34
1933 .	1,839	1,878	446	593	62,156	30	604	141	5	77,470	37
1934 .	1,942	2,148	534	745	81,493	37	611	151	5	87,458	40

* Including picks used for getting down coal undercut by machines. For the years 1930 to 1934 the numbers of such picks were 371, 347, 302, 596 and 713 respectively.

† 1927.

‡ In relation to the output of coal which is generally suitable for cleaning, i.e. fine or small coals, the proportion so treated is in general considerably higher than is indicated above by the percentage of the total output of coal.

Bord-and-Pillar System

There are three distinctive systems of mining in this country: the "Bord-and-Pillar" system, which was developed and perfected in the northern districts; the "Long-wall" system, whether advancing or retreating, which originated in the Midlands; and "Stall-working," which is peculiar to South Wales and which has adopted some of the features of each of the other systems.

The essential difference between the Bord-and-Pillar system and the Long-wall system is that in the former little or no "stowing" of the "goaf" is necessary after the coal has been extracted, while with the latter some "stowing" is essential. With the Bord-and-Pillar system a number of parallel "headings" are driven through the coal measures and are subsequently connected by cross-cuts at right angles to the headings. About 15 per cent of the coal seam is removed in the driving of the headings, and the remainder is left in two rectangular blocks or pillars, similar to the layout of an American city. These pillars are then removed, the original "headings" being used as roadways for getting the coal to the shaft.

Long-wall System

With the advancing Long-wall system, the seam is worked in broad faces, advancing a few feet at a time, which means that the roadways for carrying back the coal won must also advance through the "goaf" or waste material where the coal has already been extracted. In this method there is obviously great danger of the roads being closed or otherwise affected by subsidence or pressure, so that they have to be protected by building "packwalls" of stone and rubbish and complete or partial "stowing" of the "goaf." In thin-seam mines, i.e. where the coal seam is only three feet or so thick, there is always plenty of material for "stowing," as the roads behind the seam have to be enlarged by "ripping" in the roof above the seam, which yields substantial quantities of stone. But stowing is an expensive item where the seams are thick and less material is available for "ripping," and it is sometimes necessary to make small quarries in the roof and to quarry stone from faults, or even to bring sand and other material from the surface. In America and on the Continent, where the latter is quite often necessary, good results have been achieved with hydraulic stowing where sand is brought from the surface and stowed with water in pressure hoses, but this system is only used in a few mines in England.

In deep mines, working on the Long-wall system, stowing with stone is essential since the roads always give trouble even if pillars of coal are left to support them. Even with the Bord-and-Pillar system, where the seams are very thick or steeply inclined some stowing may be necessary.

Stall-working

The retreating Long-wall system is merely a modification whereby roads are driven out to the boundary of the mine in the first instance and the coal worked back towards the shaft, instead of advancing from the shaft. "Stall-working," as already indicated, is a combination of the two other systems. In this case a number of parallel "stalls" are driven at intervals into the seams for a distance of, say, 50 yards along a wide face and the intermediate blocks of coal so formed are then worked back again, the same roads being used for working out and back and some stowing being necessary.

In mines with very thick seams it may be necessary to remove the coal in layers, and both in these and in mines where the seams are very steeply inclined special methods may very often have to be used.

These systems concern only the way in which the mine is worked as a whole. There are also a number of variations in the method by which the coal may be got from the working face. In the first place the angle at which the face is cut into the seam may differ according to the size of coal required. Normally the seam is worked most easily if the working faces are parallel to the main planes of cleavage of the coal, but in some cases the seam may be worked obliquely in order to get a higher proportion of round coal.

Machine-cutting

The actual process of coal-getting generally consists of three operations—undercutting the coal, getting the coal down, and conveying it to the shaft. Undercutting consists of undermining the seam for a depth of five feet or so in order that the coal may be got down more easily. In some cases, where there is a large dirt band in the middle of the seam, it may be more economical to cut in the dirt and get the coal later from the roof and from the floor. Undercutting may be done with hand picks by manual labour. It can also be done with manual labour and pneumatic picks; this method is used almost exclusively in the Ruhr, but it is not typical of British mining practice, though it is probably becoming increasingly popular. Pneumatic drills are sometimes also used for "ripping," i.e. heightening the roof behind the face in thin-seam mines.

In the third place, some form of coal-cutting machine may be installed, which makes a continuous clean cut right along the working face; more than 85 per cent of the output of coal cut by machines in this country is obtained with the use of the chain type of machine.

Several technical and economic factors influence the introduction of machines. The original capital cost is fairly considerable, but against this can be set working economies through the reduction in the labour force, and especially on thin seams which are difficult to hew, such as are found in Scotland and on the North-East coast, the installation of machine-cutters has gone to great lengths. In thick-seam mines, where much more coal is got per foot of development, there may be less incentive to economise in labour by the introduction of machines. Moreover, in the case of thick seams, the coal often falls very easily once it has been undercut, and there is danger of damage and stoppage if machines are used. In South Wales in particular, the seams are very easy to hew by hand, as they contain numerous smooth partings extending from floor to roof at an incline to the plane of bedding. If the seam is worked "on face," as it usually is (that is to say with the incline of the partings forming an obtuse angle with the roof so that the working face tends to overhang the miner), the coal is very easily got by hand, but is liable to fall on a machine while still at work. Hence machine mining has been traditionally associated with thin-seam pits and there has even been a fairly general assumption that it is not feasible in thick-seam pits. Within the past few years, however, there has been a considerable advance in the use of machines by the latter, and some have even been installed in South Wales, it is believed with good results. There is the great advantage in machine-cutting that it will produce a large size and generally a much cleaner quality of coal, especially if there is a band of dirt or shale below the seam in which the cut can be made.

Use of Pneumatic Picks

On the Continent there has been a very high degree of mechanisation in the pits, but by the installation of pneumatic picks rather than machine-cutters. There has, however,

been a tendency in more recent years to introduce machine-cutters on the British model, just as in Great Britain there has been a rapid increase in the use of pneumatic picks for coal-getting. It seems probable in each case that the traditional methods of machine mining have hitherto attracted too much attention. There is some reason for thinking that the mechanisation of thick-seam pits can be undertaken much more satisfactorily with pneumatic picks than with machine-cutters, and it is believed that mechanisation with pneumatic picks would also produce the best results in South Wales.

Shot-firing

Once the face has been undercut, the coal may be got down by hand, with pneumatic picks, or by shot-firing. Pneumatic picks are not much used for the purpose in this country, and hardly at all in conjunction with coal-cutting machines, as the capital cost of using both is generally beyond the means of most colliery companies. There were, however, nearly twice as many pneumatic picks being used for this purpose in 1934 (713) as in 1930 (371).

Shot-firing is the method most commonly used in this country, and though it is bound to lead to accidents where the essential precautions are not taken, it is probably the most practical method of getting down coal which is hard to hew. Nearly 25 million pounds of explosives (mostly nitro-glycerine and ammonium nitrate, electrically fired) were used in this country in 1934 and over 53 million shots were fired. Shot-firing is used most extensively in Scotland, Northumberland and Durham, and Lancashire and Cheshire.

Mechanical Conveyors

As has already been indicated, the greatest advance in mining technique that has been made in recent years is in the installation of conveyors. Without the adoption of machine-cutters coal mining is a fairly continuous process, the coal being undercut, the shots fired, the coal railed to the shaft, and the props inserted and stowing taking place in a more or less continuous sequence. The installation of machine-cutters and conveyors, however, generally results in the spreading of the complete cycle of operations over three shifts. One whole shift will be occupied in undercutting the face; the next shift will be occupied in getting down the coal and loading it with a gate-end loader in the main haulage road; while the third shift will be occupied in stowing and timbering and moving the machine and conveyor forward into position for the next cut. To this extent, a completely mechanised process is more efficient where economic conditions permit a more or less continuous and level output, while less mechanised methods are more easily adaptable to changes in the volume of demand. In times of depression it is possible to cut costs and curtail production by turning off men, but this cannot so easily be done with machines. For this reason there has even been a tendency in some pits to take out the machines installed and to revert to hand-working.

Technical Mining Staff

This short and in many ways inadequate description of some of the main features of mining technique should make it sufficiently evident that there are a great many different methods of operation adapted to a wide divergence of natural conditions. To this extent, the work of a mining engineer or colliery manager is specialised, and a man who has made a considerable success of one pit as a result of life-long experience of the conditions met with in it, might, though to outward appearances a very efficient man, find himself out of his depth in another pit where conditions were different. To some extent, conditions within any one

coalfield or seam, or part of a coalfield or seam, might be expected to be approximately similar, but this is by no means always the case. Although these difficulties can be, and often are, exaggerated, it is clear that when the practical details of amalgamation of mines and the possible cost reduction which might be expected from it come to be considered, caution will have to be exercised in attempting to secure economies by cutting down technical mining staff. In any case, the percentage of total costs represented by managerial salaries is small, and the reduction of technical mining staff below a minimum level in relation to the number of men employed is prohibited by legislation.

Size of Productive and Managerial Units

There were in 1934, 2,123 coal mines at work in Great Britain and probably considerably more than 1,000 separate colliery companies. The industry is still remarkable for the prevalence in many districts of almost complete individualism and the continued existence of a great number of small producing units. In 1934, when the total output of coal was 220 million tons, there were not many more than twenty collieries or colliery groups with outputs of more than 2 million tons per year, while those with outputs in excess of 3 million tons did not exceed half-a-dozen. The twenty-five largest concerns, however, control approximately 33 per cent of the present production of the industry.

These figures show that the concentration of control in the industry has in fact gone somewhat further than is commonly supposed, though they also indicate the very small average size of colliery units outside the leading concerns. This concentration is more marked in some districts than in others. In South Wales, for example, Powell Duffryn Associated Collieries, which control a present output in excess of eleven million tons annually, together with the Ocean Coal and Tredegar Groups, Ebbw Vale, and Cory Bros. account for about two-thirds of the 29 million tons of bituminous coal produced in 1934. In the Western portion of the Welsh coalfield Amalgamated Anthracite accounts for about two-thirds of the total anthracite production. In Northumberland, three groups of collieries were responsible for about 50 per cent of the output of 13.8 million tons in 1934. In Durham, there are, including the colliery interests of the Consett Iron Co. and Dorman Long, four important producing groups which probably control about 40 per cent of the total district output. Two companies, Manchester Collieries Ltd. and the Wigan Coal Corporation, a subsidiary of the Lancashire Steel Corporation, control between 40 per cent and 50 per cent of the output of Lancashire and Cheshire. The Midland Amalgamated District contains a number of large undertakings and the average size of company outputs, especially in Nottinghamshire and North Derbyshire, is large. There is, however, a number of small pits in West Yorkshire. In nearly every district it is probably true to say that three-quarters of the production is concentrated in less than half the total number of pits and in the hands of less than a quarter of the total number of colliery owners. But in nearly every district there is a number of small mines, employing sometimes less than twenty or thirty men, engaged on working outcrops and drifts.

The exact degree of concentration of control in the coal-mining industry is rather difficult to measure, but there exists in the industry a number of connections between colliery companies, often in different districts, through the concentration of financial and directorial control, though these connections amount in many cases to liaisons rather than indicating a definite unification of policy. Such associations of companies have usually grown up historically as the result of personal interests rather than through any conscious attempts to secure economies through the association of neighbouring collieries. There are, of course, exceptions which

are well known. In the last century, when the industry was prosperous and expanding and individual fortunes played a large part in industrial development, many individual capitalists acquired control of promising colliery concerns purely as an investment, and the companies acquired were naturally often chosen because they happened to be available or because they were individually sound investments. The impetus does not seem to have come to any great extent from a desire to secure economies by managing a group of collieries as a group. These early ventures on the part of individuals have now very often developed into family interests in groups of collieries of which the constituent companies continue to have not very much in common. Although such individual interests very often do not amount to controlling interests, coal mining has come to have the appearance of an industry where financial unification and linking have proceeded further than technical and economic concentration. Indeed, from the experience of other industries where financial unification has taken place without regard to the economic requirements of amalgamation and association, it may be that this diffusion of financial interests and directorial control over a number of companies which have little geographical or economic affinity has stood in the way of a closer concentration on economic lines within districts.

In addition to the concentration of production and management due to the concentration of ownership and control there are in the industry a few instances where collieries have associated themselves by agreement for the purpose of exercising certain joint powers. As is now well known, the producers of Lancashire and Cheshire have set up a central selling organisation under the title of Lancashire Associated Collieries for the purpose of handling the sales of all the coal produced in the district, the receipts being pooled. This scheme is described in greater detail in the section dealing with the distribution of coal. It is not so well known that the coalowners of the Lothians have for some time operated a scheme of voluntary federation in respect of sales which approximates in practice to an early form of central selling. In North Staffordshire the majority of the owners have combined to exercise certain joint powers for the acquisition of mineral rights and the closing down of pits.

Divergence of Local Conditions

So far consideration has been given only to the coal-mining industry as a whole. Like all extractive industries, coal mining is particularly susceptible to variations in local conditions, from which it can never escape, and local conditions in the shape of the composition and formation of the coal seams, access to markets, and traditional methods and usages play an important part in the economic structure of the industry. In coal mining it is always dangerous and often definitely misleading to make generalisations on the basis of statistics representing the average of the whole industry. Accordingly the remainder of this section has been devoted to the indication of the main characteristics of the industry in each district.

Scotland

The general characteristic of Scottish coals is their bituminous nature, high volatile content and low coking properties. Ayrshire coals are for the most part non-coking but make good house—and excellent gas-producer—coals. The Lanarkshire district or Central coalfield produces house, steam, and coking coals and pseudo-anthracite. The greater part of the output is most suitable for household, manufacturing or steam-raising purposes but some seams of gas- and coking-coals occur to the north and extend as far eastward as Stirling. In this latter corner of the Lanarkshire district high quality steam coals and pseudo-anthracite are also produced. Fife coal is mainly suitable for household, manufacturing and steam-raising

purposes, though a few seams are considered to be of coking quality. The output of the Lothians is mainly of house and steam coals but there are bands of splint and cannel and some oil shale.

The following figures show the production of the Scottish districts in 1913, 1929 and 1934 and numbers of workpeople employed in all occupations in or about mines:

Districts	Fife	Lothians	Lanarkshire	Ayrshire
Production (000 tons)				
1913 . .	10,132	4,322	23,313	4,689
1929 . .	8,516	4,949	16,372	3,982
1934 . .	8,312	4,887	14,122	4,011
Employment				
1913 . .	30,776	13,944	79,128	15,576
1929 . .	23,650	13,501	49,998	12,794
1934 . .	20,908	12,390	38,712	11,052

It will be seen from these figures that, except for Lanarkshire, none of the Scottish districts have suffered from a very severe curtailment of output, but that the fall in Lanarkshire has been very heavy. There has nevertheless been a continuous fall in employment which is attributable to the adoption of mechanised mining on a large scale. Seeing that thin seams prevail over the greater part of the Scottish coalfields, machine mining was adopted at a much earlier stage and has since been developed to a far higher degree in Scotland than anywhere else in Great Britain, with the possible exception of Northumberland, South Derbyshire and North Staffordshire. The extent of the mechanisation of Scottish mines is shown by the following figures for 1934:

Districts	Fife	Lothians	Lanarkshire	Ayrshire
Output of saleable coal (000 tons) .	8,312	4,887	14,122	4,011
Total number of mines at work . .	46	32	232	60
*No. of mines using electrical equipment** .	41	28	146	44
H.P. of electric motors in use* per 000 tons of coal raised:				
Below ground . . .	7.8	8.6	7.2	6.7
Above ground . . .	2.4	2.6	2.4	1.9
No. of mines using coal-cutting machines .	39	19	110	35
Percentage of total output cut by machine	83	57	79	62
No. of mines using conveyors . .	28	11	48	16
Tonnage of coal conveyed (000 tons):				
Direct into tubs	5,466	652	2,544	888
With gate-end loaders . . .	76	51	37	24
Percentage of output mechanically conveyed	11	8	47	15
No. of mines employing horses below ground	11	8	47	15

* At June 30, 1934.

Scotland as a whole exports between 4 and 6 million tons annually compared with an annual production in recent years of 28 to 32 million tons. Four-fifths of the exports, however, are produced by the eastern coalfields, particularly Fife; Lanarkshire and Ayrshire cannot really be considered export coalfields, though the Irish market is of some importance to Ayrshire producers, as the following figures show:

PRODUCTION AND EXPORT OF COAL BY SCOTTISH COALFIELDS
(000 tons)

	Fife and Lothians			Lanarkshire and Ayrshire		
	1930	1932	1934	1930	1932	1935
Production	12,445	12,051	13,200	19,214	16,753	18,133
Exports to:*						
Baltic	1,330	1,621	2,585	46	59	209
North Sea, English Channel, Irish Sea	1,744	1,428	1,215	721	635	379
West Mediterranean and Italy	525	377	343	525	351	473
East Mediterranean	61	34	33	11	8	23
West Africa, etc.	3	4	3	—	—	—
East Africa, etc.	—	—	—	—	3	—
The East	2	2	—	4	11	19
North & Central America	226	390	365	161	140	193
South America, etc.	39	47	53	85	49	20
TOTAL EXPORTS	3,932	3,903	4,596	1,552	1,256	1,317
Exports as percentage of Production	31.5	32.5	35.0	8.0	7.5	7.25

* The main groups of countries are classified as follows:

BALTIC
U.S.S.R., Finland, Estonia, Latvia, Lithuania, Poland and Danzig, Sweden, Norway, Denmark and Faroe Islands.

NORTH SEA, ETC.
Germany, Netherlands, Belgium, France, Switzerland, Channel Islands, Irish Free State.

WEST MEDITERRANEAN
Portugal, Spain, Italy, Malta, Gibraltar, Morocco, Spanish Ports in North Africa, Algeria, Tunis and Tripoli.

EAST MEDITERRANEAN
Austria, Hungary, Czechoslovakia, Jugoslavia, Greece, Crete, Bulgaria, Roumania, Turkey, Cyprus, Egypt, and Sudan.

EAST AFRICA
East Coast of Africa, South Africa, Madagascar, Reunion, Mauritius and Seychelles.

THE EAST
Arabia, Indian Ocean and Continent, Malay Archipelago, Oceania and Further Asia.

NORTH AND CENTRAL AMERICA

SOUTH AMERICA, ETC.
South America, Falkland Islands, Southern and Northern Whale Fisheries, Greenland and Iceland.

WEST AFRICA
West Coast of Africa, Azores, Maderia, Canary Islands and St. Helena.

It will be seen that in the case of Fife and the Lothians, Western Europe, notably Germany via the North Sea ports, and France, was formerly the most important export market. The decline in exports to these destinations which is attributable to the restrictions imposed upon imports has, however, been more than compensated for by the increase in exports to the Baltic countries which amounts to nearly 100 per cent since 1930. The East Scottish coalfields

have in fact been to a large extent the beneficiaries of the trade agreements concluded with the Scandinavian countries in 1932, and since their interest is negligible in markets which have been indirectly adversely affected by these agreements, they have suffered no ill effects.

The largest export market of the West and Central Scottish coalfields (principally Ayrshire in the case of the export trade) was formerly the Irish Free State, which was largely lost owing to the tariff war with that country but has now been largely restored. In the meantime, however, this area has derived some benefit from the Scandinavian agreements and is also believed to have increased its trade with Canada. The quantities of coal entering the export trade from these coalfields are not, however, of much importance except in the trade with the Irish Free State, and their principal interest is in Clydeside industries and in Scottish pig iron production. The decline of the latter since the War and the severe depression in the Clyde shipbuilding industry have been largely responsible for the heavy decrease in the production of the Lanarkshire district, though some of the mines in this district have also been worked out. There have in consequence been frequent distress sales of Scottish coal in other markets in recent years, particularly in Lancashire, which have probably been to the detriment of the industry as a whole.

As may be seen from the table at the beginning of this chapter, the average size of mines in Scotland is small, which is attributable in part to the age of the Scottish coal industry and in part to difficult working conditions. There are, however, some groups of considerable importance. Bairds and Dalmellington now controls most of the production of Ayrshire and, with Wm. Baird & Co., is by far the most important producer in the Central District. In Fife, the production is concentrated mainly in the hands of four companies of which the Fife Coal Co., controlling about 40 per cent of the output of the district, is the most important. There is no one outstanding producer in the Lothians, where the owners have set up a form of voluntary federation scheme to control the disposal of coal rather than have a scheme imposed by the Coal Mines Reorganisation Commission.

Scotland was one of the five groups of coalfields which, according to the Department of Mines, was able to show a small profit (of 5¾d. per ton) in 1934. This follows a long period in which varying losses have been recorded. Costs have, however, fallen from an average of 12s. 6½d. per ton in 1929 to 11s. 3d. per ton in 1934, largely owing to a decline in wage costs from 8s. 5¼d. per ton in 1929 to 7s. 6½d. per ton in 1934, which is attributable to the progress of mechanisation. This latter is reflected in the level of output per man-shift, which, at 25.22 cwts., compares with an average of 22.94 cwts. for the whole country and is the highest of any district except Yorkshire and North Derbyshire and Nottinghamshire.

SCOTLAND: COSTS AND PROCEEDS PER TON OF COAL

	Wages Cost	Total Cost	Proceeds	Profit or Loss
1928 . .	8 7	12 10¼	12 1¼	−0 9
1929 . .	8 5¼	12 6½	12 9¾	+0 3¼
1930 . .	8 7½	12 10½	12 9½	−0 1
1931 . .	8 4	12 5½	12 3½	−0 2
1932 . .	7 10¾	11 10	11 5½	−0 4½
1933 . .	7 8¼	11 6	11 5¾	−0 0¾
1934 . .	7 6½	11 3	11 8¾	+0 5¾

Northumberland and Durham

The coalfield of Northumberland and Durham forms a single unit but is divided by the River Tyne which also marks a sharp division in the nature of the coal produced. Generally speaking, the excellent coking qualities of Durham coals do not persist north of the Tyne. Northumberland coals are, in fact, practically non-coking, with a high oxygen content, and are largely steam coals, being also very suitable for gas-producer purposes. Round about Newcastle and Sunderland the seams develop good coking properties and make excellent house—or gas—coals while towards the South and West of Durham the coking properties increase still further.

The following figures show the production of coal and employment in and about the mines in Northumberland and Durham in 1913, 1929 and 1934:

	Northumberland	Durham
Production (000 tons)		
1913 . . .	14,819	41,533
1929 . . .	14,547	39,001
1934 . . .	13,831	30,590
Employment		
1913 . . .	60,627	165,246
1929 . . .	49,496	138,827
1934 . . .	43,402	107,873

The decline, both of production and of employment, has been particularly severe in Durham, partly owing to the working out of mines and partly owing to the dependence of this district on the prosperity of the heavy industries, and, in particular, the connection of the iron and steel industry with shipbuilding.

As far as concerns the use of coal cutters, Northumberland is more highly mechanised than any other district in Great Britain. Durham, on the other hand, is nearer to the other end of the scale as the following figures for 1934 show:

Districts	Northumberland	Durham
Output of saleable coal (000 tons) . .	13,831	30,590
Total No. of mines at work . . .	102	228
*No. of mines using electrical equipment** . .	66	155
H.P. of electric motors in use per 000 tons of coal raised:*		
Below ground	5.7	5.0
Above ground	3.6	4.6
No. of mines using coal-cutting machines .	62	89
Percentage output cut by machines .	84	37
No. of mines using conveyors below ground .	29	58
Tonnage of coal conveyed (000):		
Direct to tubs	4,259	3,640
With gate-end loaders . . .	716	1,168
Percentage of output mechanically conveyed	36	16
No. of mines employing horses below ground .	63	153

* June 1934.

Such mechanisation of coal-cutting as has taken place in Durham has tended to favour the employment of percussive machines, as used extensively in Lancashire, rather than the chain type more commonly used elsewhere.

Both Northumberland and Durham are dependent to a considerable extent upon exports, but in addition to the local household and industrial market, sea-borne household coal has always been used to some extent in London and has shown a recent tendency to increase in importance, while Durham gas-coals and coking-coals find their way all over the country. The following figures show the extent to which the coalfields of the North-East Coast are dependent upon exports:

PRODUCTION AND EXPORT OF COAL ON THE NORTH-EAST COAST
(000 tons)

	NORTHUMBERLAND AND DURHAM		
	1930	1932	1934
Production	49,001	39,968	44,421
Exports from North-East Coast ports to:*			
Baltic	2,556	2,561	4,249
North Sea, English Channel, etc.	10,836	5,887	5,339
West Mediterranean and Italy	3,922	3,327	3,277
East Mediterranean	399	289	339
West Africa, etc.	139	115	132
East Africa	4	—	—
The East	73	17	1
North and Central America	32	362	269
South America, etc.	111	67	61
TOTAL EXPORTS	18,073	12,626	12,668
Exports as percentage of Production	37	31.5	31

* See footnote to table under "Scotland."

Northumberland and Durham are in much the same position, except in degree, with regard to the proportionate importance of markets as is the East of Scotland which, in fact, competes with the Tyne. The advantage which has been reaped from the Scandinavian agreements has not, however, been nearly sufficient to offset the loss of 5¼ million tons of exports in Western Europe.

The invasion of the London market by sea-borne coal from the Tyne has incurred the odium of the Midland producers, who, since the War, have come to regard that market as their own reserve. It must be pointed out, however, that considerable quantities of coal were shipped to the South of England by sea before the War so that the recent development of this trade merely represents a return to the former state of affairs after a rather long interval.

Since London and the South are neutral markets, competition of this sort is, moreover, of a different, and economically far more legitimate, character than the competition which takes the form of dumping by one district inside another district. One of the advantages

of the creation of central selling organisations is that it should facilitate the making of amicable arrangements between the different coalfields to supply agreed proportions of these neutral markets.

Owing to the importance of steel making in the Cleveland district and of shipbuilding on Tyneside, the ownership of collieries on the North-East Coast, particularly in Durham where the best coking-coals are produced, has come to be identified to a great extent with iron and steel companies. Both the Consett Iron Company and Dorman Long & Co. are important colliery owners in Durham. The largest group in Durham, which is one of the very largest in the country, is Lambton, Hetton & Joicey Collieries Ltd. Horden Collieries, producing an output which is probably not much less than 2¼ million tons, is the next most important undertaking, but there are five or six other collieries whose output is in the neighbourhood of one million tons.

In Northumberland, three colliery groups, the Ashington Coal Co., the Mickley Coal Co. and its associated companies, and the Bedlington Coal Co. and its associates, are responsible for approximately 55 per cent of the output of the district.

Owing mainly to their high dependence upon exports, the Northumberland and Durham districts show a lower average of proceeds per ton than any other district and have made losses in every year since 1930. There is not much doubt also that they have tended to undersell other districts in the inland market in an attempt to maintain their volume of production. Costs have scarcely fluctuated at all in Northumberland and Durham and are now within ¼d. per ton of the level of 1929 in both districts in spite of a reduction in wage costs per ton of 1¾d. and ¾d. respectively. Output per man-shift in 1934 was 23.74 cwts. in Northumberland and 22.12 cwts. in Durham which is near the average for the country as a whole, although in view of the extent of mechanisation in Northumberland a higher output per man-shift might have been expected in that district.

NORTHUMBERLAND AND DURHAM: COSTS AND PROCEEDS PER TON OF COAL

	Northumberland				Durham			
	Wages Costs s. d.	Total Costs s. d.	Proceeds s. d.	Profit or Loss s. d.	Wages Costs s. d.	Total Costs s. d.	Proceeds s. d.	Profit or Loss s. d.
1928 .	7 4	12 0½	11 0½	−1 0	7 11¼	12 11½	12 2	−0 9½
1929 .	7 0¼	11 2¼	11 8	+0 5¾	7 9½	12 6½	12 9¾	+0 3¼
1930 .	7 3	11 7½	12 3¾	+0 8¼	7 11¾	12 9½	13 2	+0 4½
1931 .	7 2¾	11 6½	11 7½	+0 1	7 10½	12 9	12 8¼	−0 0¾
1932 .	7 1½	11 7¾	11 2¾	−0 5	7 9¾	12 10½	12 6	−0 4½
1933 .	7 0¼	11 4¾	11 2	−0 2¾	7 9	12 8¼	12 3¾	−0 3½
1934 .	6 11	11 2½	11 1½	−0 1	7 8¾	12 6¼	12 5¼	−0 3

North-Western District

Cumberland coals are most suitable for coking, gas and household use and are particularly suitable for coking since they are relatively free from impurities. Some of the seams in Lancashire and Cheshire are of coking quality, but the greater part of the output consists

of gas, house, steam and manufacturing coals. The Arley seam produces gas-coal which is sometimes used for coking and is also marketed for house consumption and steam raising but it is less suitable for these purposes. The coalfield is divided roughly into two districts—the Burnley area and the South Lancashire area—owing to extensive faulting. Cheshire coals are suitable for gas manufacture but are mostly sold as house and manufacturing coals.

The North Wales coalfield is in the process of being worked out on the west, but the seams dip towards the east and the effective eastern boundary of the field is more or less unknown. The output is mainly of steam and house coals but there is some production of gas-coal in Denbighshire. Cannel coal has been much worked in this district in the past.

The formations in the North Staffordshire coalfield (the Potteries) are very disturbed, but generally speaking the upper seams are non-coking and the lower seams coking on the west and non-coking on the east. Hence, the production is mainly for household use and steam raising though some coking- and gas-coals are produced on the west. The interest of this district is mostly in the inland market.

The following figures show production and employment in the four North-Western districts in 1913, 1929 and 1934. Production in Lancashire in 1934 was at the rate of little more than half the pre-war level. Output has also declined heavily in Cumberland which is practically isolated from all markets other than that provided by local pig-iron production which has gradually fallen into decay with the exhaustion of the hematite ore deposits.

	Cumberland	Lancashire and Cheshire	North Wales	North Staffs
Production (000 tons)				
1913	2,321	24,629	3,506	6,594
1929	2,022	15,659	3,456	5,891
1934	1,564	13,758	2,786	6,262
Employment				
1913	10,954	107,656	15,881	30,453
1929	9,776	79,233	15,274	28,350
1934	6,873	62,327	10,582	23,144

Mechanical coal-cutting has been adopted in each of these districts, except in Cumberland, to a rather greater extent than the average for the whole country, though in Lancashire, as in Durham, a high percentage of coal is won with percussive machines. The percentage of coal cut by machinery in North Staffordshire is very high and in the standard of productive efficiency and mechanical equipment this district compares very favourably with the best of the larger coalfields.

The North-West Coast has only one export market of any importance—the Irish market—in which it has suffered severely in recent years from the effects of the tariff war. Exports from the North-West Coast, however, only account for 1 per cent of the exports of the whole country and 2½ to 6½ per cent of the total production of Cumberland, Lancashire, Cheshire and North Wales. The markets of these districts are mainly inland and local at that. Cumberland, however, is particularly interested in the Ulster market.

Districts	Cumberland	Lancashire and Cheshire	North Wales	North Staffs
Output of saleable coal (000 tons)	1,564	13,758	2,786	6,262
Total No. of mines at work (1934)	26	170	27	81
*No. of mines using electrical equipment**	15	108	10	25
H.P. of electric motors in use per 000 tons of coal raised:*				
Below ground	4.8	3.2	2.3	3.1
Above ground	4.6	3.5	1.9	3.1
No. of mines using coal-cutting machines	10	79	12	27
Percentage output cut by machines	38	46	59	81
No. of mines using conveyors below ground	5	57	7	22
Tonnage of coal conveyed (000 tons):				
Direct to tubs	182	5,004	1,938	4,278
With gate-end loaders	55	784	—	698
Percentage of output mechanically conveyed	15	42	70	79
Percentage of mines employing horses below ground	5	8	8	9

* At June, 1934.

PRODUCTION AND EXPORTS OF COAL ON THE NORTH-WEST COAST

(000 tons)

	Cumberland, Lancashire, North Wales and Cheshire		
	1930	1932	1934
Production			
Cumberland	2,018	1,513	1,564
Lancashire and Cheshire	15,004	13,247	13,758
North Wales	3,295	2,853	2,786
TOTAL	20,317	17,613	19,108
*Exports from North-West Coast to:**			
Baltic	9	—	21
North Sea, English Channel, Irish Sea	1,181	753	370
West Mediterranean and Italy	7	3	12
East Mediterranean	86	25	26
West Africa, etc.	9	6	4
East Africa, etc.	—	1	—
The East	9	3	8
North and Central America	4	—	1
South America, etc.	16	3	8
TOTAL	1,322	795	452
Exports as percentage of Production	6.5	4.5	2.5

* See footnote under Scotland.

Costs of production in the North-Western district have always been higher than in Scotland or Northumberland and Durham, and they are in fact the highest in the country; —but selling prices have also been much higher owing to the fact that nearly the whole of the output is marketed in inland districts. Costs have, however, been reduced by 1s. 6½d. per ton since 1929, largely as a result of a reduction in labour costs. Output per man-shift, however, is still low at 19.32 cwts. for Lancashire, Cheshire and North Staffordshire and is probably not materially different for Cumberland and North Wales for which separate particulars are not available. As in most other districts a substantial loss was recorded in 1928, but since 1931 small profits have been made. Mining conditions in Lancashire are difficult and many of the pits have reached considerable depths.

LANCASHIRE, CHESHIRE AND NORTH STAFFS: COSTS AND PROCEEDS PER TON OF COAL

	Wages Costs	Total Costs	Proceeds	Profit or Loss
	s. d.	s. d.	s. d.	s. d.
1928 .	12 0¾	17 7¼	16 2¼	—1 5
1929 .	11 7	16 9½	16 8¼	—0 1¼
1930 .	11 7¼	16 9	16 8¾	—0 0¼
1931 .	11 7¾	16 10	17 0	+0 2
1932 .	11 2½	16 5¾	16 7½	+0 1¾
1933 .	10 9¼	15 10¼	15 11¾	+0 1½
1934 .	10 4	15 3	15 8¼	+0 5¼

Most of the pits in Cumberland are small and many of them have had a chequered career or are completely closed, as a result of the closing of local blast furnaces or of the decline of the Irish export trade. The only pits which have been producing at all regularly are those attached to the United Steel Companies' plant at Workington. The only other colliery company of any size is the Priestman (Whitehaven) Company which recently made an attempt to reopen two old pits of the former Whitehaven Company, but has since closed down owing to adverse natural conditions.

There are two large colliery groups in Lancashire—Manchester Collieries Ltd. and the Wigan Coal Corporation (a subsidiary of the Lancashire Steel Corporation), and a number of smaller collieries of some importance. The whole of the Lancashire and Cheshire district has recently been combined for the purpose of instituting a central selling scheme which is described in more detail elsewhere.* In North Staffordshire, where there is no one company of outstanding importance, most of the coalowners have combined in forming a new company entitled North Staffordshire Land & Minerals Ltd. which will exercise complete control in certain matters such as the acquisition of mineral leases and the closing down of pits. There is a number of fairly large and modern collieries in the North Staffordshire district which have, for the most part, made fair profits. This district has made more use than most others of the 1930 Act and has in effect introduced a considerable degree of co-operation among the coalowners which even extends to the relations between local producers and the local distributive trade.

* See Chapter IV, pages 135-7.

The Midland Districts

The East Midlands coalfield, which extends through Yorkshire, Nottinghamshire and Derbyshire is the most important in the country. The field represents roughly a basin elongated in a North/South direction, the Eastern portion being concealed by a super-structure of later rocks. The seams are relatively thick and undisturbed and can be traced practically throughout the whole area. Many varieties of coal occur, but they are all of them bituminous. The general tendency is for the coking properties to decrease as the seams are traced southward and for a reduction to take place in carbon content and an increase in moisture. For instance, the famous Silkstone seam produces excellent coking-coal in the Barnsley/Sheffield area, but in North Derbyshire, where it is known as the Black Shale, it has lost some of its coking value and becomes an average gas-coal, while in South Derbyshire its coking properties are definitely poor. The Barnsley and Parkgate seams show the same tendency. These are composite seams—the top and bottom strata giving "brights" which are much used for gas, house and coking purposes, and the middle strata giving "hards" which are most suited for steam raising and are also used for metallurgical purposes.

The Yorkshire coalfields are among the most recent and are in fact, still being developed. Production and employment have therefore been well maintained in South Yorkshire, though not in West Yorkshire which is an older coalfield.

	South Yorkshire	West Yorkshire
Production (000 tons)		
1913 . .	27,682	15,997
1929 . .	33,506	12,900
1934 . .	28,761	11,692
Employment		
1913 . .	96,572	63,826
1929 . .	119,157	53,588
1934 . .	99,015	44,245

Similarly production and employment in Nottinghamshire have been maintained but the experience of North and South Derbyshire has been much less good.

	Nottingham-shire	North Derbyshire	South Derbyshire
Production (000 tons)			
1913 . .	12,394	16,889	1,244
1929 . .	14,738	14,199	926
1934 . .	14,309	11,797	712
Employment			
1913 . .	40,473	55,412	4,843
1929 . .	52,702	53,021	3,921
1934 . .	46,852	43,860	3,372

In all cases, however, it will be noted that there has been a considerable decrease in employment per ton of coal raised as the result of technical progress. Nottinghamshire and North and South Derbyshire in particular are highly mechanised.

Districts	South Yorkshire	West Yorkshire	Notting-hamshire	North Derbyshire	South Derbyshire
Output of saleable coal (000 tons) .	28,761	11,092	14,309	11,797	712
Total No. of mines at work, 1934. .	121	118	46	99	14
*No. of mines using electrical equipment** .	86	84	44	54	11
H.P. of electric motors in use per 000 tons of output:*					
Below ground . . .	2.7	2.6	3.1	4.1	8.5
Above ground . . .	4.3	3.7	3.9	2.9	1.9
No. of mines using coal-cutting machines .	59	41	38	44	7
Percentage of output cut by machines	36	43	62	59	82
No. of mines using conveyors below ground	53	20	31	30	6
Tonnage of coal conveyed (000 tons):					
Direct into tubs . . .	9,669	734	4,118	2,125	176
With gate-end loaders . .	1,760	829	4,533	2,793	81
Percentage of output mechanically conveyed	40	14	60	42	36
No. of mines employing horses below ground	66	44	41	53	6

* At June 1934.

It will be noticed that nearly every mine in Nottinghamshire is mechanised in some degree.

The interests of the East Midlands coalfields lie mainly in the inland markets and particularly in the London market, but exports through the Humber ports accounted for 8 per cent of the total British coal exports in 1934 and for 5 per cent of the output of the counties of Yorkshire, Nottinghamshire and Derbyshire combined. The principal export markets have been found in the past in Germany and France, but this trade has been cut by nearly two-thirds since 1929 and has been only partially made up by increased shipments to the Scandinavian countries under the trade agreements, where, however, the Humber has less than half the trade of Scotland and less than a quarter of the trade of the North-East Coast. South America is a market of some importance for Humber coal, though South Wales has the bulk of this market.

Although exports from the Humber ports have been comparatively smaller than those from Scotland and the Tyne, there have been continual complaints from Scandinavian importers that they cannot get from the Humber the quantities of coal that they require under the trade agreements. The shortage, which has been not so much in the quantity of coal of a sort as of definite qualities of coal at certain times, has sometimes been attributed to the operation of the production quota system. Representations have been made by local bodies to the Mines Department and the Central Council of Colliery Owners, but so far without much success; the question is referred to in greater detail at a later stage.*

* See Chapter V, page 160.

SOUTH AND WEST YORKSHIRE, NOTTINGHAMSHIRE, NORTH AND SOUTH DERBYSHIRE
(000 tons)

	1930	1932	1934
Production	73,801	64,232	66,672
*Exports from Humber ports to:**			
Baltic	1,106	721	1,091
North Sea, English Channel, Irish Sea	3,693	1,654	1,337
West Mediterranean	326	138	106
East Mediterranean	181	166	89
West Africa, etc.	19	15	12
East Africa, etc.	6	—	—
The East	283	—	—
North and Central America	31	150	61
South America, etc.	541	493	587
TOTAL	6,187	3,336	3,281
Exports as percentage of Production	8.4	5.2	4.9

* See footnote under Scotland.

Costs have been reduced substantially in both the Yorkshire and in the North Derbyshire and Nottinghamshire districts since 1929, mainly owing to the reduction in labour costs. Both of these districts have shown consistent and fairly substantial profits per ton since 1929. Their relative success in this respect appears to be due mainly to the fact that these coalfields are fairly modern and well equipped without being over-capitalised, and to their favourable situation for supplying the profitable home market. Conditions underground are also more favourable than in most districts. Output per man-shift in these districts is the highest in the country (Yorkshire 26.08 cwts., North Derbyshire and Nottinghamshire 27.38, compared with an average of 22.94 for 1934).

YORKSHIRE, NOTTINGHAMSHIRE AND NORTH DERBYSHIRE: COSTS AND PROCEEDS PER TON OF COAL

	Yorkshire				Nottinghamshire and North Derbyshire			
	Wages Costs s. d.	Total Costs s. d.	Proceeds s. d.	Profit or Loss s. d.	Wages Costs s. d.	Total Costs s. d.	Proceeds s. d.	Profit or Loss s. d.
1928	9 7¼	13 10½	12 11¾	−0 10¾	9 6½	13 6½	13 0½	−0 6
1929	9 2½	13 0½	13 7¾	+0 7¼	9 2¼	12 10¾	13 7	+0 8¼
1930	9 2½	13 0¼	13 7½	+0 7¼	9 2¼	12 10½	13 5¾	+0 7¼
1931	9 2½	13 2½	13 8	+0 5½	9 10¼	12 9	13 10	+1 1
1932	9 0½	13 2¼	13 8	+0 5¾	8 10½	12 10	13 10	+1 0
1933	8 7¾	12 8¼	13 5½	+1 2¾	8 6	12 4¾	13 4	+0 11¼
1934	8 4¾	12 3¾	13 2½	+1 1¼	8 3	12 0¼	13 0½	+1 0¼

The average size of pits in South Yorkshire, Nottinghamshire and North Derbyshire, though not to the same extent in West Yorkshire, is much larger than elsewhere in the country. Many collieries in this district also own or are associated with coking plants or other plants

for the treatment of coal. But though the pits are large and generally fairly modern in technique and layout, there are practically no large groups. This is partly due, no doubt, to the fact that many of the individual colliery companies are already handling large outputs. A good many of these companies are also associated with one another in some degree through financial or directorial interests.

The largest producer is the group of four companies forming Yorkshire Amalgamated Collieries, with a current output of 3 to 3½ million tons. The Bolsover Colliery Co., which owns a number of pits on the borders of Nottinghamshire and Derbyshire, is not far behind Yorkshire Amalgamated in output. After these two come the Butterley Co. on the Nottinghamshire/Derbyshire border and Barber, Walker & Co. with pits in Nottinghamshire and South Yorkshire, both of which are two million ton producers. There are in addition about fifteen other collieries in this district with outputs in the neighbourhood of one million tons or more.

West Midlands

South Staffordshire, like North Staffordshire, is subject to faulting which has divided the district roughly into northern and southern divisions. The northern is generally known as the Cannock Chase district while the southern division constitutes South Staffordshire proper. The output is mainly suited to steam raising and manufacturing uses. South of the east to west series of faults there is a tendency for a number of seams to converge and form one seam of great thickness.

Leicestershire coals show a high moisture content and are most suitable for house and manufacturing purposes.

The Warwickshire coalfield outcrops on the north and dips to the south. It is probably continuous at a considerable depth with South Staffordshire and Leicestershire, but the depth is so great that this vast area of concealed coal could probably never be worked. As in South Staffordshire, there is a tendency for the seams to converge on the south, giving the Warwickshire Thick or Hawkesbury seam.

The West Midland districts, that is to say Leicestershire, Cannock Chase, Warwickshire, South Staffordshire and South Derbyshire, are entirely concerned with the inland market. Consequently, production has been on the whole fairly well maintained compared with the levels of 1913 and 1929, except in South Staffordshire where there has been a heavy decline, and the same is true of employment in spite of increasing mechanisation.

	Cannock Chase	South Staffordshire and Worcestershire	Leicestershire	Warwickshire
Production (000 tons)				
1913	5,764	2,571	3,175	5,072
1929	5,251	1,632	2,873	4,759
1934	4,938	1,542	2,347	5,150
Employment				
1913	20,370	10.153	10,327	19,137
1929	23,773	4,919	11,305	17,025
1934	22,809	4,572	9,773	17,136

Mechanised mining has been introduced to a fair extent in each district except South Staffordshire where the seams are very thick.

Districts	Cannock Chase	South Staffordshire and Worcestershire	Leicestershire	Warwickshire
Output of saleable coal (000 tons) .	4,938	1,542	2,347	5,150
Total No. of mines at work, 1934 . .	39	70	16	20
No. of mines using electrical equipment .	24	18	15	17
H.P. of electric motors used per 000 tons of output:				
Below ground . . .	4.2	2.2	3.5	4.0
Above ground . . .	2.9	1.8	1.4	2.6
No. of mines using coal-cutting machines .	21	4	10	12
Percentage of output cut by machines	48	11	54	59
No. of mines using conveyors below ground .	14	2	7	12
Tonnage of coal conveyed:				
Direct to tubs	1,310		371	2,869
With gate-end loaders . .	427		395	659
Percentage of output mechanically conveyed.	27		33	68
No. of mines employing horses below ground	24	28	12	7

Since 1929 a cost reduction of, on balance, 7¼d. per ton has been achieved by South Derbyshire, Leicestershire, Warwickshire and Cannock Chase combined. The price commanded by coal from these districts, however, is high and fairly substantial surpluses have consequently resulted. Separate particulars for South Staffordshire are not available.

SOUTH DERBYSHIRE, LEICESTERSHIRE, CANNOCK CHASE, WARWICKSHIRE: COSTS AND PROCEEDS PER TON

	Wages Costs s. d.	Total Costs s. d.	Proceeds s. d.	Profit or Loss s. d.
1928 .	10 4½	14 11¾	14 9	−0 2¾
1929 .	9 10¾	14 2	15 4¾	+1 2¾
1930 .	9 11¾	14 1¾	15 1½	+0 11¾
1931 .	10 3¾	14 6½	15 11	+1 4½
1932 .	10 3¾	14 8¾	15 9½	+1 0¾
1933 .	9 11½	14 3½	15 2¼	+0 10¾
1934 .	9 5¾	13 6¾	14 10½	+1 3¾

Output per man-shift in these districts in 1934 was 22.13 cwts. or slightly less than the average for the whole country.

The colliery undertakings in these districts are for the most part of medium size and there are no large groups or amalgamations at all. There are few colliery companies employing more than 2,000 men and not many producing much more than 500,000 tons of coal per annum.

Southern Districts

The coalfields of South Wales, the Forest of Dean, Bristol and Somersetshire are all definitely interconnected, though opinions differ as to whether Kent should be included with this group or whether it is of the same geological group as the Midlands. The South Wales coalfield represents an enormous basin elongated from east to west, which is faulted and cut by deep valleys in which the seams outcrop as well as all round its northern, eastern and southern borders. There is a definite steady transition in the nature of the coalfield from bituminous, coking- and gas-coals in the east and south-east to semi-anthracite and anthracite in the west and north-west. The greater part of the centre of the coalfield from the Taff to the Neath valleys produces dry and smokeless steam coals, which become more bituminous in the south and east around Swansea, Pontypridd and Ebbw Vale. Coking- and gas-coals are produced on the eastern and south-eastern extremity and pure anthracites to the west. But anthracite production accounts for only about 10 per cent of the total production and good coking coals for about 4 per cent, the remainder being smokeless steam coals with some house coals.

The Forest of Dean produces household and steam coals very similar to those of East Monmouthshire with which it is closely connected. Bristol and Somersetshire produce house, gas, and coking coals.

The coal of the Kent district is strongly coking and of a low volatility, resembling strongly some of the South Wales coals. But it is brittle and the waste through breakage in transport is large so that it is not very suitable for household consumption. Coking at the pithead might be developed. Kent coal is also used for steam raising and gas manufacture.

South Wales

South Wales has suffered more severely than any other coalfield from the course of events in the last twenty years. Only the anthracite district to the west has enjoyed a constant or increasing demand for its product. The greater part of the coalfield, producing for the most part high quality steam coal was chiefly concerned with supplying export markets and producing bunker coal for shipping. Although Welsh coal is in many ways particularly suitable, except in respect of price, for industrial and domestic purposes, largely because it is practically smokeless and would consequently solve the atmospheric pollution problem in large towns, no very great efforts were ever made to develop an inland market for it. Now that the demand from shipping and from export markets has declined, the absence of an alternative outlet inland coupled with the working out of many pits near the outcrop of the coalfield and the closing down of a large proportion of the blast furnace plants, has had a serious effect on output and employment.

Mechanisation has not been much introduced in South Wales. This is due partly to the fact that the mines are gassy and partly to the fact that owing to natural conditions the coal is easily got by hand and not very easily got by machines. But the high price which Welsh coal has been able to command without much difficulty until recent years has probably

SOUTH WALES AND MONMOUTHSHIRE

	Anthracite	Bituminous	TOTAL
Production (000 tons)			
1913	4,833	51,997	56,830
1929	5,596	42,554	48,150
1934	6,134	29,039	35,173
Employment			
1913	—	—	232,800
1929	—	—	178,315
1934	—	—	139,806

been a factor tending to retard the investigation of possible economies through the introduction of mechanised mining. It is believed, however, that machine-cutters are now being installed on a much increased scale in South Wales. Mechanisation with pneumatic picks will possibly prove to be the most effective system for South Wales in the long run.

SOUTH WALES AND MONMOUTHSHIRE

Output of saleable coal (000 tons)	35,173
No. of mines at work in 1934	459
*No. of mines using electrical equipment**	290
H.P. of electric motors used per 000 tons of coal raised*	
Below ground	0.16
Above ground	5.0
No. of mines using coal-cutting machines	109
Percentage of output cut by machinery	15
No. of mines using conveyors below ground	96
Tonnage of coal conveyed (000 tons):	
Direct into tubs	8,536
With gate-end loaders	464
Percentage of output mechanically conveyed	26
No. of mines employing horses below ground	346

* At June 1934.

Welsh coal is shipped to countries practically all over the world, both for inland consumption there and for the replenishment of foreign bunkering stations. The most important markets, however, are France, where imports have been heavily restricted, and Italy where South Wales has met the full force of Polish and German competitors displaced from Northern Europe by the British agreements with the Scandinavian countries, and has latterly been handicapped by transfer and by sanctions difficulties. Transfer difficulties have also seriously affected the important trade with the South American republics. Since South Wales has never exported important quantities of coal to the Baltic, it has received little direct benefit and much indirect harm from the Scandinavian trade agreements. Consequently exports have fallen by nearly 7½ million tons even since 1929; the only bright spot has been Canada, which has taken increasing quantities of Welsh anthracite. Exports still account for 45 per cent of the output compared with 51.5 per cent in 1930, and South Wales still accounted for 40 per cent of the total of British coal exports in 1934.

SOUTH WALES AND MONMOUTHSHIRE

(000 tons)

	1930	1932	1934
Production			
Anthracite and bituminous . . .	45,108	34,874	35,173
*Exports from the Bristol Channel to:**			
Baltic	274	168	238
North Sea, English Channel, Irish Sea .	8,463	6,144	5,429
West Mediterranean and Italy . .	6,873	4,741	4,852
East Mediterranean	1,931	1,169	1,257
West Africa, etc.	661	374	295
East Africa, etc.	51	39	32
The East	272	145	93
North and Central America . .	1,007	1,336	1,389
South America, etc.	3,767	2,387	2,333
TOTAL EXPORTS . .	23,299	16,504	15,918
Exports as percentage of Production . .	51.5	47.5	45.0

* See under Scotland.

In view of the keen competition to secure markets abroad it could not be expected that coal mining in South Wales would be particularly profitable, though amalgamation has gone some way in preventing cut-throat competition internally, and the balance on the wrong side has not been large. There has however, been no reduction in costs per ton of output since 1929, a fact which is attributable to the increase of overheads with the decline in production and the slow progress of mechanisation. The latter factor also explains the relatively low output per man-shift (19.83 cwts.). The following particulars of costs and proceeds refer to twelve-monthly periods beginning in each case in the February of the year mentioned:

SOUTH WALES AND MONMOUTHSHIRE: COSTS AND PROCEEDS PER TON

	Wages Costs s. d.	Total Costs s. d.	Proceeds s. d.	Profit or Loss s. d.
1928 .	10 2¼	15 5	14 0¾	−1 4¼
1929 .	9 11¾	14 9¾	14 11¼	+0 1½
1930 .	10 3	15 4	15 6	+0 2
1931 .	9 11½	15 2½	15 2¾	+0 0¼
1932 .	10 0	15 6¼	15 6¾	+0 0½
1933 .	9 10¼	15 5	15 3½	−0 1½
1934 .	9 9¾	15 1½	15 0¼	−0 1¼

The ownership and management of the mines in the South Wales coalfield is far more concentrated than in any other district, and is also strongly linked with large distributing interests in the inland and export trade alike. In fact the next step in amalgamation would practically involve the unification of the whole area into two groups, one controlling the anthracite and the other the bituminous producers. Already Powell-Duffryn Associated Collieries, the company that was formed towards the end of 1934 to take over the assets of the Powell-Duffryn Coal Co. and of Welsh Associated Collieries, controls a current output of bituminous coal of about 11 million tons out of a total district output of 29 million tons. The Ocean Coal group, the Ebbw Vale group (which has, however, recently transferred part of its colliery interests to Richard Thomas Ltd.), the Tredegar group, and Cory Brothers, control between them a further output of about 9 million tons. In the western portion of the South Wales coalfield, Amalgamated Anthracite produced about 4 million tons of the 6 million tons of anthracite raised in 1934. Further amalgamations in the eastern half of the coalfield have frequently been rumoured, particularly between Powell-Duffryn and the Tredegar group; there would seem to be little doubt that the complete amalgamation of the bituminous and perhaps of the anthracite producers also will eventually take place.

Somerset, Bristol, Kent, Shropshire and the Forest of Dean

There is not much that need be said about these small areas. Their interest is wholly in the domestic market and apart from Somersetshire and Bristol and in spite of their small size, they have retained their position moderately well, though whether some of them would have done so in the face of the competition of the larger districts without the protection of the quota since 1930, is another matter. Kent, however, as has already been pointed out, has practically only developed as a coalfield since the War, and its development has probably been retarded by the quota. In none of these districts is more than 10 per cent of the output cut by machinery (except Shropshire 21 per cent), since the coal is easily won by hand and the pits tend to be small. Only 9 pits out of a total of 95 in the four districts combined used conveyors below ground in 1934. Separate particulars of costs, proceeds and output per man-shift are not available for these districts, but are combined in an average figure which includes the other small districts of Cumberland, North Wales and South Staffordshire. The general tendency in these small coalfields, however, is for output per man-shift to be low; it was lower than in any of the larger districts at 19.32 cwts. in 1934. Similarly, costs are high, but selling prices in local markets are also good and since 1929 there has not been a loss or profit of more than 2d. per ton in any year. Losses were made in every year from 1929 to 1932, and following a small profit in 1933, costs and proceeds exactly balanced in 1934.

	Shropshire	Forest of Dean	Somerset	Bristol	Kent
Production (000 tons)					
1913 . . .	846	1,342	1,160	464	59
1929 . . .	652	1,376	848	196	1,149
1934 . . .	676	1,205	696	174	2,030
Employment					
1913 . . .	3,578	6,741	6,211	2,588	1,134
1929 . . .	2,827	5,714	4,159	992	4,357
1934 . . .	2,656	5,263	3,577	923	7,088

Apart from the Pearson and Dorman Long and Chislet pits in Kent and the Crawshay collieries in the Forest of Dean there is no company of any size in any of these districts. Even these are not large.

II. STRUCTURE AND ORGANISATION OF THE COAL-MINING INDUSTRY

THE AMALGAMATION OF COLLIERIES

Characteristics of the Coal-mining Industry

In any discussion of the structural side of the coal industry it is necessary to bear in mind certain important characteristics in which it differs from other productive and distributive industries. The most important of these characteristics is its great diversity, in which it is equalled by few others. The difference between one coal-mining undertaking and another may be divided under the following four headings:

(i) Geological: the depth of the seams from the surface, the variations in the thickness and quality of the seams even in the same pit, the inclination of seams and the amount of faulting, the amount of water and gas encountered, the character of the overlying and underlying strata, as affecting methods and costs of working and the ease with which the coal can be won and conveyed to the surface, including distance of faces from the shaft.

(ii) Chemical: the characteristics of the coal in the seams (affecting use and price).

(iii) Geographical: the position of the mine with regard to the market for the particular type of coal which it produces, the distance from the seaboard in the case of export coal, the suitability of the surface for the proper layout of a colliery and accessibility to rail transport.

(iv) Traditional: differences of custom affecting costs which have grown up through many years of development among communities of miners who seldom move from one area to another.

It will be seen that only on a very limited number of questions is it possible to treat the industry as a whole. Figures based on the average cost of production, or price received for the whole industry, may be very misleading unless great care is exercised in their use.

Another important characteristic of the coal industry is the fact that mines have a definite working life. In other industries, it may be necessary from time to time to renew part of the plant, but the industry itself may continue for ever on its original site. The coal-mining industry cannot do this; the nearest that it can approach to the conditions of manufacturing industry is to ensure by constant improvements in technique that the poorer seams are won with as much profit as the richer seams, once the latter have been exhausted, and that a pit's useful working life may therefore be prolonged as much as possible by a continuous improvement of productive efficiency.

The rate of this obsolescence may be accelerated or retarded by the circumstances of the market and the price of coal and by changes in the cost-efficiency of foreign competitors. Thus, in times of contracting demand, such as the last few years, mines which were previously

working at a small profit begin to show a loss, but a recovery in prices would render them profitable for a few more years. Coalowners are, unfortunately, too often tempted by sanguine expectations of what is round the next corner to keep open mines which have become uneconomic. In times when demand is good and there is no difficulty in obtaining trade their continued existence is not a severe handicap to the remaining efficient producers. In times of contracted demand, however, the existence of these "weak sellers" prevents the concentration of production in the most economical pits which is necessary for the latter to remain economical. It may be mentioned in passing that the uneconomic pits are not necessarily the weakest sellers nor the only weak sellers. In fact there has been too much weak selling in recent years by large and efficient pits which have learnt that in large outputs lies one method of reducing ton costs.

There is some reason to suppose that the introduction of a quota system designed mainly to spread and maintain employment tends to stabilise this undesirable situation. It should be remembered that unprofitable mines are not always the result of old age so much as bad management, bad equipment or bad selling; nor is it necessarily the case that the most efficient mines are always financially the best fitted to withstand a depression. An old and worked out mine, if profits have been conservatively distributed in the past or if creditors can be talked over, has the power to make itself a burden on the industry long after it has ceased to derive a profit from its coal-mining activities. It sometimes happens also that pits which have been burdened with compensation claims and are forced to close down for economic reasons, are reopened under new managements which are able to start with a clean sheet and may often have secured the colliery equipment at scrap prices and a more generous agreement from the royalty owners. When one owner has eventually decided to cut his loss, another may appear to profit by his embarrassment and work his pits for a few more years. There is, consequently, a strong practical argument for concentration of production at the most suitable mines. Mines brought together under a single ownership can review and lay out the field freed from conflicting financial interests and furnished with adequate resources to stand the paper loss occasioned by abandoning superfluous properties and to equip and run to the best advantage the units which are worked.

The Case for Amalgamation

Amalgamation has been advocated on general grounds for the following reasons:

(i) All the advantages of large scale production become available, particularly in regard to the provision of power, the purchase of stores, the regulation of stocks and the economical running of repair shops. The question of layout, drainage, barriers and coal reserves left between different mines may be more efficiently dealt with than when each is under separate ownership. The advantages accruing under this head often seem to be greater and more attractive in theory than they prove to be in practice. Amalgamations are usually compelled to take over their constituent units as going concerns, which means, especially in coal mining, that radical alterations in methods of operation cannot be made in a hurry. The greatest potential advantages lie in the co-ordination of future development, but the industry is at the moment not developing at a very rapid pace and has not given the matter much serious consideration.

(ii) The sales organisations are in a stronger position to secure favourable prices. This is likely to be a very important source of a greater margin of profit for the industry.

The pithead price of coal has been depressed in the past decade by the greatly superior bargaining power of the buyers, notably the public utility companies and in some cases the distributors. Sooner or later, the bargaining strength of the buyers was bound to stimulate the mines into organising themselves on an equal basis. It may be noted that the institution of central selling organisations for each district is capable of bringing this about provided that these are not merely used to intensify inter-district competition.

(iii) Transport is facilitated since the supply of railway wagons can be more easily adjusted to the production of each pit. In the export trade a large concern is more likely to be able to supply complete cargoes of the same kind of coal.

(iv) A large unit is able to pay high salaries and thus command the best men. It is also able to employ specialists at the head of each department, and in connection with all forms of research.

On the management side there is the great difficulty in amalgamation of evolving a suitable form of administrative machinery and of obtaining people capable of working it. But it is on good management that the success of amalgamation depends. Ten years ago the technique of administering large combines had hardly been developed in this country, but in recent years the evils of over-centralised administration of production and routine activities have been appreciated, and there has been a definite tendency towards decentralised administration, which is also now being adopted on the Continent. In order to secure the best possible results from the employment of highly-salaried men in key positions under amalgamations, the coal-mining industry would have to produce men of sufficient administrative ability to co-ordinate their activities effectively: if these cannot be found inside the industry, the industry should not hesitate to bring them in from outside.

(v) The process of closing down obsolete pits and of opening up new ones can be undertaken scientifically without reference to any consideration other than the economic position. The necessary capital is more easily raised, and by spending it carefully, according to a well-ordered plan, the enterprise can work continuously for many years without undue variations in the quantity of coal produced.

(vi) The industry as a whole is better equipped to negotiate with foreign competitors. As long as it is split up into a large number of small undertakings satisfactory results cannot be obtained from international conferences, since no representative body can speak for all the colliery owners in this country. The considerations of bargaining strength which were mentioned under (ii) apply equally to the export market.

The Case Against Amalgamation

The opponents of amalgamation, however, have pointed out that in many cases these reasons do not apply; that the management may even be worsened through the undertaking becoming too large for personal attention; that the men with the very high capacity necessary for such positions will not be forthcoming, and that the managers will lose touch with the men, thereby worsening their relations with labour. They have also contended that there is not sufficient justification for the expenditure of the necessary capital: and finally, that even if the case for amalgamation were proved on purely economic grounds, the advantages would be more than neutralised if such amalgamation were forced on the industry from

outside. There is not much doubt also that the following practical considerations influence the opinions of many objectors. If they are doing well, they fear the effects of combination with less prosperous partners—on any terms. If they are doing badly they fear that their share in the combine must of necessity be a small one. In addition, there is the very human feeling on the part of managers and staff that they themselves may become "redundant" simultaneously with their mines.

Whatever may be thought of the validity of these objections—and they do not appear to be particularly convincing even if they are genuine difficulties which have to be surmounted —it must be recognised that conditions in the coal industry raise certain difficulties in connection with amalgamation. Chief of these is the fact that if a number of pits were closed down they would probably never be reopened, for, on the one hand, the rate of deterioration of an abandoned mine is very rapid, and, on the other hand, the cost of keeping roads open, of maintaining the shaft, and of dewatering a mine that is temporarily closed is almost prohibitive. The full annual capacity of the mines at present working under the quota system is probably in the neighbourhood of 260 million tons, while production in 1934 was only 220 tons. If sufficient mines were closed down to bring productive capacity more in line with possible future demand the fact must be faced that most of the capacity to be eliminated would have been eliminated for ever. This is a question of national policy which does not merely concern the coal-mining industry. Similarly, the creation of permanent derelict areas and the dangers of surface subsidence and of flooding in neighbouring pits which continue working, which may arise from the closing down of mines, need to be treated as a matter of national concern.

Social Implications of Amalgamation

Moreover, the selection and closing down of certain mines—although some sections of the industry profess to be unable to tell which mines are either uneconomic or obsolete—must inevitably give rise to a grave social problem on the labour side. In the first place it is unlikely that in the process of the concentration of output the aggregate labour strength of the industry would be maintained, since the tendency would be to take output away from the less efficient and give it to the more efficient mines which might well be those employing less labour per ton of output, seeing that labour costs constitute on the average 70 per cent of the total costs. The tendency to displace labour will increase with every increase in mechanisation, which, nevertheless, appears to be essential if the productive efficiency of the industry is to be further improved.

In the second place it is reasonably certain that the process of amalgamation and reduction of capacity would bear more heavily on some districts—usually the older districts —than others, and as is well known, the transference of labour in the coal-mining industry is a very slow and difficult task. It is not impossible that some of the first collieries to be closed down would be those in outlying districts which are badly situated in respect of markets, yet it is in the case of these that the social problem is most acute in view of the amount of capital, human as well as financial, that has been invested in isolated centres of population based entirely on coal mining and unsuited to carry on any alternative occupation.

Emphatically no economic concentration of the coal-mining industry can be contemplated unless it is closely and consciously linked with a far more vigorous policy of national and regional development than the Government has at present introduced under the Special Areas Act. Equally, no scheme for the rehabilitation of the coal-mining industry is likely

to be workable which is not based on the employment, permanently, of a very much smaller number of men than the industry has employed in the past.

The Conclusions of the Samuel Commission on Amalgamations

The Royal Commission on the Coal Industry appointed in 1925 under the chairmanship of Sir Herbert Samuel went very thoroughly into the question of amalgamation. Since the report of this Commission has been used to a large extent as the basis of recent legislation, a summary of its methods and conclusions is given here.

The questions which the Commission set itself to answer were the following:

(1) Is a greater degree of combination economically better?

(2) If so, is it practicable to effect it at this stage of the history of the industry?

(3) Is it likely to be effected voluntarily by the industry itself?

(4) If not, is outside action possible? Would such action have indirect effects for harm that would neutralise any direct advantages?

With regard to the first question, a large number of expert witnesses examined before the Sankey Commission in 1919 were of the opinion that in many cases combination would benefit the industry. Most of these witnesses qualified their view, however, by stating that much harm might be done if the sizes of the units were made too large.

The Samuel Commission made an examination of the actual results of colliery working. Their results are embodied in a table* showing the output per man-shift and the profit or loss per ton for different sizes of undertaking, indicating that the profitability of the large undertaking was considerably greater than that of the smaller. The validity both of the evidence itself and of the conclusions drawn from the table, seeing that "undertakings" were grouped merely by size and without regard to the number of mines worked by each, has been hotly contested by the industry. Moreover, the question of the amount of capital employed was not dealt with. The pits making the largest profits per ton of output are not necessarily more moderately capitalised than the rest; other pits showing a higher cost of production may be giving a higher return on capital invested.

In answering question (2), the Commission, bearing in mind that certain amalgamations by fusion or purchase had taken place with beneficial results, but considering also that the reasons advanced in certain districts against amalgamation were valid, came to the conclusion that only in certain cases might amalgamation be desirable, and that in no circumstances should parties who objected to it be compelled to work together. The Commission was quite definite, however, that when a suitable unit had been determined there should in the last resort be external powers to coerce a minority—not by compulsory partnership, but by compulsory acquisition or transfer of leases.

With reference to the third question, it was noted that the number of voluntary amalgamations which had taken place was very low. In the event of the depression continuing it was recognised that many of the less efficient collieries would have to close down, since losses can only be supported for a limited period, but it was felt that unless something were done to assist this process the position in many areas in twenty years' time would be substantially the same as it was in 1925: there would still be many small undertakings operating on the margin between profit and loss, closing down in times of depression and reopening in more

* The Report of the Royal Commission on the Coal Industry (1925), Vol. I, p. 54. Cmd. 2600.

prosperous years. Such undertakings would continue to employ labour at the lowest possible rate, and would not be able to raise the necessary capital for modernisation of plant or for improvement in the conditions of working. The general conclusion, then, was that there were many cases in which amalgamation was desirable, but in which nothing was likely to be done unless some form of outside action were adopted.

Recommendations of the Samuel Commission

With regard to the possibility of such action, the following considerations were put forward:

(i) The fusions must be effected with great care and with intimate knowledge of the physical and financial considerations involved.

(ii) Any measure that fixed a general rule of size or output without regard to individual conditions could only be harmful.

(iii) Amalgamations should in most cases be complete, but might sometimes take the form of combined action with regard to power supply, workshop repairs, and selling only.

(iv) It would be preferable for the initiative to come from within the industry.

(v) Where the majority of undertakings in an area desired amalgamation, and others whose consent was necessary refused, there should be power in the national interest to override such opposition, by enforcing the compulsory transfer of leases.

The conclusions of the Royal Commission of 1925 may be summarised as follows:

(i) Royalties should be nationalised and administered under the supervision of a Coal Commission responsible to the Secretary for Mines.

(ii) Amalgamations should be encouraged with a view to increasing the average size of undertakings, but compulsory amalgamations on arbitrary lines should be avoided; action must be elastic and each case be treated on its merits.

(iii) Closer connection should be established between mining and allied industries, and a National Fuel and Power Board should be set up.

(iv) Research should be extended with State assistance.

(v) Co-operative selling agencies would be of advantage, especially in the export trade; selling on specification and guarantee should be encouraged by Government action; and local authorities should be empowered to engage in the retail sale of coal.

(vi) a. The principle of recent wage agreements (1921-1924) should be continued with amendments in the method of ascertaining the proceeds of the industry, particularly as regards prices at which transfers of coal by mines to associated industries are made.
b. The standard length of the working day ($7\frac{1}{2}$ hours underground) should remain unchanged, but the optional redistribution of weekly hours over five days instead of six should be considered and the multiple shift system should be extended.
c. Pit Committees, of which membership should consist of representatives elected by the miners, should be established.
d. Methods of payment of men not employed at the face should be revised in order to give them a direct interest in output.

e. The introduction of a family allowance system either nationally or by districts was desirable. Profit-sharing schemes should be generally adopted and made obligatory by statute.

f. The proper provision of houses should be a condition of the lease of new collieries; pithead baths should be generally established; annual holidays with pay should be established on the return of prosperity to the industry.

No definite action was taken on these recommendations, and the stoppage of 1926 followed immediately after, though not, of course, as a result of the investigations of the Commission. The main cause of the stoppage was the claim of the owners that it was necessary to reduce minimum wage rates and to increase the number of hours worked in certain districts while the Miners' Federation stood out for a national agreement on all questions of wages and hours of work. The owners' claim had been made in 1925 and the day of reckoning had only been postponed by the wages subsidy which expired in 1926. It had been hoped that the Commission might work out a solution in the meantime, but this was not so. Under the conditions on which work was resumed the working day was increased from seven to eight hours, but the miners obtained no concession with regard to a national wage agreement. The extension of the working day was brought about by the amendment to the Act of 1919, allowing the extension of one hour to take place on any day until July 8, 1931.

Lewis Committee

In 1926 a Departmental Committee on Co-operative Selling in the coal-mining industry (the Lewis Committee) was set up to follow up the recommendations on co-operative selling made by the Royal Commission of 1925. The recommendations of the majority report may be summarised as follows:

(i) The development of organised marketing in the coal-mining industry is desirable in order to avoid excessive competition, to effect economies and improvements in the marketing of coal, and to help to stabilise the industry.

(ii) The present lack of consolidation in the industry is a serious impediment, and the free development and benefits of organised marketing cannot be realised unless the industry can be consolidated by amalgamations into a much smaller number of units.

(iii) Organised marketing is only immediately practicable in those districts where there is a fairly general desire among the coalowners to develop it.

(iv) The voluntary development of local arrangements, more particularly selling pools, is advocated, to be followed by district organisation of wider scope. When in any particular district a scheme has the support of more than 75 per cent of the owners concerned, power should be given to enforce the scheme.

(v) The Government is advised to consider the question of revising and clarifying the law on restraint of trade so as to remove the existing uncertainty as to the status in law of marketing organisations.

(vi) In the export trade, local selling pools and the possibilities of closer co-operation between colliery owners and exporters should be developed.

The Mining Industry Act, 1926

In order to give effect to certain of the recommendations of the Samuel Commission the Mining Industry Act of 1926 was passed, the main provision of which were:

(i) Stamp duties on transfer of shares, etc., were remitted in order to encourage amalgamations.

(ii) Schemes of amalgamation submitted to the Board of Trade and approved by the Railway and Canals Commission as being in the national interest and fair to all shareholders were to be legally recognised, and unwilling parties could be compulsorily amalgamated or absorbed—either totally or partially.

(iii) Third parties (landlords, etc.) could be bound.

The effect of these provisions was to improve the technical and legal facilities for amalgamation by any collieries that were voluntarily disposed to do so, but it will be noticed that no degree of compulsion was introduced except to coerce minorities to agree to schemes voluntarily put forward and that most of the recommendations of the Samuel Commission were ignored. Moreover, in the passage of the Act through Parliament a clause was inserted stipulating that the selling of coal must not be separated from its production, which effectively blocked the creation of selling schemes, which might otherwise have come earlier, and necessitated further legislation.

THE FIRST EXPERIMENT IN RECONSTRUCTION, 1927-1930

At the beginning of 1927 the industry was in a comparatively favourable position, showing an average profit of 1s. 2½d. per ton. This was due to the temporary inflation of demand and prices following the prolonged starvation of consumers during the stoppage of 1926. The foreign coalfields, however, had taken advantage of the stoppage to secure a firm footing in markets previously supplied by British coal, and the resulting competition in the attempts to regain these markets caused a continuous fall in the average price received by the British companies from 17s. 4d. per ton at the beginning of 1927 to 13s. 10d. per ton at the end. Although production costs also fell, they could not keep pace with the fall in the average level of proceeds, with the result that losses of 1s. 1d., 1s. 3d. and 1s. 0d. per ton respectively were shown in the last three-quarters of the year against a profit of 1s. 2d. per ton in the first quarter.

The position with regard to production and exports for the whole of 1927 is shown in the following table, which gives the figures for 1927 expressed as a percentage of those for 1913:

	Production Per cent	Exports Per cent
Scotland	70	50
North-East Area	90	88
Midlands	98	50
South Wales	75	78

Thus the Midland area, supplying mainly the home market, had suffered very much less than the other areas, though South and West Yorkshire are both interested in export markets.

In 1927 amalgamations affecting 172 collieries and 126,000 workers were carried out under the 1926 Act: the 172 collieries were not necessarily in separate ownership before the amalgamations and these figures therefore give little indication of the actual number of amalgamations. The figures show that such amalgamations were chiefly among the larger undertakings.

The Scottish Scheme

Two of the voluntary levy and quota schemes of this period, both of which were introduced in 1928, are of special interest. The first was put into force in Scotland in March, and provided for a general levy not exceeding 6d. per ton on all coal sold for home consumption, with a special levy on certain classes. Out of the funds so formed compensation was to be paid for the temporary closing down of some of the less efficient collieries and seams. The scheme covered 90 per cent of the coalowners, and was for the purpose of concentrating production in the more efficient mines and raising prices to large buyers. It was hoped that the Scottish market would prove to be sufficiently protected by transport costs from other coalfields to make the scheme workable. In fact it proved vulnerable and the scheme rapidly broke down. In addition the redundancy scheme did not work satisfactorily.

While some collieries were stopped and the output thereby reduced, the remainder were left free to put out as much as they liked without penalty. The scheme might have been amended and continued satisfactorily, but a section of the industry was inclined to oppose the institution of any selling scheme.

The Five Counties Scheme

The second scheme was applied in the Midland area, and was known as the Five Counties Scheme, its official title being the Central Collieries Commercial Association. It provided for a levy of 3d. per ton on all coal raised and also for definite regulation of production. The main provisions were:

(i) Each member was given a basic tonnage based on any year he might choose between 1912 and 1927.

(ii) Each month a quota in the form of a percentage of the basic tonnage was allotted as the maximum output of each undertaking.

(iii) Penalties were imposed on those who exceeded the quota, a fine of 3s. per ton being charged with respect to all additional coal raised.

(iv) Out of the fund formed from the levy and from fines, assistance was given to the export trade.

The scheme had a certain amount of success at first but was showing definite signs of breaking down by the middle of 1930, owing to the lack of complete unity and to the competition of coal from other producing districts. The scheme was successful in increasing exports, since these constitute a not very important proportion of the total output of the Midlands area as a whole, though they are of more importance in Yorkshire, but the successes were gained largely at the expense of the North-East Coast.

The Coal Mines Act of 1930 was based in part on the Five Counties scheme, leaving out the export levy, and in part on a scheme for regulating prices that had been operated in South

Wales, although a sounder plan would probably have been to impose a national scheme on the lines of that tried out in Scotland, since the real need of the industry is the concentration of production in a smaller number of more efficient undertakings. Such a course, however, is bound to result during the first few years of operation in a considerable increase of unemployment, and it is therefore not surprising that the Government resorted to a quota scheme which tends to spread employment over the largest possible area.

The 1930 Coal Mines Act

Part I of the 1930 Coal Mines Act dealt with the production, supply, and sale of coal by owners of coal mines. The owners in each district were to draw up a scheme for the district in accordance with the terms of the Act, which was to be administered by an Executive Board elected by all the owners in the district. A central council representative of all owners was set up to administer a Central Scheme and power was given to the Board of Trade to make a scheme and put it into force in any district not providing its own. The class to which any coal belonged was to be determined by the Executive Boards. In the working of the scheme, the Central Council assesses from time to time the national requirements of all coal for a certain period ahead. It then makes an allocation to each district of the maximum output that it may produce in a given period, which may be increased by the Central Council as may be necessary to meet the demand for the coal of each district.

The Executive Board then divides the allocation for the district among the mines in that district according to the following scheme. A standard tonnage is fixed for each mine, having regard to its special circumstances, including its efficiency and economy of working and state of development. In the first determination these standards had to be fixed in relation to the output during some recent period. A quota is then determined as a percentage of the standard tonnage, applied uniformly to all undertakings. Provisions were made for the sale and transfer of quotas within each district. Minimum prices were determined for all classes of coal in each district, and the Executive Board is empowered to impose penalties for the infringement of these prices as well as for production in excess of quotas. The expenses of the Executive Board are met by levies on the district coalmines.

Part II of the Act dealt with reorganisation, and its purpose was to form larger and more efficient units. It provided for the setting up of five Commissioners whose duty was "to further the reorganisation of the coal-mining industry, and for that purpose to promote and assist amalgamations when they appear to the Commission to be in the national interest." The Commissioners were entitled to hold enquiries and to call upon the owners to prepare a scheme of reorganisation. If the owners fail or refuse to submit such a scheme, the Commissioners may prepare one for them. If this is found by the Railway and Canal Commission to be in accordance with the 1926 and 1930 Acts, it is to be made binding on all the constituents.

Part III of the Act, which dealt with hours of work, and Part IV, which dealt with wages and conditions of labour, are discussed in a later chapter.*

* See Chapter VI.

THE WORKING OF PART I OF THE COAL MINES ACT, 1930: QUOTAS AND PRICES

Effects on Supply of Coal

Part I has received a great deal of adverse criticism. Regarded as a permanent solution of the difficulties of the industry, it is undoubtedly valueless in its original form, being based on the desire to spread employment over as large an area as possible. That it was not intended to be regarded as more than a temporary and experimental solution, however, is clear from the fact that, as originally drafted, it was only to be effective for two years. It was intended to bridge the gap between 1930 and the time when the benefits from reorganisation, provided for in Part II, should begin to be felt by the industry.

But even within the limited scope of what it set out to do, Part I suffered from two constitutional weaknesses. It contained no provision for securing the co-operation of distributors in maintaining minimum prices, and it provided for the fixing of minimum prices at the pithead and not at the point of delivery, which made the system inequitable to unfavourably situated collieries and therefore prejudiced the effectiveness of the scheme at the outset.

The decline in coal exports from 54.9 million tons in 1930 to 42.7 million tons in 1931, 38.9 million tons in 1932, and 39.1 million tons in 1933 has been attributed by many of its opponents to Part I. In order to take this view, however, one must deliberately disregard the far more direct and probable causes—the exclusion of British coal from important markets, e.g. France and Germany by import quotas—and the heavily subsidised price competition in neutral markets by such countries as Germany and Poland which have decided to export at whatever cost. There has, in fact, been no physical shortage of coal in Great Britain—there were 1½ million tons in stock in the Midland area alone at the beginning of 1932. Moreover, in many districts the quantity of coal raised was considerably lower than the allocation. This, however, is due in part to the fact that quota increases have sometimes come too late in the month for the collieries to take full advantage of them.

The figures for the whole country were:

(million tons)

	Actual Output	Allocations	Difference expressed as Per cent
1931 .	224¼	237½	−5.6
1932 . .	213½	236	−9.6
1933 . .	211¼	220	−3.8
1934 . .	226	231½	−2.3

Effect on Export Trade

It is possible, however, that the fixing of minimum prices may have had some effect on exports, since the foreign mine owners knew in advance the lowest British price and were therefore enabled to undercut in their tenders. In 1931 exports from Belgium and Poland increased slightly, while those from Germany fell only 5 per cent. In 1932, however, the

position was reversed, since Polish exports declined 26 per cent and German 21 per cent, while the British exports fell by only 9 per cent. In 1933 Polish exports declined by a further 10 per cent, while those of Germany recovered by 3 per cent and British exports remained practically constant.

The real reason for the drop in British exports must undoubtedly be sought in the restrictions placed on our coal by foreign countries and the decline in world demand for coal owing to the acute trade depression. It was inevitable that British coal, in view of its importance to this country and its accessibility to tariff reprisals, should have to bear the brunt of tariff warfare. In 1931 France and Belgium introduced restrictions on imports of British coal which have tended to become progressively more severe, while Germany instituted a series of quota reductions. France, moreover, imposed a 15 per cent surtax, although it was withdrawn after three months.

The drop in 1932 was due to still further restrictions in foreign countries. Italy imposed a landing tax of 2½ lire per metric ton. Spain insisted upon the use by all industries of a minimum percentage of native coal, and the Irish Free State instituted a tax of 5s. per ton in July. The drop in exports to France, Belgium, Germany, Irish Free State, and Spain, the main restricting countries, amounted to 4.10 million tons compared with a net total drop of 3.85 million tons.

Since 1932 there has been no further decline in the aggregate volume of British coal exports and the restrictionist fervour of importing countries has somewhat abated. But any recovery of British exports has been prevented by the growing intensity of subsidised competition in the principal neutral markets.

The 1930 Act does, however, appear to have had some effect on the availability of particular qualities of coal for export at particular times and particular ports, although it is only fair to state that such difficulties occurred also to some extent before production was restricted. A colliery manager is inevitably tempted to sell as much of his quota as possible for household or industrial consumption at relatively favourable prices in the inland market, and when an export order arrives he may have already exhausted his quota and be unable to fill the order or may be unwilling to do so if he is confident of being able to place that particular quality of coal more advantageously on the home market. It is significant that most of the complaints have concerned the availability of coal at various times at the Humber ports to fill orders placed under the trade agreements with the Scandinavian and Baltic countries, and if the above factor is a powerful one, this is only to be expected since the export trade is not so much a matter of life and death to the producers of the Midland districts, who supply the coal for shipment from the Humber, as it is to the producers of the North-East Coast and South Wales.

Effect in Maintaining Prices

There is ample evidence, however, that Part I was extremely useful in maintaining the price level of British coal at a time when other commodity prices were falling steadily. The average proceeds per ton (both exported and inland) are given below, and are compared with the Board of Trade Index for the wholesale prices of all commodities. The contrast is striking.

AVERAGE PROCEEDS PER TON OF COAL DISPOSABLE COMMERCIALLY

1930	1931	1932	1933	1934
14s. 1d.	14s. 0¼d.	13s. 6½d.	13s. 6½d.	13s. 4d.

BOARD OF TRADE WHOLESALE PRICE INDEX

100.0	87.8	85.6	85.7	88.1

The Coal Mines Act, 1932

When the question of the renewal of Part I came up in 1932, the Government asked the colliery owners to vote on the subject. There were sharp differences of opinion in most districts, but although South Wales and Scotland recorded a majority vote in favour of eliminating Part I most of the owners were in favour of its continuance. At the same time the Miners' Federation put forward a Memorandum declaring that "a return to the old conditions of free competition would be disastrous to the industry and the country." They also urged a national levy to be used for the purpose of reducing export prices, a policy which was being pursued by many Continental countries. This course is, however, open to the objection that it would cause an increase in the home price, and the consequent lower export price would almost certainly result in a reduction of prices abroad, so that the final position might well be worse than the first. It might also encourage foreign producers to sell in this country, and it would react unfavourably on British coal-consuming industries, e.g. iron and steel, in their export trade. Even the efficacy of a levy and subsidy scheme as a stimulant to export trade is in doubt owing to the limited free markets for coal under present conditions of international trade; while it unquestionably represents the subsidisation of foreign fuel-consuming industries at the expense of British consumers.

Amendment of Quota and Minimum Price Schemes

In the end, the Government, by means of the Coal Mines Act, 1932, extended the life of Part I for a further five years from January 1, 1933, but it was made clear that the schemes must be amended in the light of the experience gained in their working. The Central Council had under consideration the following amendments:

(i) That with a view to improving inland price arrangements the following proposals should be considered:
   (a) The separation of inland and export quota.
   (b) A further separation of the inland quota into:
      (i) deliveries within the area of production,
      (ii) deliveries to other parts of Great Britain.
   (c) Amendment of the minimum price provisions, so that different minimum prices for the same class of coal might be fixed according to the market.
   (d) Empowering the Central Committee to co-ordinate minimum prices, failing inter-district agreements, and to impose penalties on executive boards for default in fixing or enforcing minimum price schedules.

(ii) That in return for agreement on the part of exporting districts to the above proposals for assisting inland prices, the inland districts should be prepared to consider proposals for the support of exports out of the proceeds of inland coal.

The suggestions contained in (i) above were necessary owing to the growing competition between the districts for the home market. With the fall in exports the exporting districts of North-East England and Scotland increased substantially their coastwise shipments at the expense of rail-borne coal from the Midland district, thus prejudicially affecting the price of millions of tons of rail-borne coal.

Amendments to the Central Scheme require an 85 per cent majority, and as it was clear that the amendments outlined above did not command that degree of support much time was spent in endeavouring to reconcile the opposition.

At the beginning of 1933 the Government began to bring pressure to bear on the colliery owners to make two amendments to the scheme—separate quotas for the inland and export trade and inter-district co-ordination of minimum prices. This continual intervention of the Government has been much criticised by many of the owners, but the justification on the grounds that the industry produced no schemes on its own initiative is well illustrated in this case. Nearly a year had elapsed since it was recognised that amendments to Part I were necessary, but no definite scheme with the backing of the owners had yet been submitted. Another factor which influenced the Government in taking this step was the necessity of ensuring that there should be no shortage of coal to meet the requirements of the new trade agreements with the Scandinavian countries.

As a result of the Government's intervention the Central Council of Colliery Owners met and approved by a majority the two amendments relating to separation of inland and export quotas and the co-ordination of minimum prices. The majority, however, fell short of the 85 per cent required under the Central Scheme. The chief opposition to the Scheme occurred in the North of England where the proposed amendment had two aspects. The owners approved of the virtual removal of the restriction of production for export purposes, but they feared that the separation of inland and export quotas would mean the loss to them of the considerable market they had built up for themselves in the South. It is important to note how the different districts are affected by the separation. In 1932 South Wales exported 56 per cent of its output, Northumberland and Durham 39 per cent. Scotland 26 per cent, and Yorkshire 6 per cent, while the other coalfields in the Midland district produced almost entirely for the home market. In Scotland, however, practically the whole of the export trade comes from the East Coast coalfields.

The next suggestion put forward by the Central Council was to leave the allocations as they stood, i.e. for all coal, but to create in addition a quota pool, to be available only for export. The pool would be controlled by the Central Council and allocations made according to the export demand. No agreement was reached, however, owing to opposition from the inland coalfields, which considered that there were not sufficient safeguards against export coal being sold in the home market, and from the exporting districts, which regarded the pool as unworkable.

Owing to the failure of the colliery owners to agree upon any voluntary scheme for amending Part I, the Government introduced a new Bill, under which coal sold for export was to be removed from quantitative regulation and powers were to be given to the Central Council to co-ordinate district minimum prices.

It was hoped that the first part of the Bill would prevent to a large extent export coal being sold in the inland market, since the standard tonnages for inland coal were to be calculated on a basis of the last three years. Previously, the exporting districts with their standard tonnages based on years when exports were high, had a considerable surplus which they were unable to export.

Under the provisions for the co-ordination of minimum prices, any district which had reason to complain that another district was evading the regulations or had fixed its minimum price too low, would be able to bring its case before the Central Council, which would be empowered to impose fines on the offending district. Previously the Central Council could only make recommendations under such conditions and was not empowered to impose fines.

It was to be expected that the Bill would be opposed by those exporting districts of Scotland and the North-East Coast which had begun to build up a considerable market inland, and in March, 1934, the Executive Board for the South Wales district also decided unanimously to oppose the Bill in its entirety. The Board maintained that freedom of exports was not desirable while minimum prices applied, and they considered that the abolition of minimum prices would be a disaster. Moreover, having built up a considerable market for themselves in London and other inland districts, the South Wales coalowners refused to agree to any restrictions upon their inland trade (i) that was likely to hamper trade recovery, (ii) that would deprive them of their right to supply the demands of their customers, or (iii) that would prevent coal consumers from purchasing their coal from such collieries as supplied the quality most suitable to them. Scotland and Northumberland, which had developed a considerable coastwise trade, were equally opposed to these measures. In fact the Bill was repugnant to practically all districts, both inland and export, though this appears to have been in part intentional in order to force the coalowners to produce their own scheme.

These criticisms of the Bill were followed by a memorandum of the Miners' Federation, which maintained that the proposal to remove the restrictions on coal produced for export would result in a fall in price and would eventually completely undermine Part I. Further, it was argued that the proposals for fixing minimum prices did not go far enough. The Federation suggested that the Bill should require the Central Council to arrange a series of delivered prices for various classes of coal over different areas covering the whole country, and that no district should be permitted to sell coal within those areas except at the arranged prices.

In general the opposition to the Bill, on the grounds that without control of output the control of prices would be impossible, was so great as to make the coalowners adopt strenuous measures to reach a voluntary agreement, since in introducing the Bill the Secretary for Mines made it clear that should the coalowners arrive at a satisfactory scheme for amending Part I before the passage of the Bill, the Government were prepared to abandon the Bill altogether. In April, 1934, it was announced that the District Executive Boards had accepted the Central Council's proposals for separation of inland and export quotas and the co-ordination of minimum prices, and the Secretary for Mines announced that adequate assurances had been given that the schemes would be amended. The Government therefore suspended the proceedings under the Bill, and the schemes as amended came into force on January 1, 1935.

These amendments were as follows:

1. Separate allocations and quotas for coal supplied in the inland and export markets are established, in addition to the existing output allocations and quotas.

2. The Central Council, on the application of a district Executive Board, is empowered to make for that district separate allocations in respect of special classes of coal, such classes being determined according to the nature of the coal or of the trade or industry supplied.

3. The Central Council is empowered, on the complaint of a district Executive Board, to enforce the co-ordination of minimum prices between districts, if necessary by means of penalties but subject to appeal to arbitration.

These proposals are very similar to those put forward by the Central Council in 1933. The withdrawal of the opposition of the exporting districts was due to their dislike of the Government Bill and fear that the freeing of export coal from restriction would cause a serious fall in export prices and ultimately in inland prices as well. In the sense, therefore, that it at last compelled the industry to act, the Bill was successful.

Shortcomings of Part I of the 1930 Act

Part I of the 1930 Act has, to some extent, helped the industry through the depression, and the amendment should tend to improve the efficiency of the Act in this respect. It is generally recognised that Part I was more or less successful for a time, but that the degree of its success declined from 1932 onwards. It has at any rate led to a marked tendency to reduce the area of coal being worked in pits and has limited the amount of coal on offer. The minimum prices, though evaded in many instances by various stratagems, have at least provided a datum line.

In some cases it has been a very low datum line, as in order to avoid the penalisation of unfavourably situated collieries, the minimum price has been fixed very low indeed. This has happened, for instance, in Scotland.

It cannot, however, be regarded as a permanent solution of the problems of the coal industry, since the quota system as operated in the past, has definitely retarded the concentration of production in the most efficient mines.

It is difficult to assess the cost of working below capacity, but in some cases costs have been increased by as much as 2s. per ton—or even 3s. 6d. with full mechanisation—while the average for the whole industry is probably about 1s. per ton, although it is difficult to be certain since costs on the average have decreased for other reasons. As a temporary measure, however, until the effects of amalgamation are felt in the industry, Part I is doing much towards the maintenance of the price level if only because its quota system has at least mitigated the degree of competition. That restriction in some form is necessary is shown by the fact that there is probably an immediate potential over-production in the industry of possibly as much as 40 million tons, or nearly 20 per cent of the total demand in 1934 and a total excess capacity in the neighbourhood of 80 million tons per year.

It cannot be sufficiently emphasised that Part I of the Coal Mines Act of 1930 should be regarded as an incomplete and experimental piece of legislation which should be subjected to periodic revision and elaboration. Its original object was primarily defensive—to maintain employment and prices as far as possible until the industry should begin to feel the beneficial effects of the constructive proposals of Part II. In fact, five years have elapsed and the constructive proposals of Part II have not materialised, and it seems appropriate that Part I, having fulfilled its primary object, should be given such detailed amendment as would enable

it to play a more positive part in the reconstruction of the industry. The revisions of 1935 have given Part I a constructive twist in certain directions, as has already been seen, but there are other questions which merit further examination.

Transfer of Quota

It will be remembered that the Miners' Federation in their memorandum of March, 1934, recommended that the power to sell or transfer quotas within districts should be abolished. The present system of freedom to sell quotas tends to hinder permanent concentration of production in the pits which can produce most profitably although it may tend to encourage apparent concentration of present output, and the possibility of acquiring quota and trade permanently may stimulate some collieries to buy up others. They are not so likely to buy up the other collieries completely, however, and so to amalgamate, as merely to buy their quota. There are believed to be a number of pits in the country which have not been worked for years but whose owners draw a steady income from them through the sale of their quota to producing mines. To this extent, indeed, the 1930 Act provided mines which were working at a loss with a new asset in the form of a quota which can be sold to other coalowners. The latter, although they can secure an increase in their production and produce more nearly to capacity, have to surrender part of the potential profits of additional production for the privilege. In any case their costs are increased—either through working below capacity or through the necessity of having to purchase additional quota.

Undoubtedly the transferability of quota was introduced into the Act with the idea of rendering it more flexible and under the impression that it would aid the concentration of production. It may do so temporarily, but it does not remove the threat of permanent excess capacity and penalises the efficient producer for the benefit of a specially created *rentier* interest—virtually a nuisance value—of the inefficient producer. As events have turned out there seems to be a good case for the re-examination of this provision and perhaps its revision on the lines of either of the following two alternatives:

(i) The abolition of the transferability of quota, except by amalgamation or purchase outright of the mines to which the quota is attached. Owners of inefficient collieries retaining quota who can only produce at a heavy loss and who at present sell their quota, might thus be persuaded to amalgamation on reasonable terms or sell at a reasonable price, leading to the permanent closing of their pits. On the other hand, owners of efficient pits seeking to produce a larger output could only obtain additional quota by outright purchase of, or amalgamation with, such mines as would be willing to close down on reasonable terms.

(ii) The transferability of quota could be retained, but the quota of individual owners who have failed, partially or completely, to fill theirs from their own pits for a definite period of time past, should be cancelled or progressively reduced and thrown into a pool from which they could be redistributed by purchase or *pro rata* with past production to coalowners who continue to produce. It is understood that in practice the scheme is administered to some extent in this way and that pits which do not produce up to their quota are liable to have their standard tonnages reduced by their Executive Board. Voluntary pools are operated in some districts.

With a reform of this nature Part I might be made an instrument to assist instead of to hinder reorganisation.

Minimum Prices

In the second place, it is well known that minimum prices have been widely evaded, which was in fact more or less inevitable for two reasons. By fixing the pithead price of coal, the scheme gives a definite advantage to pits favourably situated in respect of markets and makes it practically necessary for pits situated unfavourably, such as those in the centre of coalfields, to resort to price-cutting in order to obtain business. By failing to take any account of the existence of distributors, and by failing to secure or enforce their co-operation, the scheme places the distributors in the position of uncontrolled buyers who are naturally tempted to use their position to secure a breakdown of minimum prices whenever possible in their own interests.

If it were possible to fix minimum prices at a point somewhat nearer the ultimate consumer than the pithead and, at the same time, to differentiate far more completely between different qualities of coal, it is believed that minimum prices could be much more easily enforced. Such a step would require the co-operation of the distributors and merchants, but there is reason for believing that this would be given willingly in certain important instances, although to be fully effective such a scheme would have to go hand in hand with a scheme of effective reorganisation of the distributive trade. This is discussed more fully elsewhere.*

One of the reasons for the failure to maintain minimum prices has been the competition in inland markets, which have always been considered the legitimate preserve of one producing district, of rail-borne coal from other producing districts. In this connection, the British industry might do worse than examine carefully the system of "contested" and "non-contested" areas by which prices are regulated in Germany under the Rheinisch-Westfälisch-Kohlensyndikat. The zoning of prices according to the area of delivery, as is practised in Germany, instead of fixing them at the pithead, would remove many of the difficulties in the way of the maintenance of minimum prices.

At the present time the method by which district tonnage is allotted by the Central Council gives some incentive to cut prices. The Central Council allots district tonnage on the basis of the actual percentage share of each district in the total tonnage of the corresponding quarter of the previous year, which gives every incentive to a district to cut prices and increase sales in order to secure a larger tonnage allocation twelve months ahead. This is a relatively small matter but one which might with advantage be rectified.

Effect of Central Selling

All of these problems connected with the present working of the quota and minimum price system will be profoundly affected by the institution of district central selling schemes which, following the voluntary introduction of such a scheme in Lancashire, have been promised in every district before July 1, 1936.

With efficient central marketing, both the maintenance of minimum prices and the elimination or, at any rate, delimitation, of inter-district competition should become a practical possibility. For the introduction of these schemes will give the coalowners the opportunity of securing the co-operation of distributors and so repairing one hole in the defence of the 1930 minimum price system. With such co-operation, and with the centralisation of colliery selling, the fixing of minimum prices at a point nearer to the consumer will be more feasible and the possibility of undercutting by individual collieries will be excluded. Moreover, the problem of inter-district competition will have been brought nearer to solution as soon as

* See Chapter IV.

each district has acquired a mouthpiece which can speak with a single voice. It would be a mistake to suppose, however, that the solution of either problem will come as a more or less automatic consequence of the institution of any form of co-operative body to which the name of central sales organisation may be given; it is imperative that these latter should be sales organisations in more than name, and that their influence should be constructive and attempt more than merely the control of sales. The subject is discussed in greater detail at a later stage in connection with other coal marketing problems.*

Potentially, a very important effect of the introduction of a system of central selling organisations will be their influence in modifying some of the factors in the present quota system, which, as already described, tend to hold up the progress of amalgamations. One of the hindrances to the concentration of the industry by the absorption of undertakings has been the fact that when one colliery absorbs another, or even merely buys its quota, it is only buying a right to produce and dispose of a certain quantity of coal without any certainty that it will actually be able to do so. A central selling scheme on the Lancashire model gives to each enterprise a market quota in addition to its production quota under the 1930 Act. In these circumstances it may be imagined that progressive collieries will be far more willing to buy out other collieries, and to pay a higher price for them than is the case under the present circumstances, when there is, in fact, some uncertainty concerning what they are actually buying.

THE WORKING OF PART II OF THE 1930 COAL MINES ACT: AMALGAMATION

Aims of the Coal Mines Re-organisation Commission

The Coal Commissioners in their report to the Secretary for Mines, issued in December, 1933, stated that they regarded it as their duty to examine and encourage all possible voluntary amalgamation schemes before having recourse to compulsion. They hoped that compulsion would be necessary only in order to compel a minority to fall in with majority schemes. In view of the almost universal opposition they have encountered, this accounts to a large extent for the slow progress they have made. Before their appointment, amalgamations had taken place in South Wales and South Yorkshire, and schemes were prepared for Lancashire and Scotland. An attempt at amalgamation on a large scale had failed in Durham.

The Commission began its work by interviewing representatives of District Colliery owners. The chief objections raised against amalgamation on general grounds were:

1. There was a fear that the better undertakings would have to carry the less efficient.

2. The whole principle of compulsion was condemned in view of the impossibility of getting certain of the owners to work together.

3. Owners of mines temporarily in an inferior position feared perpetuation of such inferiority.

4. In many cases the owners were influenced by fear of the loss of personal position.

On the other hand, the Commission pointed out that the costs of working below capacity were very high, and even allowing for the costs of closing down, many millions should be

* See Chapter IV.

saved each year to the industry as a whole. It is generally agreed that the best method of compensating those collieries which have to be closed as a result of the operation of redundancy schemes would be out of the increased profits of the remaining undertakings. This might or might not require an actual transfer of money according to whether there was complete amalgamation or not. The Commissioners pointed out, however, that the difficulty of their task was considerably increased by the fact that nothing had been done to remedy the position with regard to royalties. They urged that it is most important that the ownership of royalties should be vested either in the State or some other single body.

In a memorandum submitted by the Mining Association to the Commission in March, 1933, it was claimed that Part I of the 1930 Act tended to promote voluntary amalgamation, and that therefore the Commission was useless. This has not, however, proved to be the case; but if the conditions governing the transfer and sale of quotas under Part I were modified, it might well be that amalgamation would be viewed in a different light. Efficient undertakings would be more willing to buy out others, in order to obtain their share of the quota, and so work nearer to capacity. The failure of most of the voluntary schemes as yet put forward has been due to the question of finance, and any measure which gives the larger undertakings an immediate advantage to offset the compensation to be paid to the smaller, should receive the fullest consideration.

Survey of the Activities of the Coal Commissioners

In view of the opposition of the majority of the coalowners, the Commissioners decided to try out their powers and the effects of amalgamation in some of the smaller areas. Following an enquiry held at Dunfermline, they called on all the coalowners in the county of Fife to amalgamate in November, 1932. The schemes affected eleven different undertakings, producing in all about 7 million tons of coal per annum. The next area to receive the attention of the Commissioners was Cannock Chase, Staffordshire. The undertakings involved were responsible for an annual output of 5 million tons. Others, including Leicestershire and Warwickshire, followed. As no schemes were submitted from these areas, the Commission took steps to draw up its own schemes, and began the valuation of the pits concerned, summoning the owners to attend oral enquiries when the required information was not otherwise made available. It may be regarded as certain that in no case will the Commission's scheme be adopted except under order of the Court (the Railway and Canal Commission). Preparations for the obtaining the Court's decision have, for a long time, been in hand, and it may be upon that decision that the whole future of Part II of the Coal Mines Act (1930) will depend.

In the meantime, schemes for most of the other coalfields are in varying stages of preparation, but are likely to be held up at least pending the decision of the Court on a test case. In view of subsequent developments, however, in connection with the nationalisation of royalties, it is possible that no test case will ever be brought to court.

According to the terms of the 1930 Act, any scheme of the Commissioners, before they can resort to their compulsory powers, must satisfy the following four conditions:

1. That it is in the national interest.
2. That it will result in lowering the cost of production or distribution.
3. That it will not be financially injurious to any of the undertakings involved.
4. That the terms of the scheme are fair and equitable to all persons affected.

It will be seen that the Mining Association is probably right in claiming that the Commissioners will have the utmost difficulty in imposing any scheme, since it will be extremely difficult to ensure and prove even that the scheme is not financially injurious to any of the undertakings involved, apart from satisfying the other requirements. The clause containing this condition did not figure in the Bill as originally drafted, but was inserted as an amendment by the House of Lords during its passage through Parliament.

The whole of the 1930 Act shows considerable diffidence on the part of the Government towards imposing any definite method of reorganisation. Part I must be regarded as a temporary and experimental measure, and although the underlying motive of Part II was amalgamation the powers of the Commissioners are very greatly restricted. If the Government had seriously required amalgamation within a reasonable time, it would not have subjected the decision of the Commissioners to the endorsement of the Court, or defined so strictly the necessary conditions to be satisfied before coercion became possible.

It is possible that Part II was intended to bluff the coalowners into preparing voluntary schemes, but if so, the weapon was not strong enough and the owners have, for the most part, preferred to call the bluff. The result of the test cases in Cannock Chase and Fife, if ever they are taken to court, will therefore determine whether Part II is to have an influence on the future development of the industry, or whether there is to be a return to the slower methods employed before 1930. Experience in the period 1926-30 showed, however, that very few results are to be expected unless the problem is tackled from a national point of view.

It is certain, at least, that until the Government is prepared to stand wholeheartedly behind any legislation that it passes for the compulsory reorganisation of the industry, little progress will be made. In 1930, the responsibility was transferred to the shoulders of the Railway and Canal Commission, and the owners have known all along that the Government has not been wholly behind the Act, and consequently that the bluff which it represents can be called with very little difficulty. It can hardly be said in these circumstances that the coalowners have had a fair chance to work out their own schemes, as they have always been able to count upon the virtual certainty that the alternative of compulsion is unworkable. If Part II of the 1930 Act should be so amended as to make it workable, or if other legislation superseding it is passed, it is essential that the Government should not again shirk the responsibility for the effects of its own legislation. In the circumstances, it would also seem politic to allow the coalowners a further brief space in which to work out their own salvation, but only with the certainty of the real compulsion which will follow in the event of their failing to do so.

Progress of Voluntary Amalgamation Schemes

According to the annual report of the Mines' Department, only three schemes of amalgamation were completed in 1934 without recourse to the Railway and Canal Commission. Since the passing of the Mining Industry Act in 1926, 41 schemes (subsequently reduced by further amalgamations to 32) have been carried through, affecting 390 pits or levels normally employing about 251,600 workers. During 1934 there were, in addition, three other instances of co-operation or consolidation which did not actually amount to amalgamations. Two companies in South Yorkshire combined their coking businesses, and Manchester Collieries Ltd., a merger dating from 1929 and involving 10 individual companies in Central Lancashire, totally absorbed Bridgewater Collieries Ltd., which had formerly been a subsidiary company. This, however, amounted to little more than a bookkeeping transaction. The third development occurred in North Staffordshire, where 15 undertakings representing about 90 per cent

of the total district output, formed a new company, entitled North Staffordshire Land & Minerals Ltd., for the purpose of acquiring minerals, mineral rights and workings, and to close and otherwise deal with any colliery so acquired. This scheme possibly signalises the beginning of more complete co-operation in North Staffordshire.

Other similar schemes have been put forward for combination in marketing and for other purposes, in which, however, the constituent undertakings remain financially separate, so that these do not amount to amalgamations or complete financial fusions.

In a speech to the Cardiff Business Club in February, 1933, Sir Ernest Gowers, Chairman of the Reorganisation Commission, claimed that both types of amalgamation were necessary. He suggested a ground floor of complete amalgamations and the addition of the looser form of wider co-operation as an upper storey. This would mean the grouping of the units of production into much bigger associations with two main purposes, one, to co-operate in selling and distribution, and the other to exercise a general control over the development of the area, and to share the expense of buying and closing mines which no single unit would be in a position to acquire.

So far, it is legitimate to remark, while not much progress has been made with either form of amalgamation, there has been more readiness to form loose associations for specific purposes than to submit to genuine fusions—in other words to build the upper storey without completing the ground floor. If the metaphor is an apt one, this process may not be productive of the happiest results.

The West Yorkshire Collieries Federation Scheme, for instance, which the Commission decided to support, would have gone only half way towards meeting the Chairman of the Commission's ideal of the double structure, since it would have involved co-operation between the participants without any surrender of financial independence.

The West Yorkshire Collieries Federation Scheme

The Commission had asked the West Yorkshire owners to consider the amalgamation of all the companies in the district into two groups, an Eastern and a Western, with a possible subdivision of the latter. The coalowners turned down this scheme, but countered it in the autumn of 1933 by proposing a voluntary federation scheme which would have involved the co-operative control of the whole coalfield while maintaining the existing financial divisions.

The scheme evolved by the coalowners had four principal objects:

1. To promote the more economical and efficient working, treating and disposing of the coal produced by the constituents.

2. To provide for (a) the closing down of coal mines or undertakings in the coalfield and the transfer of the permissible output therefrom to other coal mines or undertakings, whether in the coalfield or not; (b) the purchase of mines or undertakings in the coalfield with the right either to close or work them, including the acquisition or transfer of royalties and the control of, or participation in, drainage operations in connection with such purchased undertakings.

When a mine is closed, its tonnage quota, inland and export, to be distributed among the members in proportion to their levy contributions, i.e. according to their existing tonnage. Ordinarily, sales of output quota only to be permitted through the Executive, all other members having the right to participate in its purchase.

3. To co-ordinate the marketing of the coal produced by the constituents, or any of them, and the regulation of the prices at which, and the conditions under which, the same may be sold.

4. The central purchase and resale of stores and supplies.

The scheme was, therefore, essentially a scheme for joint operation and management, and not one for complete financial amalgamation. Most of the decisions of the Managing Committee required the assent of the owners of 85 per cent of the tonnage controlled. This majority was required before any of the marketing provisions could be put into operation.

The administrative machinery of the scheme was as follows:

(a) The federation would remain in operation for a period of ten years, with the possibility of renewal for further periods of five years with the approval of 85 per cent of the constituents voting according to output.

(b) All constituent undertakings would be represented on a joint committee, which would appoint an executive committee and a finance committee, and might appoint a marketing committee or a stores committee.

(c) The executive committee would have power to negotiate with any constituent for the closing down of his mine or undertaking for any period, paying him compensation; and the permissible output of that undertaking would then be distributed *pro rata* among the other constituents. To safeguard standard tonnage rights, provision was made that the closing down should not be deemed to be a reason for a reduction in the annual standard tonnage of the undertaking. A constituent called upon to close his undertaking might ask for arbitration either on the question of closing down or on the amount of compensation.

(d) With regard to purchase of undertakings, the executive committee would enter into a provisional agreement and notify all constituents of the amount of their liability as a contribution to the price of purchasing, individual liability being assessed by voting power, i.e. by output tonnage. Each constituent might declare whether he wished to participate in the purchase. If all were agreeable, the executive committee would purchase and arrange either for the continued working or for the closing of the undertaking. If, however, the purchase were made by some only of the constituents, the participants only would make arrangements among themselves for working or closing.

(e) No constituent would be allowed to sell permissible output outside the federation without first offering it to the federation at a stipulated price, nor would he be permitted to acquire permissible output from outside without the consent of the executive committee.

(f) Every constituent might be compelled to take all his stores from the stores committee.

(g) The arrangements for co-ordinated marketing would include: the introduction of standard conditions of sale; the determination of a price for any particular works or any particular class of business below which no constituent might sell his coal; the determination of means whereby all constituents supplying a common market might agree upon the price and terms of sale for such market. An 85 per cent majority in favour was required for the introduction of all the marketing provisions and some of the other features of the scheme.

(h) Three funds would be maintained by means of levies based upon output: a general fund to defray the working expenses of the federation; a compensation fund from which compensation would be paid to the owners of the mines closed; and a capital fund or funds for the purchase of undertakings.

The scheme was submitted to the coalowners concerned during the autumn of 1933 and received the support of undertakings which represented 69.36 per cent of the output of the coalfield. At a meeting of the owners on November 20, 1933, it was decided that it would be impracticable to proceed with the scheme under conditions where 30 per cent of the coalowners were left free to compete with the participants and the scheme was accordingly abandoned.

At this stage, the Commission stepped in with the announcement that it intended to take steps to impose the scheme upon the district compulsorily, in accordance with its powers. In making this decision, the Commission seems to have been influenced by the consideration that the majority of the West Yorkshire owners preferred this scheme to one of total amalgamation, and were confident that it would work.

Decision of the Railway and Canal Commission

Having gone through the necessary formality of requiring the West Yorkshire owners to submit a scheme of their own and having received a refusal, the Commission submitted the original scheme, with certain modifications, to the High Court as its own, with an application that it should be compulsorily imposed. The application came before the Railway and Canal Commission Court on May 13, 1935. The delay of fifteen months appears to have been due to the necessity of detailed examination of the scheme by the Commission and to uncertainty as to the outcome of the amendment of the 1930 Act which actually necessitated some revision of the scheme in point of language. By this time it had received the support of 58 of the 62 coalowners concerned, representing 82 per cent of the output of the district. The four objectors were Benzol & By-Products Ltd., New Sharlston Collieries Co. Ltd., T. & R. W. Bower Ltd., and the Nostell Colliery Ltd. In order to secure the approval of the Railway and Canal Commission it was necessary to show that the scheme was an amalgamation within the meaning of the 1926 Act, and that it complied with the requirements of Section 13 of the 1930 Act, namely:

(i) That it was in the national interest;

(ii) that it would result in a lowering of the cost of production or disposal of coal;

(iii) that it would not be financially injurious to any of the undertakings proposed to be amalgamated.

The application was opposed by the objectors on the grounds that it was not in conformity with the 1926 Act, and that, *inter alia*, it would be financially injurious to themselves and would not promote the more economical or efficient working or disposing of coal. In cross-examination, particular stress was laid on the cost of maintenance of mines that had been closed (2s. 6d. to 3s. per ton of output), which, as one of the witnesses for the Commission admitted, might exceed the profit to be gained by increased working elsewhere; on the possible effects of the scheme upon prosperous concerns (the New Sharlston Collieries Co. has paid a dividend in the neighbourhood of 10 per cent for some years), and on the provisions of the

scheme for the sale of quota which contrasted sharply with the freedom permitted under the Midland Amalgamated District Scheme.

On the other hand, although it was admitted the cost of closing down pits *could* in certain instances swallow up all the economies elsewhere, it was contended repeatedly that while the scheme *could* be operated stupidly, that was no proof that it would be.

It was admitted by one witness that the scheme in effect was attempting to prevent the sale of quota outside the West Yorkshire section, although Part I of the 1930 Act contained provisions authorising that very thing be done. At this, Mr. Justice Mackinnon remarked that the enforcement of a scheme of this type in one section only and not throughout the country would in fact involve shutting down mines and at the same time pretending they were not shut down, which meant incurring high expenses for upkeep merely to preserve standard tonnage. That did not seem to be in the national interest.

In giving judgment refusing the assent of the Court, Mr. Justice Mackinnon held that the main objection to the scheme was that it did not constitute an amalgamation at all and therefore did not fall within the scope of the 1926 Act: the scheme merely provided for the setting up of a committee to control the working, treating and disposing of coal, having power to close down any mine considered redundant. There was no provision for the fusion of companies, which were to remain separate and distinct, and no new entity incorporating the existing ones had to come into existence. Therefore, the scheme could not be considered an amalgamation as the term was understood, although he was at pains to point out that the term had no distinct legal meaning as opposed to the ordinary usage.

It was true that Section IV of the 1926 Act enacted that an amalgamation scheme might provide for the constitution of a joint committee. But that was only part of the machinery by which the amalgamated unit would carry on its business, and it was incorrect to argue from that provision that as soon as a joint committee had been set up an amalgamation was thereby formed. Although this objection was fundamental there were other grounds under the 1930 Act under which the Court could not pass the scheme. The scheme provided for various powers to be exercised by a joint committee, but all that was proposed to be done was to set up a committee of control for each section, all of whose decisions could be referred to arbitrators. The effect was not to create a scheme but to give the arbitrators power to do so. Moreover, the provisions for arbitration involved long and protracted proceedings, and even if the whole of the 62 constituent mine owners had agreed to the scheme, the conduct of business by protracted arbitration was unbusinesslike and unsatisfactory; if forced upon an unwilling minority it would be utterly unworkable. For this reason the Court could not be satisfied that the scheme was in the national interest, or that it would lower the cost of production, or that it would not be financially injurious to the undertakings to be closed down, or that it was fair and equitable to the persons affected thereby. The paramount consideration, however, was the objection that the scheme did not constitute an amalgamation. According to Clause 7 (2) of the 1926 Act, the Court could have modified the scheme. The fact that it did not use its powers of modification indicates how far the scheme fell short of the requirements of the 1926 and 1930 Acts.

This judgment, though not on an amalgamation scheme, is important, for not only does it appear to lay down that the Commission cannot enforce any scheme which does not involve some degree of actual amalgamation, but it emphasises the difficulties which the Commission is likely to find in satisfying the Court—amidst a conflict of expert evidence—that any scheme of complete fusion complies with the conditions laid down by the Act.

It may be premature to judge, but there seems very little doubt that the Coal Commissioners have an extremely difficult task before them. While voluntary amalgamations have been continuing to take place, the possibility of forcing a minority to accept a scientifically worked-out scheme seems to have receded into the distance.

Similarly, the legal difficulties facing any scheme of compulsory amalgamation are very formidable. Without amendment of the 1930 Act, it may well turn out that the Commission can proceed no further.

ROYALTIES

A further factor which has probably tended to hinder the progress of amalgamation, in addition to the legal difficulties described above and the operation of the quota system, is the present system of royalty ownership.

Nature of Royalties

Royalties are sometimes spoken of as rents, but although to the colliery owner a royalty may have the appearance of a rent, this is clearly not so. The Samuel Commission described the position as follows:

> "The fact that the payment for the mineral is usually in the form of a charge per ton, paid annually or at shorter intervals, often tends to the assumption that it is of the same nature as a rent. But this is not so; a rent is paid for the use of a thing which endures, of a piece of land, or a house; a mineral royalty is paid for the purchase of the thing itself, of a specified quantity of the mineral which is extracted from the soil and removed once for all. The principle was authoritatively stated by Lord Cairns in the case of Gowans *v.* Christie (1873 2 Sc. App. 273) when he said, 'a mineral lease is really a sale out and out of a portion of land.' "

This ruling is of some significance when considering some of the ethical problems arising out of the present system of royalty ownership.

Before signing a mineral lease, the prospective tenant is generally given a trial period in which he is usually obliged to carry out a certain amount of development work, no rents, however, being payable. A typical mineral lease would generally cover the following subjects:

(a) Minerals to be worked.

(b) Duration of lease. (Generally 20 to 40 years; it is in the interest of the landlord to get his deposits worked as quickly as possible and for the tenant to get as long a lease as possible.)

(c) Breaking of contract. (The tenant, but not the landlord, is generally free to close down at notice given at certain intervals, usually two or three years.)

(d) Working powers. (Generally include "power to work, win and carry away," and often right to lower the surface and dispose of debris.)

(e) Surface damage. (The tenant usually has to compensate for surface damage caused. The rate for land occupied is often specified at, say, twice the agricultural rent.)

(f) Wayleaves. (The tenant may often require to raise coal that has actually been mined from a neighbouring property. In this case he must obtain right of wayleave, which it is in the interest of the landowner, who wishes to get his own coal worked, to withhold. Usually the landowner will make a small charge (½d. or 1d.) per ton on all coal carried through or all coal carried through above a certain percentage of the total raised.)

(g) Fixed or minimum rents. (The tenant is very often bound to pay, after his trial period, a minimum rent each year, regardless of his output. The amount depends on local conditions, but is often fixed on the basis of £1 per annum per acre of leasehold.)

(h) Royalties. (The method of fixing these varies widely. In some cases royalties are fixed on a sliding scale ranging with the price of coal or thickness of seam worked, or on the basis of so much per inch of seam in each acre; coal for steam-raising and miners' coal is generally free up to 8 or 10 per cent of the total output, and allowances are sometimes made if all power supplies are taken from outside. When royalties fall short of the minimum rent, the overpayment may sometimes be carried forward for a certain period and set off against any excess of royalty payments over the minimum which may later occur.)

(i) Ascertaining quantity worked. (This may be from colliery output books, colliery despatch books and railway invoices or by measurement from plans. These must be open to inspection by the landowner's agent. The tenant is sometimes obliged to supply the landowners with a duplicate set of plans.)

(j) Methods of working. (These are often prescribed in order to prevent wastage.)

(k) Barriers. (The landowner often specifies a certain width of barriers to be left at the boundaries and in certain places.)

(l) Termination of lease. (The conditions in which the pit is to be left are usually prescribed, and the tenant has to compensate if these are not satisfactory.)

(m) Transfer of lease. (The tenant often has power to transfer his lease to a third party.)

(n) Arbitration.

Incidence of Royalties on the Industry

The average royalty paid per ton of coal raised in 1934 was 5¾d. or somewhat lower than in previous years.

GREAT BRITAIN : AVERAGE ROYALTY PAID PER TON OF COAL DISPOSABLE COMMERCIALLY

	d.		d.
1922	7	1929	6
1923	6¼	1930	5¾
1924	6¼	1931	6
1925	6¼	1932	6
1926*	6¼	1933	6
1927	6¼	1934	5¾
1928	6		

* Jan./April.

There is quite a divergence, however, in the average royalty per ton as between districts, which generally reflects differences in the average selling price of the coal, as the following figures show:

AVERAGE ROYALTY PAID IN EACH DISTRICT PER TON OF COAL DISPOSABLE COMMERCIALLY, 1934

	d.
Scotland	6.03
Northumberland	5.87
Durham	5.89
South Wales and Monmouthshire	8.67
Yorkshire	4.96
North Derbyshire and Nottinghamshire	4.83
South Derbyshire, Leicestershire, Cannock Chase, Warwickshire	3.83
Lancashire, Cheshire, North Staffordshire	5.39
Other Districts	5.55
National average	5.86

The Case for Nationalisation

It is more or less universally agreed that the present royalty system requires considerable reform. The private ownership of coal on the basis of surface ownership means that the planning of mines is continually influenced by surface boundaries and surface rights which have no relevance at all to the proper development of the coalfield underground. In some cases undertakings have to obtain leases from several owners, with the result that the coal actually worked from a given pit is often not that which could be most economically worked, but that for which the undertaking was able to obtain the necessary leases.

It is fairly evident that in many cases the collieries have only themselves to blame. Many mining leases were acquired at a time when the industry was prosperous, and the lessees were often not sufficiently farsighted in accepting the terms to which they agreed with the mineral owners, who were generally very well represented. Moreover, the chaotic and unplanned acquisition of leases, which is at once evident from a study of the map of any coalfield, was inspired in many instances not so much by the desire to provide for the steady and economic development of each pit as by the jealous determination to prevent neighbouring colliery owners from doing so. The result is, in the first place, that many collieries have been left with the ownership of areas of coal which they cannot develop economically from their existing workings. Some attempt has already been made to provide for rectifying boundaries and dealing with questions of wayleaves, etc., under the Mines Working Facilities Acts, of which more use would be made if the procedure could be simplified.

In the second place, very many leases, through the failure of the collieries to see that prosperity might not last for ever, or that mining conditions might change, for example, by the introduction of machines, and through the superior bargaining of the royalty owners, bear high minimum rents which must be paid whether the coal is worked or not. The royalty owners cannot now be blamed for the assertion of rights which they acquired in a perfectly legal manner—and many have been found who have been prepared to modify or waive them—

but on national grounds it is imperative that something should be done to extricate the colliery owners from the position in which they find themselves.

In all other important coal-producing countries, with the exception of the United States, the objections to the private ownership of minerals have been realised, and the State either owns the coal or has the right to grant concessions as to its working on a reasonable basis. The British Government, following its action in 1935 in nationalising all deposits of petroleum except those already being worked, has announced its intention of introducing at an early date legislation to nationalise royalties in the coal industry. Consideration of this question must now, therefore, be concerned with ways and means rather than matters of principle.

Requirements of a Nationalisation Scheme

It is to be hoped that the Government's Bill will, as far as possible, meet the following requirements:

(i) That provision should be made for adequate control of the future development of the industry;

(ii) that nationalisation of royalties should be used as far as possible to supplement the efforts made by other legislation to secure reorganisation and concentration in the industry;

(iii) that as far as possible immediate economic relief should be given to the industry.

Control of Development

As regards the first of these requirements, the substitution of the State for the great number of existing landlords should, of itself, ensure the control of development by the Government of all the coal resources of the country, provided merely that the Government exercises the normal powers of a landlord in granting leases. The possible extension of this normal function to cover the redevelopment of areas already working might, however, be contemplated to supplement the machinery already provided by the Mines Working Facilities Acts. It must be remembered, of course, that the methods of working the vast proportion of the areas of coal already developed are now practically fixed for all time by past operations, but there are some cases where the State might be able to exercise its influence as a single landlord with advantage in adjusting boundaries between collieries, and ensuring that areas of coal at present unworked are eventually worked as far as possible from the existing mines most suitably placed to develop them. It might even prove desirable to form some kind of a pool of leases at present unworked, in which, of course, the present lessees would retain a financial interest.

In this connection, it may be added that no scheme of nationalisation can be entirely effective unless the existence of sub-tenancies is appreciated and these, as well as the original ground landlord, are bought out in order that the control of the State as royalty owner may extend to the party actually working the coal.

As regards the extent to which nationalisation of royalties can be used as an additional lever to induce desirable reorganisations in the industry, the main factor is likely to be the type of body in which the control of the nationalised royalties is given and the extent of its powers. If, as seems likely, control is vested in the Coal Mines Reorganisation Commission, the same body will be responsible for administering royalties as is at present responsible for

advancing amalgamations in the industry. This might prove to be no mere coincidence. Beyond this, there can be little doubt that the Coal Mines Reorganisation Commission, whether in its present form or reconstituted, is the most suitable body to take over the administration of royalties in view of the mass of detailed information and experience of the working of the industry which it has accumulated in the course of its five years' existence.

Reduction of Royalties

As regards the extent to which nationalisation of royalties will prove of immediate benefit to colliery owners, it is necessary to exercise caution. There is undoubtedly a hope in certain quarters that with nationalisation tonnage rates will be reduced, at any rate to those collieries which are at present paying a high rate. It is probable, however, that this hope will be disappointed. In the first place, the finance of the scheme is likely to make it impossible. In the second place, it must be recognised that differences in royalty rates represent, to a very large extent, admirable correctives to disparities between collieries in natural and economic conditions. A high rate of royalty, for instance, on a thick seam and on coal raised from a pit which is in the immediate neighbourhood of a large industrial town, may represent a far less heavy charge on working profits than a much smaller rate of royalty on a thin seam, or on coal raised from a pit which is isolated from markets. Any attempt to reduce "high" royalties and to make up the difference by increasing "low" royalties by the process of arithmetical averaging without regard to the qualities of the coals and to economic factors, would, therefore, run a grave risk of creating greater inequalities than the supposed inequalities that it was intended to remove.

To this extent the problem is a peculiarly thorny one. There is no easy way by which the owners of royalties can be treated uniformly. Royalty agreements have been entered into by colliery owners at different times, on different terms, and with differing degrees of foresight and caution. Further, owners of royalties have shown varying degrees of willingness to make concessions when the industry is in a bad way. If royalties are nationalised on the basis of actual receipts, the royalty owner who has stood out for his pound of flesh may gain in comparison with the one who has made sacrifices. On the other hand, a system of compensation which discriminates between the good and the bad (however defined) will involve all those difficulties which inevitably arise when discriminatory methods are adopted.

Minimum Rents

There is, however, one aspect in which the nationalisation of royalties should be of immediate practical benefit to a large number of colliery companies—in the matter of the minimum rents which must be paid whether the leased coal is being worked or not.

Minimum rents represent largely artificial values created by the colliery companies themselves when leasing minerals in the first instance, and have had the effect of creating a mortgage upon the future value of their properties. This artificial value, created perhaps twenty years ago, may bear little relation to the real value of the property at the present time as represented by the nature, quantity and ease of working of the mineral in the ground. This may have been due to weak or careless bargaining or lack of foresight on the part of the colliery owners in negotiating with the landowners in times of prosperity when a long continuance of easy profits seemed assured. On the other hand, the original minimum rents may have been carefully negotiated by the colliery owner in such a way as to minimise their incidence at the time of negotiation. But changes in methods of working, such as the substitu-

tion of machine mining for hand working, may have entirely altered the whole economic and technical basis of the colliery and rendered the burden of existing minimum rent agreements particularly severe. In these circumstances there is, of course, room for negotiation with the royalty owners, and many royalty owners have been willing to enter into new agreements when the original agreements have obviously become out of touch with present economic conditions. A large colliery company may, however, be working coal leased from as many as twenty different royalty owners, and the negotiation of a new agreement with each is seldom possible.

With the concentration of production within pits on fewer working faces, which nearly always accompanies the introduction of machine mining and has been a marked feature of the industry in recent years, the problem of minimum rents becomes a serious one for the coalowner. A coalowner may, for instance, be working a pit covered by five separate mineral leases, each of which bears a minimum rent of, say, £2 000, amounting in all to £10,000 per annum, and a royalty on a tonnage basis of 6d. per ton. He is in a position to produce 800,000 tons of coal per annum on which the total royalty, on a tonnage basis, is £20,000. In order to operate his pit with the maximum of technical efficiency he may wish to produce the whole of his output from one area of the pit. His royalty obligations will then amount to £20,000 on a tonnage basis on his output *plus* £8,000 (4×£2,000) in minimum rents on the four areas which he is not working. By working less efficiently and spreading his output over all five areas so as to cover the minimum rent on each he need never pay more than £20,000, a difference of £8,000. It is not difficult to see that in many instances financial considerations will prevail over the requirements of maximum technical efficiency.

Imagine at this stage, that the five existing royalty owners are bought out by the Government which then approaches the coalowner with a view to consolidating the five original leases in a single new arrangement. What terms can the coalowner advantageously offer? If all five areas have been thrown together, he can produce in any he likes; with an output of 800,000 tons his total liability on a tonnage basis is still £20,000. But he can now afford to offer a minimum rent of £15,000 on the area as a whole, instead of £10,000 on the five areas combined. And he will actually pay £20,000 annually in royalty and be able to work his mine by more efficient methods (and probably at lower costs in consequence), which would have involved him in a royalty payment of £28,000 under the existing system.

By this example it is possible to visualise approximately the nature of the economic advantages inherent in the nationalisation of royalties, under certain conditions, to some coalowners.

Financial Provisions

There is, finally, the possibility that some form of concealed subsidy could be extended to the industry in conjunction with the nationalisation of royalties, if this should be considered desirable. The most practical method of acquisition of the existing leases would appear to be outright purchase by the State for cash on the basis of the existing receipts. This would probably involve the issue of a Government loan to raise the cash. But while the Government is able to borrow at 3 per cent, it might well be able to buy out the royalty owners on a basis of 5 per cent to 6 per cent; that is to say at 16 to 20 years' purchase, to say the least.* This means that the Government would be paying the royalty owners a capital sum of approximately £100 million for the right to receive an annual income of approximately £5 million (actually £4,840,000 was paid in royalties in 1934). In borrowing this sum at 3 per cent, however,

* This is a theoretical case, and it is not suggested that this would necessarily be an appropriate basis for valuation.

it would be incurring an annual liability in respect of interest of only £3 million. It is in the disposal of the remaining £2 million that the possibility of a concealed subsidy for the industry lies. It could be applied wholly in sinking fund for the Government loan, in which case, the industry's annual liability on account of royalties would not be reduced. But at the end of approximately 30 years, the State would have acquired the whole of the nation's coal resources, unencumbered by debt, and might be persuaded to make an appreciable reduction in the royalty demanded of the industry (which would by that time be free profit to the exchequer), or to return part or all of it to the industry in other ways, such as by a contribution to the Miners' Welfare Fund. If, on the other hand, the whole of the £2 million is not called upon for amortisation purposes, that is to say if a longer sinking fund period is adopted some relief can be given to the industry immediately in respect of royalty payments, though the date of final relief will be postponed. These alternatives are merely mentioned as indicating the decisions which will have to be made. They are essentially decisions of public policy and national finance, which it would not be appropriate to discuss here, except to say that if a public subsidy is given to the industry, it is preferable that it should be given expressly for the purpose of writing off redundant personnel and plant, and not for the purpose of increasing profits or wages. This question is discussed in more detail at a later stage.*

The framework of the necessary legislation for the nationalisation of royalties accordingly becomes fairly clear.

(i) In the first place the existing royalty owners must be compensated in accordance with their present receipts on a fixed basis which might be from 16 to 20 years purchase or less. For this purpose a public loan would be issued. It is important in acquiring existing leases, that the Government should buy out intermediate holders of mineral leases between the original landlord and the colliery owner so as to acquire control of the working of the coal.

(ii) The industry would continue to pay royalties to the Government, which would use the proceeds to provide the service on the loan issued for the purpose of acquiring existing leases. The amount of these payments, in relation to existing payments, by the industry as a whole and the possibility of allowing the industry a concealed subsidy, will depend (a) upon the margin between the basis on which present royalty owners are bought out and the basis on which the new money is raised, and (b) upon the extent to which this margin is absorbed by sinking fund payments.

(iii) The administration of the existing leases should be handed over at once to the Coal Mines Reorganisation Commission, which is the body most suited to undertake this task.

Legislation might well stop here, beyond any amendments that may be necessary to the powers of the Reorganisation Commission.

Administration of Nationalised Royalties

The Commission, however, having been charged with the administration of the Act, would at once proceed to negotiate one new lease with each colliery owner to replace the multiplicity of existing leases. It is worth considering whether, in so doing, it should not be empowered to offer specially favourable terms under a single lease to a number of collieries on condition that those collieries should amalgamate, should such amalgamations appear

* See Chapter VI.

desirable in the interests of the industry and the nation. The reduction in the total amount of royalty payments received by the State owing to this cause might be provided for by increasing the sinking fund period and the creation thereby of a surplus of revenue on the existing basis. With a view to the most economical and efficient future development of the industry, the Commission might also be empowered to require colliery owners possessing undeveloped leases to throw these into a pool from which they could be withdrawn by other collieries more fitted, in the opinion of the Commission, to develop them, provided that adequate compensation were paid to the present owner.

It might be possible to make some small adjustments in the relative levels of royalty payments by different collieries and different districts; but, generally speaking, such discrimination would have to be made with the greatest caution, since differences in tonnage rates more often represent correctives to natural and economic inequalities than genuine injustices.

It is, above all, imperative, in whatever body may be vested the administration of royalties, once these have been nationalised, that Parliament should stand behind it with full responsibility, and should not handicap its actions at every turn by the necessity of obtaining legal sanction in accordance with abstract pre-ordained conditions which it may, in fact, be virtually impossible to fulfil.

NATIONALISATION OF COAL MINES

For many years the Miners' Federation has put forward as the best method of re-organisation, not merely the nationalisation of mineral resources, but the nationalisation of the whole coal-mining industry.

Moreover, of the four reports submitted by the Sankey Commission of 1919, two were in favour of nationalisation. Leaving out the general advantages, which are claimed by those who favour nationalisation of all industries, the arguments put forward by the Miners' Federation in favour of State ownership of the coal industry may be summarised as follows:

(1) In view of the many defects in the existing organisation of the industry, they maintained that it was essential that the miners should be given a large share in the management, in order that all defects in working practice should be brought to light and remedied. They claimed that this was impossible under private ownership.

(2) They anticipated that under a nationalised industry, the miners would enjoy an assured position as do postal workers and other Government servants.

With regard to these two arguments, two comments may be made. In the first place, the institution of Pit Committees has universally produced disappointing results. It is the experience of most colliery owners that few useful suggestions have even been forthcoming, and that the men have, on the whole, shown themselves to be little interested in the problems of management and, indeed, often incapable of understanding them.

In the second place, the anticipation that coal miners can ever attain the position of security of government servants, is somewhat Utopian as long as the industry remains an unsheltered industry susceptible to the influences of export competition.

(3) The miners have always considered that the payment of large annual sums as royalties to individuals in respect of a purely natural product is wrong. Nationalisation would, therefore, remove a serious grievance.

The scheme put forward by the Miners' Federation and approved by the Labour Party may be summarised as follows:

(a) The minerals, collieries and plant would be purchased by the State and be run in close co-operation with a State electrical industry.

(b) The ultimate control of the industry would be vested in a National Power and Transport Commission, the members of which would be appointed by the Government and for which the President of the Board of Trade would answer in Parliament.

(c) The actual administration of the industry would be carried on by a National Coal and Power Production Council operating through provincial councils appointed in the various districts.

(d) The industry would be self-supporting: in other words, the interest on the Government loan necessary for the purchase price would be a first call on the proceeds of the industry.

(e) Proposals for the modification of wages would be discussed between representatives of the workers, the Coal and Power Production Council, and a Consumers' Council representative of employers and workers in the coal- and power-using industries.

(f) Changes in price would also be discussed between the Production Council and the Consumers' Council.

(g) The export trade should be managed by a single Coal Export Commission or a Public Utility Corporation.

Although it is very doubtful how far the Production and Consumers' Council idea would be workable in practice, the main objection to the scheme results from provision (d). In times of economic stress, the payment of the interest on the Government loan would probably be impossible without a reduction of wages. On such occasions it might be necessary for the Government to overrule the decisions of the miners' representatives expressed through the National Power Production Council, and nothing could be worse than to resort to nationalisation primarily with the object of giving the miners a share of self-government, only for them to discover in the first period of adversity that such self-government was purely illusory. On the other hand, it would be impossible to consider nationalisation except on the basis of a self-supporting industry.

Another objection to nationalisation is on the score of management. The more highly organised the industry becomes, the more essential it is to have the most efficient management available. But where the management is to consist to a large extent of elected representatives of the miners, there is no guarantee that it would be the most efficient. In fact, it is far more probable that a man would secure election because of his known views on some controversial point than because of his managerial ability.

Finally, it is difficult to see how the industry, if nationalised, could attack the main problem of reorganisation, the closing down of the less economic pits, and the concentration of production. Reorganisation on these lines will involve a considerable decrease in the

number of men that could be employed in the industry, and for this reason, no Government, in legislating for the industry, has been able to adopt a strong policy of coercion owing to the divorce of the purely economic side from the social effects. The quota system introduced under the 1930 Act appears to owe something to this factor. It is hardly to be expected that the industry, managed largely by representatives of the miners themselves, would be favourable to such a policy of reorganisation.

In advocating the nationalisation of royalties, closer co-operation between the coal industry and gas and electricity undertakings, and the establishment of a single coal export commission, the Miners' Federation was putting forward suggestions of real value to the industry, but none of these require State control of the industry itself. The Samuel Commission, in fact, condemned nationalisation on the grounds that they could find no advantages which would not be attained as readily or more readily in other ways.

COLLECTIVE BARGAINING

An examination of the structure and organisation of the coal-mining industry would be incomplete without a brief account of the existing machinery for collective bargaining. On the owners' side, the Mining Association of Great Britain is representative of the great majority of the collieries. The owners are, however, organised into district associations which are autonomous in matters of wages and hours of work. While the Mining Association can, and undoubtedly does, act as a co-ordinating influence, and represents the industry in its dealings with the Government, it does not admit its competence to discuss wages and hours of work with the men on a national basis as long as district agreements are in force.

The Miners' Federation has grown from small beginnings since its foundation in 1888 to co-ordinate the campaigns of the various county and district unions against the sliding-scale system of wage payment. It has gradually absorbed most of the smaller unions, and now represents a federation of the eighteen district unions, many of which were separately constituted. Its only rival of consequence is the Miners' Industrial Union, organised after the 1926 stoppage, which, however, has never had much influence outside Nottinghamshire. While, therefore, the men are strongly organised on a national basis, they have not, since 1926, been able to discuss matters of wages and hours on a national basis. This important controversy is examined in more detail in Chapter VI.

III. COAL CONSUMPTION

British Coal Consumption

The division of the output of British coal mines between exports, the bunker trade and home consumption is summarised by the Department of Mines as follows:

PRODUCTION AND CONSUMPTION OF COAL
(million tons)

	1913	1920	1929	1930	1931	1932	1933	1934
Output of coal in United Kingdom	287.35	229.42	257.91	243.88	219.46	208.73	207.11	220.73
Quantity shipped abroad—								
Coal . . .	73.40	24.93	60.27	54.87	42.75	38.90	39.07	39.66
Coke . . .	1.24	1.67	2.90	2.46	2.40	2.23	2.28	2.19
Manufactured fuel .	2.05	2.26	1.23	1.01	0.76	0.76	0.80	0.73
Coal shipped for the use of steamers engaged in the foreign trade .	21.03	13.91	16.39	15.62	14.61	14.21	13.46	13.49
Total quantity of coal shipped abroad* .	98.34	43.68	82.15	75.10	61.65	57.15	56.68	57.09
Coal and the coal equivalent of coke and manufactured fuel imported and retained . .	0.02	†	0.02	0.02	0.02	0.03	0.04	0.05
Quantity of coal available for home consumption for all purposes .	183.85	180.72	173.50	166.58	155.68	149.50	148.37	161.48
	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
Consumption per head of population	89	85	78	75	69	67	66	71

* Including the coal equivalent of coke and manufactured fuel. In 1934, 66 tons of gas coke or 68 tons of other sorts of coke were obtained from every 100 tons of coal carbonised, and 94 tons of coal were used for every 100 tons of manufactured fuel made.

† Negligible; less than 5,000 tons.

Coal Consumption by Industries

The decline in aggregate and *per capita* consumption within the last five years is undoubtedly due in part to the effects of industrial depression, but the fact that both figures in 1929, a year of considerable industrial activity, remained below the corresponding figures for 1913 shows the extent of the economy in fuel utilisation which has been achieved since the War. The following figures of the Department of Mines show that the fall in aggregate domestic coal consumption in relation to 1913 has been contributed mainly by the iron and steel industry, but also by colliery engine fuel, general manufacturing, and household consumption. There has been a small decline in the consumption by locomotives and a considerable rise in the consumption of electricity undertakings, as would be expected, but the gas industry, in spite of greatly increased production, took in 1934 almost exactly the same amount of coal as it did in 1913.

CONSUMPTION OF COAL IN GREAT BRITAIN
(million tons)

Consumer	1913	1920	1929	1930	1931	1932	1933	1934
Gas works (including coal equivalent of gas coke exported) . .	16.70	16.88	16.75	17.00	16.69	16.37	16.16	16.66
Electricity generating stations belonging to authorised undertakings and railway and tramway authorities .	4.90	7.36	9.84	9.68	9.61	9.81	10.33	11.17
Railway companies (for locomotive use)	13.20	13.42	13.41	12.87	12.27	11.70	11.67	12.17
Vessels engaged in the coastwise trade (bunkers) . .	1.90	1.28	1.37	1.28	1.19	1.19	1.21	1.26
Iron works (blast furnaces) . .	21.20	17.83	14.51	11.69	7.11	6.53	7.37	10.40*
Other iron works and steel works .	10.20	12.79	8.92	7.10	5.50	5.16	5.92	6.81*
Collieries (engine fuel) . . .	18.00 approx.	17.20	13.69	13.51	12.61	12.04	11.59	11.68
General manufacturers and all other purposes (including domestic use)	97.70	93.96	95.01	93.45	90.70	86.70	84.12	91.33
TOTAL . . .	183.80	180.72	173.50	166.58	155.68	149.50	148.37	161.48

* Provisional figures.

The penultimate line of this table represents the residuary figure covering other industries and consumption by households, hotels, hospitals and institutions, etc. Household consumption was roughly estimated at 40 million tons per annum shortly after the War: no further estimate has been issued but it is doubtful whether at the present time it can be much in excess of 35 million tons.

Some further information on the consumption of the small coal-consuming industries in the year 1930 is available from the Census of Production. The figures are compiled on a different basis from the Mines' Department's estimates, and there is some danger of duplication since coal and coke are dealt with separately. The following figures show the consumption of coal by various industries as arrived at in the Census. The figure of 9.06 million tons shown as the consumption by the iron and steel industry refers only to the coal consumption of the industry and does not include the coal equivalent of coke consumption which is recorded under "Coke-ovens and manufactured fuel works." In addition to showing the aggregate consumption of coal in each industry, the 1930 Census distinguishes between its use for power and for other purposes. Altogether 37.1 million tons of coal were used for power purposes in 1930, the largest consumers being the coalmines themselves (12.6 million tons) and after them, the electricity supply industry (9.2 million tons), blast furnaces and steel works (2.2 million tons), cotton spinning and weaving (2.0 million tons) and the paper-making industry (1.6 million tons). The principal consumers for "other purposes" were coke-ovens, etc. (18.3 million tons), gas undertakings (17.8 million tons), blast furnaces and steelworks (4.9 million tons), brickmaking and fire-clay (2.4 million tons), coal mines and cement manufacture (each 1.5 million tons), chemicals (1.4 million tons), and textile finishing (1.3 million tons).

CONSUMPTION OF COAL BY INDUSTRIES, 1930
(Fourth Census of Production)
(million tons)

*Coke-Ovens and Manufactured Fuel Works ..	18.36
*Gas-Works	17.85
Coal Mines	14.21
Electricity Undertakings	9.37
Iron and Steel	9.06
Bricks, Cement, Pottery and Building Materials	7.08
Textiles	6.95
†Chemical Industries	3.81
Food, Drink and Tobacco Industries ..	3.42
Printing, Paper and Stationery	2.68
Engineering, Shipbuilding and Vehicles ..	1.75
Other Industries	4.67
All Industries covered by the Census ..	99.21

* The total quantity of coke made by coke-ovens and gas-works in 1930 was recorded as 24.3 million tons. This was used approximately as follows:—

	(million tons)
Exports	2.5
Gas-works fuel	4.5
Iron and steel industry	7.9
Other industries	3.4
Other consumers (including household consumers) and small firms	6.0
Total ..	24.3

† Including Chemicals, Dyestuffs and Drugs; Soap, Candles and Perfumery; Seed Crushing; Petroleum Refining; and other chemical trades.

The Census did not include the consumption of the railways, of the distributive or catering trades, of household consumers, of public and private institutions other than public utilities and Government departments, or the coastwise-bunker trade; nor do the figures include at any point the consumption of firms employing less than 10 persons.

According to the Mines' Department's estimates, locomotives accounted for 12.87 million tons and coastwise bunkers for 1.28 million tons in 1930. Total consumption was estimated by the Mines' Department in 1930 at 166.58 million tons. The Census therefore reveals that approximately 53.22 million tons were consumed in 1930 by household consumers, firms employing less than 10 persons, and the industries not covered by the Census, of which the most important as coal consumers are the distributive and catering trades and commercial firms, schools, hospitals and other similar institutions.

At this stage it may be useful to state the principal requirements and characteristics of the more important consumers and to trace the most important technical developments in fuel utilisation within recent years, taking the iron and steel industry, the gas industry, the electricity supply industry, the railways and the shipping companies.

(I) COAL IN THE IRON AND STEEL INDUSTRY

Coke-Oven Practice

Coal is an essential material of the iron and steel industry in the shape of blast furnace coke for pig-iron production or coke for foundry purposes. It is produced by the carbonisation of coal in coke-ovens which may either be undertaken by the colliery company and the resultant output sold to steelworks; or the steelworks may possess its own coke-ovens and very often, too, its own collieries from which coal supplies are drawn. There are two main types of ovens—beehive and by-product. From the latter three main products are recovered—crude tar, ammonia and crude benzol. The crude tar may be "topped" to road tar by the distillation of the lighter fractions or completely distilled to a range of products used in the chemical and dyestuffs industries. The greater part of the crude benzol, which is also obtained by "stripping" the coke-oven gas, is distilled and sold as motor spirit or benzol for the dyestuffs industry. A certain amount of the ammonia is sold as ammonia liquor, but it has usually been worked up into ammonium sulphate fertiliser by absorption in sulphuric acid; the economic disposal of the ammonia liquor is, however, difficult, and during the depression the price obtainable for ammonium sulphate often could not cover the cost of production.

The beehive oven is a relatively inefficient producer of coke in that it leaves no gas surplus or by-product output. It is, however, low in capital cost and can therefore be let out in times of poor demand and relit when demand is good; and gives a very good coke which is often preferred to coke from by-product ovens. These factors tend to prolong its use by the industry. Thus, although the use of this type of oven has been declining steadily since the War, and no new beehives will have been built for some years, there was an increase in the number of beehive ovens in use from 606 to 715 between 1933 and 1934. These figures compare, however, with over 13,000 in 1913.

By-product ovens are of two main types—waste heat and regenerative; they differ principally in the method of heating the oven and each produces a very different surplus of gas. In the case of a waste-heat installation this is only 15 to 20 per cent of the surplus obtained from regenerative ovens.

The Location of Coke-Ovens

The utilisation of the surplus gas has an important effect upon the location of coke-ovens. As has been mentioned above, coke-oven plants may be owned either by colliery companies or by iron and steel producers. *Prima facie,* there would appear to be a good case for the location of coke ovens at the pithead. If this is done, there is a 30 per cent saving in freight on the delivery of the coke as opposed to railing the coal from the pithead to a coke-oven plant adjacent to the blast furnaces. Few collieries, however, are so placed as to be able to utilise advantageously or to dispose of their surplus coke-oven gas. Purified coke-oven gas is very similar to town gas and may be used for domestic distribution, while either the purified or the crude gas may be used for process work, for instance in glass works, pottery kilns and for chemical processes, or in the steel industry for heating open hearth furnaces, or for reheating, annealing, forge or heat-treatment furnaces. A certain number of collieries which are situated near large towns have been able to set up cokeries as an outlet for part of their coal and to sell their surplus gas for distribution over the local system (e.g. Nunnery and Manvers Main in Sheffield, Consett in Newcastle; but William Baird have so far been unable to reach agreement to sell their surplus through the system of the Glasgow Corporation). In fact, the amount of coke-oven gas purchased in this way by gas undertakings has increased from 1,325 million cubic feet in 1921 to 10,948 million cubic feet in 1929 and 18,194 million cubic feet in 1934, and the number of undertakings entering into purchase agreements on this account from 14 in 1921 to 33 in 1934. Altogether, 177,070 million cubic feet of gas were produced from coke-ovens in 1934, of which 106,518 millions were used for heating the ovens, 40,146 millions used by coke-oven owners in other ways, 18,052 millions supplied to gas undertakings, and 8,276 millions sold to other customers.

Similarly such a coke-oven plant may be able to supply coke to isolated blast furnaces (that is those divorced from steelworks) more economically than it could be produced adjacent to the blast furnaces in the absence of a steel-producing unit which can absorb the surplus gas.

Central Coking Plants

But the average size of British coke-oven plants (and of the actual ovens) is small in relation to Continental and American practice, and in relation to the demand of the average consumer of coke. For a small coke-oven unit will generally procure its coal supplies from a single nearby colliery, so that a large blast furnace plant which may have to draw its coke supplies from a number of different coke-oven plants may often suffer from lack of uniformity in its coke supply. Large centralised coke-oven plants enable greater quantities of a fairly uniform product to be produced and working costs to be reduced, while the development of the production and marketing of by-products is facilitated. On the other hand, the capital charges involved and the possibly heavy cost of delivering coal from remote collieries are problems which have to be considered.

The Advantages of Integrated Steel Producing Units

In the case of coke-oven plants situated alongside the blast furnaces and steelworks which they are destined to serve, the freight charge on coal is, as already indicated, about 30 per cent higher than if coke were railed from a pithead plant. This disadvantage is, however, in most cases entirely off-set, as the surplus coke-oven gas can be used to great advantage for heating purposes throughout the steelmaking and rolling processes. This advantage is enormously increased if, as is the case with the most modern plants such as the John Lysaght works at Scunthorpe, the coke-ovens are heated not with part of the coke-oven gas produced, but with blast furnace gas of low calorific value, and the whole of the high calorific value coke-oven gas output (as opposed to the surplus over the amount necessary to heat the coke-ovens) becomes available for heating purposes through the works. Such advantages accruing are mainly responsible for the long-term tendency of coke-ovens to gravitate in the direction of the steel industry in recent years, a tendency which is undoubtedly technically sound, though this tendency has been obscured recently by the extension of colliery coking plants to meet the sudden exceptional increase in the demand for blast furnace coke. As a corollary to this, it is evident that, from the national point of view, the construction of pithead cokeries should proceed with caution and only where the environment is particularly favourable, owing to the presence of one or other of the factors mentioned above—proximity to a large town or the existence of a number of "independent" blast furnaces. The function of the coal industry in relation to the iron and steel industry should generally be to make available adequate supplies of good quality coking coal rather than to attempt to supply it with coke. Cheap coke is absolutely essential to the production of cheap steel and if the steel industry is to continue to produce its maximum output of steel, and therefore to consume the maximum quantity of coal, it is in the best interests of the collieries to see that it gets cheap coke through the most economical division of function between the two industries. The evolution of the steel industry on the most economic lines depends upon its development as far as possible in balanced units combining coke, pig-iron and steel production on the same site.

Production of Coke by Districts

It is estimated that in 1928 54 per cent of the total output of coke was produced by iron and steel companies for themselves, the remainder of their needs being supplied by colliery plants. The distribution of coke production over the country is naturally somewhat uneven, and does not by any means entirely follow the distribution by pig-iron production owing, on the one hand, to limits in the supply of coking coal, and on the other to the situation of certain important pig-iron producers away from the coalfields, notably in Lincolnshire. The following table shows roughly the relationship of coke to pig-iron production in the eight main pig-iron producing areas. It will be seen that both on the North East Coast and in Yorkshire, Lincolnshire and Derbyshire the production of coke is well in excess of blast furnace requirements, while in Cumberland and Staffordshire there is a marked deficiency of coke production.

District Coke Production and Blast Furnace Requirements

		Coke Production	Pig-Iron Production	Est. Coke Requirements* for Pig-Iron	Est. Coke Surplus (+) or Deficiency (−) over Requirements	
		000 tons	000 tons	000 tons	000 tons	Per Cent
North-East Coast (including Durham and N. Yorks)	1929	5,363	2,349	2,929	+2,434	+83
	1933	3,054	1,063	1,264	+1,790	+141
	1934	4,097	1,684	1,984	+2,113	+107
Cumberland	1929	450	755†	802	−352	−44
	1933	195	512†	522	−327	−63
	1934	353	674†	702	—349	—50
Lancs., Cheshire and N. Wales	1929	519	472‡	647	−128	−20
	1933	400	222‡	293	+107	+36
	1934	483	388‡	491	−8	—
Yorks, Lincs. and Derby	1929	4,508	2,039§	2,739	+1,769	+65
	1933	3,608	1,360§	1,723	+1,885	+109
	1934	4,573	1,955§	2,416	+2,157	+89
Staffs, Salop and Worcs.	1929	369	440	592	−223	−38
	1933	244	307	394	−150	−38
	1934	294	385	478	−184	−38
South Wales and Monmouth.	1929	1,690	926	1,050	+640	+61
	1933	994	451	528	+466	+88
	1934	1,241	492	563	+678	+120
Scotland	1929	522	607	717	−195	−27
	1933	284	220	273	−11	−4
	1934	471	392	459	+12	+3
Great Britain.	1929	13,421	7,588	9,476	+3,945‖	+42
	1933	8,778	4,136	5,176	+3,602‖	+70
	1934	11,512	5,969	7,093	+4,419‖	+62

* Calculated on the average tonnage of coke required per ton for each type of pig-iron in each year as follows:

Tons of Coke Required per Ton of Pig Iron

	1929	1933	1934
Hematite	1.03	1.02	1.03
Basic	1.34	1.26	1.23
Foundry and Forge	1.32	1.26	1.24
Ferro alloys	1.64	1.81	1.58

† Includes parts of Lancs.

‡ Includes parts of Yorkshire, e.g. Sheffield.

§ Does not include Yorkshire, but includes Leicester, Notts, Essex and Northants.

‖ This "surplus" includes coke sold on the domestic and industrial market in competition with gas coke, and coke exported which amounted to 1,422,000 tons in 1929, and 1,379,000 tons in 1934.

Improvements in Coke Production Technique

Until recent years, the coal and iron and steel industries have lagged further, perhaps, behind the most modern practice in Europe and America in the matter of coke-oven technique than in almost any other respect. The total estimated capacity of coke-ovens in 1929, when they worked on an average at 79 per cent of full capacity, was 17,080 thousand tons of coke, of which no less than 6,960 thousand tons (41 per cent) consisted of waste-heat ovens. Beehive ovens accounted for about 4 per cent, but though the oldest type of all, and technically the most inefficient, seeing that there is no by-product recovery, they produce a high quality coke, are low in capital cost and have mostly been written off, and are easily started up to meet a sudden increase in demand. The remaining 55 per cent of capacity consisted of regenerative ovens.

The coke production figures for 1934 show that of a total of 11,512,000 tons produced, 7,954,000 tons or 69 per cent were produced in regenerative ovens, 3,270,000 tons or 28 per cent in waste-heat ovens and 288,000 tons or 3 per cent in beehive ovens. It is clear, therefore, that within the last six years considerable progress has been made in replacement of coke-oven plants and the substitution of regenerative for waste-heat installations. Most of such developments have been undertaken by the iron and steel companies, such as the Cargo Fleet unit (250,000 tons per annum) which was lit in November 1934, following upon the unit installed in 1932. The United Steel Companies have been replacing the whole of their Orgreave installation which was only built in 1921; the Lancashire Steel Corporation installed a new battery of 260,000 tons capacity in 1933. The Shelton Iron, Steel and Coal Co. added a battery of 24 ovens to their existing capacity in 1934; the new plant erected in conjunction with the new Cardiff Dowlais Steelworks by the British (Guest, Keen, Baldwins) Iron and Steel Company* has recently come into operation; both the Corby (Stewarts & Lloyds) and the Dagenham (Ford) plants have been started up within the last three years. There is now, moreover, the possibility that Dorman Long will erect at their Cleveland steelworks a battery of 136 ovens producing about 750,000 tons of coke per year in order to centralise the whole of their coke production. This would be the largest unit in England and the second largest in Europe. There is definitely a tendency, which was much needed, towards the erection of larger plants but as yet the dimensions of some of the American installations of 2 to 4 million tons capacity have not been approached, and in any case capacities of this order would almost certainly be beyond the economic limit for this country.

Most of the colliery-owned coke-oven plants are situated either in Northumberland and Durham, or in South and West Yorkshire.

In the former district, Pease and Partners (including Skinningrove) control a coke capacity of about 130,000 tons per year, Horden Collieries have a capacity of about 400,000 tons, Strakers & Love of 225,000 tons, Priestman Collieries of 170,000 tons and Lambton, Hetton and Joicey Collieries and Malton Colliery each about 100,000 tons.

The principal colliery coke ovens in Yorkshire are those of the Nunnery Colliery Co. (250,000 tons), Newton Chambers (300,000 tons), Wharncliffe Silkstone Colliery (190,000 tons), Houghton Main (150,000 tons), Cortonwood Collieries (150,000 tons) and Manvers Main (250,000 tons). Within the last three years Manvers Main has added 45 new ovens to its plant; Harworth Colliery also undertook the installation of 30 ovens in July 1934.

Outside these two areas there are few colliery plants of importance; there are a few plants of up to 100,000 tons capacity in Lancashire; the Grassmoor Co. has a plant of 200,000

* Name recently changed to Guest, Keen, Baldwins Iron and Steel Company Ltd.

tons capacity at Chesterfield; while Kidsgrove Collieries own a plant of similar size at Stoke. In South Wales, where there is not a great deal of coking coal, but where a very high quality of blast furnace coke is made, there is one large plant owned by the Powell Duffryn Co. at Bargoed (350,000 tons) and six smaller ones. Scotland, before the Scottish production of pig-iron declined, was short of coke-oven capacity and that which exists is mostly in the hands of the pig-iron producers. Of the latter both William Baird & Co. at Gartsherrie and William Dixon at Polmadie have embarked upon schemes of expansion. There are, however, a few independent coke-oven plants, mostly small, such as those owned by Jas. Nimmo & Co., Plean Colliery, and the Alloa Coal Co.

Coke Supplies and Pig-Iron Production

With the recovery in steel and pig-iron production during the last two years, there was at first something of a shortage of blast furnace coke, with the result that the price (Durham, delivered Middlesbrough) rose quickly from a low level of 16s. to 20s. which was very nearly the level of 1929. The expansion of capacity has not yet proved capable of meeting the peak demand, and by the end of 1935 coke prices were firm in the neighbourhood of 21s. 6d.

The revival of steel production and the consequent increased demand for pig-iron and hence for coke, has resulted in an increase in the consumption of coal in coke-ovens from a low level of 6.53 million tons in 1932 to an estimated level of 10.4 million tons in 1934 at which it represents 6 per cent of all coal consumption. (Coal consumption in "other iron and steelworks" was 8.92, 5.16 and 6.81 million tons in 1929, 1931 and 1934 respectively; the total coal consumption of the iron and steel industry was therefore 23.43 and 17.21 million tons in 1929 and 1934 respectively, or 13.5 per cent and 10.7 per cent of total internal coal consumption in each year and 9.1 per cent and 7.6 per cent of total output.) Coal consumption by iron and steel works was, however, 21.2 million tons or 11.5 per cent of total coal consumption in 1913, and was still as much as 14.51 million tons or 8.5 per cent of all coal consumption in 1929. Even with production of pig-iron at the level of 1929, which it is approaching at the present time, it could not be expected that blast furnace coke consumption would be equal to the figure recorded in that year. Even between 1930 and 1933 the average amount of coke consumed per ton of pig-iron produced, irrespective of quality has, owing to improvements in blast furnace technique, declined from 23.84 to 23.01 cwts. On the other hand, the development of the low-grade Northamptonshire and Lincolnshire ironstone deposits and the declining output of domestic hematite ores are causing a larger proportion of pig-iron to be produced from Northamptonshire and Lincolnshire low-grade ore, which requires a consumption of coke approximately 25 per cent greater per ton of pig-iron than is the case with hematite ores.

Increased Use of Scrap in Steelmaking

A more serious cause, however, of the decline of blast furnace coke consumption at the present time is the fact that pig-iron production has not increased *pari passu* with steel production—that is to say a higher proportion of scrap than formerly is being used in steelmaking, whilst wrought iron production, which in 1913 amounted to 1,200,000 tons, is virtually extinct. In 1933 the production of 7,024,000 tons of steel ingots and castings involved the consumption of 8,444,900 tons of materials, of which pig-iron accounted for 2,973,000 tons (35 per cent) and scrap 4,541,100 tons (54 per cent).

In 1930, a steel production of 7,325,700 tons involved the consumption of 8,713,400 tons of materials, of which pig-iron accounted for 3,660,200 tons (42 per cent) and scrap

4,069,500 tons (47 per cent). It is difficult to decide whether this trend is a temporary one due to the abnormal amount of scrapping of machinery and ships within the last few years, or whether it is of a more permanent nature. In support of the latter theory, Mr. Walter Benton Jones at the 1935 annual meeting of the United Steel Companies pointed to the increasing use of steel in the British market in consumption goods, such as motor cars, bicycles and tinplate, which find their way back to the steelmakers as scrap within a relatively short period. Mr. Benton Jones added that while in 1910-13 the amount of scrap used in this country was equivalent to 30 per cent of the steel made, in 1934 it had grown to more than 50 per cent. While the extent to which scrap is used instead of pig-iron in steelmaking is largely determined by the relative prices of the two materials, there can be little doubt that the increasing use of steel in consumption goods is tending to shorten the period of recirculation of scrap.

Exhaustion of Domestic Ore Deposits

In addition to these factors on the consumption side, there is the well-known fact that the Cleveland ore deposits are beginning to reach the limits of economic exploitation. To some extent these are being replaced by the development of the Lincolnshire, Northamptonshire and Oxfordshire ironstone deposits, though these are of inferior quality and, generally speaking, require mixing with hematite for economical smelting. There is a small production from the considerable reserves of coal measure ironstones of Derbyshire and Nottinghamshire, and North and South Staffordshire, but their exploitation on a larger scale would be difficult if the future of the coal mines in those areas is not to be prejudiced.

There is, therefore, a physical limit on the production side which is tending in the long period to restrict the consumption of pig-iron, though a great deal of hematite ore has always been imported from British-owned mines in Spain and North Africa, where no shortage is likely in the near future. But while pig-iron consumption has declined, domestic pig-iron production has tended to decline rather faster and imports have increased.

The sum total of these factors seems to indicate that while the modernisation of existing plants and the concentration of coke-oven production is highly desirable in the interests of the efficiency of the coal industry, any extension of existing capacity on a large scale would be of doubtful economic value.

Iron and Steel Companies as Colliery Owners

As was mentioned earlier, a number of iron and steel companies have sought to realise the economies of vertical integration by the acquisition of their own collieries. The existence of collieries that are "tied" in this way is one of the most difficult problems to be surmounted in formulating schemes of amalgamation for whole coalfields or large district groups, especially if the collieries in question are attached to an industry that is prosperous, in which case they tend to regard themselves not as members of the coal industry at all, but as members of the industry to which they are attached.

Examination of the colliery interests of 12 leading iron and steel undertakings, shows 35 important collieries to be under the direct control of the 12 groups. For instance, Dorman Long & Co. controls the Dean & Chapter and Mainsforth pits in County Durham as well as a number of others in the neighbourhood of Bishop Auckland; while this company also has interests in the Kent coalfield. The Consett Iron Co. is an important coalowner in Durham. The Lancashire Steel Corporation, through the Wigan Coal Corporation, is the second largest producer in Lancashire and through a second subsidiary controls a pit in Nottinghamshire. The United Steel Companies have important colliery interests in the

Cumberland and Yorkshire coalfields. The three large Scottish iron and steel producers—Colvilles Ltd., Bairds & Dalmellington Ltd., and William Dixon Ltd.—are each large colliery owners. In South Wales, Guest, Keen & Nettlefolds Ltd., one of the partners in the British (Guest, Keen, Baldwins) Iron and Steel Company, held a controlling interest in Welsh Associated Collieries which was recently amalgamated with the Powell Duffryn Coal Co., while Richard Thomas Ltd.,* in addition to pits in South Wales, has a pit in Yorkshire. In the Midlands, the Sheepbridge Coal and Iron Co. has a substantial interest in Yorkshire Amalgamated Collieries, apart from pits of its own, and is associated with the Staveley Coal and Iron Co in the control of other Yorkshire pits. Both the Staveley Coal and Iron Co. and the Stanton Ironworks Co. are important colliery owners.

Altogether, it is not improbable that the iron and steel industry controls collieries producing, at the present time, a combined output of 20 million tons of coal or more.

This amount does not consist entirely of coking coal; the Fourth Census of Production shows that in 1930 blast furnaces, steelworks and foundries, tinplate works and other branches of the iron and steel industry consumed over 9 million tons of raw coal. Small amounts of coal have still been used in recent years in blast furnaces, mainly in Scotland, but the principal use is for re-heating and foundry purposes and for power production.

The consumption of foundry coke is not large and does not appear to exceed 500,000 tons per annum.

Future of Coal Consumption by the Iron and Steel Industry

While it would be unwise to predict a revival in consumption of coal by the iron and steel industry to the levels prevailing before the War, it is evident that the steel tariff, by ensuring that the British industry secures a large proportion of the home market, reinforced by the recent agreement with the International Steel Cartel, will continue to have a favourable effect upon the coal-mining industry. Against this must be set the failure of pig-iron production to keep pace with the rise in steel production, a factor which has already been examined, and, in the second place the possibility that substantial fuel economies remain to be achieved in the average British blast furnace practice. Average consumption of coke per ton of pig-iron produced in Great Britain in 1933 was over 23 cwts. In the United States and Germany it has for some years been less than a ton. There is no doubt that while the results of the most modern blast furnace units in Great Britain compare favourably with the best plants in Germany and the United States, they are on the average inferior; although if, as is hoped, the present overhaul of the equipment of the iron and steel industry continues, they will improve. To this extent, the coal-mining industry will not necessarily be likely to benefit in direct proportion to any future increase in steel production.

(2) COAL IN THE GAS INDUSTRY

Carbonisation of Coal in Gas-works.

The carbonisation of coal as undertaken by the gas industry does not differ materially in broad technical principles from the carbonisation of coal by the coking industry (and several gas undertakings such as the Gas Light & Coke Company have installed coke-ovens or carbonising plant of a similar nature for the purpose), except that in one case the primary product is town gas and in the other case it is metallurgical coke. Thus while producers of metallurgical coke use their secondary product—coke-oven gas—largely to heat their ovens, so gas companies

* This company has also recently acquired a number of coal interests from the Ebbw Vale Company.

employ a large proportion of their coke production for the heating of their retorts and for the manufacture of water-gas or producer-gas. With the increasing tendency for coke-ovens to be heated with blast furnace or producer-gas and the whole of the coke-oven gas surplus to be disposed of to gas undertakings, the similarity between the two industries is becoming more complete.

In the production of metallurgical coke the chief consideration is the production of a fuel of a dense physical structure and high crushing strength for packing a blast furnace without disintegration. Coking coals of the requisite quality are fairly widely available through all the coal-fields in this country. Economical gas production, however, demands that the volatile content of the coal carbonised should be as high as possible, without such regard to the quality of the coke produced which is weaker and less dense than blast furnace coke. The gas industry produces between 11 million and 12 million tons of coke and breeze annually, of which about 30 per cent. is used in heating the retorts, leaving about 8 million tons annually for sale. Best quality gas coals of a high volatility are not common and are obtained mainly from Durham and South Yorkshire, though local gas works will often blend these coals with coals of a lower volatility which can be obtained more cheaply from local collieries. Of all the coalfields of the country, South Wales is the most deficient in good quality gas coal.

Consumption of Coal by the Gas Industry.

In the following table, particulars are given relating to the consumption of materials and production of gas by the gas industry in recent years. It will be seen from this table that, as in the case of the coke ovens, considerable improvement has been made in the technical efficiency of coal carbonisation by gas undertakings within recent years, with the result that the yield of gas per ton of coal carbonised was, in 1933, some 10 per cent higher than it had been in 1925 without any appreciable adverse effect on coke production. The yield of tar had also increased in this period, but the amount of coke obtained fell slightly; that the yield of sulphate of ammonia was so much below the level of 1925, was due to the uneconomic fertiliser prices which ruled during the depression, and to competition from the synthetic producers, which did not make it worth the while of gas undertakings to work up their ammonia liquor.

AVERAGE YIELD OF AUTHORISED GAS UNDERTAKINGS PER TON OF COAL CARBONISED*

	1925	1933	1934
Gas (thousand cu. ft.) . .	13.6	14.9	15·0
Coke and breeze (cwts.) . .	13.4	13.3	13.3
Tar (gallons) . . .	11.4	12.6	12.6
Sulphate of ammonia (cwts.) .	0.148	0.079	0.083

*Calculated from Board of Trade Returns relating to Authorised Gas Undertakings in Great Britain, Part I.

Sales of Gas

The total sales of the gas industry have not varied very markedly during the past seven years. Up to 1927 sales were rising steadily at a fairly rapid rate; from 1927 to 1929, in which year sales reached a peak of 292,598 million cubic feet, they rose less rapidly; after a small decline during the slump, sales again passed 290,000 million cubic feet in 1934. Details of coal consumption and gas and by-product output of authorised undertakings during these years are shown in the following table:

Coal Consumption and Gas and By-product Production of Authorised Gas Undertakings*

	Number of Authorised Undertakings	Materials used in Manufacture			Quantity of Gas Made				Residuals Made		
		Coal Carbonised	Coke for Water-Gas	Oil	Total, incl. Purchased Gas	Water-Gas	Coke-Oven Gas Purchased	Net Production‡	Coke and Breeze	Tar	Sulphate of Ammonia
		000 tons	000 tons	000 galls.	mill. cu. ft.	mill. cu. ft.	mill. cu. ft.	mill. cu. ft.	000 tons	000 galls.	000 tons
1920	798	17,566	†	†	†	36,933	†	†	†	†	†
1926	784	16,564	1,436	97,703	298,404	65,310	2,322	230,772	11,177	187,546	116,264
1927	782	17,704	1,035	61,001	303,037	47,130	5,340	250,567	11,939	201,966	125,802
1928	774	17,562	979	56,377	305,389	45,211	6,560	253,618	11,800	210,656	128,952
1929	771	17,887	949	58,083	316,419	46,349	10,948	259,122	12,033	215,138	128,686
1930	767	17,669	790	49,073	313,046	39,525	13,201	260,320	11,913	214,762	125,443
1931	749	17,427	804	53,124	313,753	40,803	13,923	259,027	11,732	212,682	103,001
1932	734	17,001	746	51,749	309,336	38,468	15,441	255,427	11,416	211,010	75,728
1933	727	16,714	749	54,139	309,557	39,237	16,327	254,993	11,090	209,983	65,827
1934	726	17,137	620	40,296	313,546	32,611	18,194	262,741	11,396	215,966	71,140

*Covering 95% of the production. Non-authorised undertakings 5%.
†Not available.
‡ i.e. Total production less water-gas production and coke-oven gas purchased.

The Future of Gas Consumption

It may perhaps be doubted whether the consumption of gas will again show the consistent and rapid increases that it displayed up till 1927. Since 1927, the industry has secured nearly 1,600,000 new consumers and the total numbered more than 10¼ millions in 1934, but *per capita* consumption fell and total sales did not increase proportionately. A rising tendency in *per capita* consumption may possibly be encouraged by the recent introduction of two-part tariffs, especially as the first shock of competition from electricity appears to have been successfully met, and as there is a tendency for the number of separate families and therefore of separate households to increase. In general, however, the prospects of an expansion in gas sales are less favourable in the domestic field than in the industrial field where considerable headway has already been made. This is to a high degree due to the development of an efficient sales promotion policy based upon continual scientific research in the interest of the consumer to an extent which the other fuel-producing industries have hardly yet approached. It is evident, even now, that the potentialities of gas as industrial fuel which offers in a singular degree the advantages of cleanliness, accurate temperature control and cheapness are far from being exhausted.

Use of Coke in Domestic Grates

Any improvement in the realisation from sales of coke, which is the industry's principal by-product, to an extent which might make a decrease in the price of gas possible, might eventually have important effects in increasing the demand for gas. On the demand side, the popularity of coke as a household fuel for burning in open grates is unquestionably increasing. If experiments on the blending of coals and on their impregnation with soda to give a more readily ignitible coke prove as successful as the preliminary results give reason to expect, household coke consumption might become an important factor. On the other side, a continuance of the present tendency towards purchasing increased quantities of coke-oven gas would enable the gas industry to increase its sales without increasing its own gas production or coal consumption.

Use of Gas in Commercial Vehicles

Apart from the development of gas as a general industrial fuel for heating and process work, efforts have been made by various undertakings to develop the use of gas as a fuel for heavy commercial vehicles. The cost of conversion is not large and the fuel cost under optimum conditions works out at a little over 8d. per 265 cubic feet, which can be made to do the work of one gallon of petrol. The chief disadvantages are the restricted range of the vehicle, which does not exceed sixty to a hundred miles owing to the necessity for frequent refuelling, and the weight of the containers, which tend to reduce the pay load, while the gas-driven vehicle is not yet competitive in running costs with the diesel-driven vehicle. Gas is of little value at any time as a motor fuel except for vehicles such as omnibuses which run a regular route. There are some 10,000 omnibuses in Great Britain, and if in a time of national emergency they were to be converted to operate on gas, the coal-mining industry would need to supply in addition to the present consumption by the gas industry some 2 millions of tons of coal annually.

Future Relationship of Coal-mining and Gas Industries

During the depression the coal consumption of the gas industry remained remarkably stable and has varied by less than 900,000 tons in recent years. Continual improvements in gas works practice have tended in the past to prevent the industry's demand for coal expanding as rapidly as its output of gas and this tendency is likely to continue, within limits. The improve-

ment in gas works practice has also given rise to a much more scientific approach to the selection of suitable coals for gas making which is not reciprocated by an equal knowledge on the side of the seller. One or two gas undertakings already buy on a guaranteed content of moisture and ash and many would like to be able to buy on a chemical analysis. This is one aspect in which the selling organisation of the coal-mining industry could be improved with material advantage to producer and consumer.

(3) COAL IN THE ELECTRICITY SUPPLY INDUSTRY

Consumption of Coal in the Electricity Supply Industry

The electricity supply industry, being a young industry of vigorous growth, has been one of the few consumers of coal whose demand has steadily increased. Since the War, in fact, the consumption of coal by authorised undertakings has risen by as much as 50 per cent. Fuel economy, however, has also had its effect on coal consumption in this industry as while the quantity of coal consumed has increased by half, the output of electric power has been trebled. The relevant statistics are given in the following table; it will be seen that the electricity supply industry is also a consumer of oil and gas, but these items have been ignored since they do not amount to more than about 2½ per cent. of the coal consumption.

FUEL CONSUMPTION AND POWER OUTPUT OF THE ELECTRICITY SUPPLY INDUSTRY*

	Fuel Used			Units Generated million kw. hours	Rate of Coal and Coke Consumption tons per million kw. hours
	Coal and Coke 000 tons	Oil 000 tons	Gas million cu. ft.		
1920/1 .	6,348	14	2,070	4,275	1.49
1921/2 .	5,362	85	406	3,890	1.38
1922/3 .	5,481	43	2,210	4,541	1.21
1923/4 .	6,174	51	2,591	5,289	1.17
1924/5 .	6,661	52	1,758	6,022	1.11
1925/6 .	6,997	38	2,547	6,619	1.06
1926/7 .	7,004	96	1,093	6,992	1.00
1927/8 .	7,957	31	2,522	8,451	0.94
1928/9 .	8,228	31	2,943	9,324	0.88
1929/30 .	8,884	31	2,771	10,401	0.85
1930/1 .	8,685	30	1,904	10,947	0.79
1931/2 .	8,736	30	2,450	11,533	0.76
1932/3 .	9,074	35	2,584	12,347	0.74
1933/4† .	9,600	30	2,600	13,600	0.71
1934/5† .	10,300	30	2,600	15,300	0.67

* Authorised undertakings, i.e. excluding generating stations belonging to railway and tramway activities.
† Rough estimates.

Allowing for the generating capacity of private plants, the total consumption of coal in the production of electrical power may be estimated in the neighbourhood of 20 to 21 million tons per annum.

Fuel Economy in the Electricity Supply Industry

Fuel economies achieved since the War have resulted mainly from the more effective utilisation of generating plant by co-ordination and inter-connection; from modifications and improvements in the design and operation of generating units principally through the increase in steam pressures and temperatures and the more effective utilisation of waste heat; and from the increasing use of cheap, low grade fuel which has been made possible by the improvement of chain grate and pulverised fuel firing systems.

With the completion of the grid, the potentialities of the first source of economy have probably been nearly exhausted. It would be unwise to make the same prediction with regard to the design of generating units. The progress which has been made in the last ten years could not have been foreseen ten years ago. There are now generating stations in the country with an overall thermal efficiency per unit generated of 30 per cent. and upwards, while the average for twenty-five of the most efficient stations is probably in excess of 22 per cent. Further progress in this direction may be expected if only in raising the average efficiency of the industry to that of its most efficient units.

Increasing Demand for Small Coals

The general tendency of the industry within recent years has been to require smaller sizes of coal suitable for automatic stokers while it has been possible to use progressively lower grades, and so to lower fuel costs without affecting the efficiency of production. Many of the latest power stations are, in fact, designed to operate wholly or partly on slack which is obtainable at prices as low as 9s. 0d. per ton. As regards bargaining power, the electricity supply industry has in recent years gained the upper hand of the collieries and has been able to obtain supplies at prices which are not likely to persist with the introduction of central selling organisations in each coal-mining district. There is, in addition, a general tendency for the price of smalls to rise in response to a broadening of demand which is paralleled by a falling off in the demand for round coals. The combination of these two factors is likely to intensify the efforts of the electricity supply industry to perfect and introduce firing systems for the utilisation of the very lowest grades of fuel. Once again, this points to the importance for the coal industry of producing a graded product to suit the convenience of its consumers, of studying the extent to which the requirements of consumers may be changing, and of attempting to adapt production accordingly. In the aggregate, the coal-mining industry has already spent many millions of pounds on modern screens and cleaning plants with this end in view. The breaking down of large coals into smaller sizes is being practised to an increasing extent but the technical and economic limitations to this process need to be carefully studied. It may indeed be expected that the price schedules of colliery companies will, before long, begin to undergo a significant change in the direction of increased prices for small and lower prices for large coals.

The Trend of Electricity Consumption

That the sales of the electricity supply industry will continue to expand for some years and its consumption of coal also to increase is open to very little doubt. Although in generating capacity the rapid rate of growth of the last ten years is not likely to be continued, the full field of electrical development has hardly yet been explored. The industry does in fact possess a sales promotion organisation, but the continued increase in the demand for electricity, at a rate in excess of 10 per cent per annum, unquestionably can still be ascribed mainly to natural

forces. The size of the potential increase in the demand for coal will, however, depend upon the length to which further improvements in fuel economy will go. It would seem that the day of very large reductions in coal consumption per unit generated is probably past, so that the progress of fuel economy is unlikely for some years to keep pace with the increase in the demand for electricity.

(4) COAL CONSUMPTION BY THE RAILWAYS

Locomotive Coal Consumption

In 1913 the railways consumed, for the use of locomotives, 13.2 million tons of coal. Consumption fell as low as 11.67 million tons in 1933 but improved again to 12.17 million tons in 1934. The fluctuations are the result mainly of variations in the volume of railway traffic in accordance with changes in trade activity—particularly of goods traffic—but railway consumption is also subject to long-term influences, such as the progress of fuel economy, electrification, the use of diesel-driven locos, and the competition of road vehicles. The first two of these have reduced the amount of coal consumed in locomotives per hundred engine miles from 2.29 tons in 1929 to 2.17 tons in 1933. Some of the displacement through electrification is, of course, compensated by the increased demand for coal to produce the power, but it should be noted that this constitutes another example of the change of demand away from large coal such as is used in locomotives, for which the price has traditionally been fairly high, to small coal for burning in electrical generating units.

Moreover, as the overall efficiency of modern electrical generating plant and of electricity distribution in the conversion of coal into energy is greater than that of a locomotive, though the cost is also greater, electrification tends to produce a net decline in coal consumption. A few years ago, large schemes of railway electrification, and particularly of main-line electrification, seemed unlikely for many years to come. The favourable effect of the Southern Railway's programme on passenger traffic, however, and the possibility of financial assistance from the Government, has radically altered the situation, particularly with regard to high centres of population.

Introduction of Diesel Locomotives

The use of the diesel locomotive has not yet passed the small-scale experimental stage in this country, though it has been much further developed in Germany and France. The diesel rail-car may, however, in the not very distant future become of increasing importance for dealing with traffic in country areas where shuttle services are operated and for shunting purposes where the diesel locomotive offers definite openings for economies in crew, fuel and time.

So far, the introduction of diesel locomotives has been most rapid in countries which are deficient in domestic supplies of coal or where there are difficulties in obtaining water, and there is little doubt that the British coal export trade has been much affected in consequence. Electrification, notably in Italy, has had a similar effect on the export market for locomotive coal. It is doubtful whether the incentive to adopt diesel locomotives on a large scale will ever be as strong in Great Britain as in countries with limited coal supplies, while the railway companies will doubtless hesitate to adopt on a large scale a policy which would affect adversely one of their principal customers.

Competition of Road Transport

It is not possible to determine precisely how far the competition of road transport has affected the railways, or how far this competition is likely to increase, but it is evident from the slow recovery of railway traffic from the depression in comparison with other indices of economic activity, that the competition of road vehicles is still growing, in spite of legislation which might have been expected to check it. Some recovery in passenger traffic has resulted from the successful introduction of cheap return fares, but a substantial revival in the volume of railway traffic, as a whole, can hardly be expected pending a revival of the export trade and a satisfactory settlement of the road-rail competition problem; consequently, any further improvement in the consumption of coal by locomotives is likely to be of modest dimensions.

Fuel Economy on the Railways

The following figures show the extent of economies in fuel consumption achieved on the railways since 1918, in terms of coal consumption per hundred engine miles run.

RAILWAY TRAFFIC AND LOCO. COAL CONSUMPTION

	Coal Consumption million tons	Engine Mileage Run (all tractions) million miles	Average Coal Consumption per hundred engine miles tons
1918 .	13.20	—	—
1928 .	13.05	572.1	2.28
1929 .	13.41	586.1	2.29
1930 .	12.87	574.1	2.24
1931 .	12.27	549.7	2.23
1932 .	11.70	533.7	2.20
1933* .	11.67	536.4	2.17
1934* .	12.17	558.6	2.18

* Excluding London Passenger Transport Board.

(5) COMPETITIVE FUELS

The Competition of Oil

Apart from the loss of coal sales in export markets due to the development of hydro-electric power, the most important competitor of coal since the War has been fuel oil. To a large extent, the increase in oil imports has been due to the development of the petrol-driven and diesel-engined road vehicle and the aeroplane, which, except indirectly by assisting in the elimination of steam-driven road vehicles and by competing with the railways, has not involved the displacement of coal. But the increased use of diesel engines in ships and of oil-firing for boilers where coal-firing was formerly used has displaced coal directly, though the effects have tended to be intensified in certain localities and, as a whole, are probably not quite so sweeping as has been sometimes made out.

The development of oil consumption in Great Britain is shown by the following figures and is compared with the consumption of coal:

(000 tons)

	Motor Spirit*	Fuel Oil, Gas Oil and Diesel Oil Domestic	Bunkers†	Total*	Total* (all products)
1913 . .	360	—	—	600	1,800
1922 . .	1,067	642	565	1,207	3,241
1926§ . .	2,136	1,349	1,013	2,362	5,674
1930 . .	3,432	1,192	992	2,184	6,881
1934 . .	4,178	1,472	1,412	2,884	8,436

	Home Consumption of Coal	Coal Shipped in Foreign Bunkers	Total Coal Consumption
1913 . .	183,850	21,030	204,880
1922 . .	157,760	18,260	176,020
1926§ . .	130,000‡	7,590	138,000‡
1930 . .	166,580	15,620	182,200
1934 . .	161,480	13,490	174,970

* Quoted by Sir John Cadman to the Institute of Fuel, October 9th, 1935.
† Including coastwise bunkers.
‡ Approximately.
§ Coal stoppage: domestic trade in fuel oil did not again reach the level of 1926 until 1933.

It will be seen from these figures that the consumption of oil, when measured by weight, is still comparatively insignificant compared with the consumption of coal. The calorific value of fuel oil is, however, on the average somewhat higher than that of coal in the proportion of 19,000 B.T.U. per lb. to 13,000 B.T.U. per lb. (steam coal; anthracite would be rather higher). Reckoned by calorific value, therefore, fuel oil accounted for less than 0.5 per cent of the total heat output of the two fuels combined in 1913, and about 2.3 per cent in 1934.

The competition of fuel oil may be slightly underestimated by this calculation, as the average efficiency of oil-burning appliances may be slightly greater than that of coal-firing, though in the largest and most modern installations there is nothing to choose between the two in this respect.

Domestic Production of Light Oils

At the present time the proportion of oil consumption that is met by home production is negligible. The chief sources are the output of the Scottish shale oil industry, the benzol washed from coal gas by gas companies and coke-ovens, the light spirit produced by tar distillers, the petrol output of low-temperature carbonisation plants and of the Billingham hydrogenation plant, and any production of natural petroleum which may eventuate from the passing of the Petroleum (Production) Act of 1934. But in 1934 when the total amount of petroleum products available for consumption was 2,456.3 million gallons, Scottish shale oil production contributed only 30 million gallons of crude oil or 14½ million gallons of motor

spirit and naphtha; while the benzol output of gas-works, coke-ovens, tar distillers and low-temperature carbonisation plants amounted to approximately 40 million gallons of refined motor spirit. The total home production of 54½ million gallons was only equivalent to 4½ per cent of the home consumption of motor spirit, but compares with outputs of 38½, 37½, 38½ and 44⅓ million gallons in the years 1930-33 respectively. The preference accorded to home-produced motor spirit in 1934 has induced many more gas-works to recover the benzol content of their gas output. Creosote is also capable of being used as a home-produced substitute for imported light oils in internal combustion engines, and is serving to an increasing extent as a raw material for hydrogenation.

Oil in the Bunker Trade

Although oil has made certain inroads in the home market (much of which has since been regained by coal), particularly with large commercial users such as restaurants, hotels and hospitals where fuel storage space and accessibility may be limited and the desirability of cleanliness substantial, or where easy and accurate heat control may be necessary; and in such industrial uses as the firing of glass and pottery furnaces, where the increased prime cost of fuel is offset by the advantages of accurate temperature control, cleanliness and economical storage of fuel, it is in the shipping trade that coal has suffered the greatest set-back from the competition of oil. The Admiralty gave the lead before the War in the transition from coal to oil-firing, and its example has been rapidly followed by the other navies of the

LLOYD'S REGISTER OF SHIPPING—ANNUAL REPORT

VESSELS OF 100 TONS AND UPWARDS RECORDED IN LLOYD'S REGISTER

Year ended June 30th	Coal Fired	Per Cent	Oil Fired	Per Cent	Diesel	Per Cent	Total
1914	43,859,381	96.6	1,310,209	2.9	234,287	0.5	45,403,877
1929	40,358,396	60.8	19,420,895	29.2	6,628,102	10.0	66,407,393
1930	40,069,679	58.9	19,857,788	29.2	8,096,337	11.9	68,023,804
1931	39,289,061	57.2	20,002,307	29.1	9,431,433	13.7	68,722,801
1932	38,194,758	55.9	20,135,006	29.4	10,038,377	14.7	68,348,141
1933	36,373,859	54.6	20,053,273	30.1	10,200,392	15.3	66,627,524
1934	33,895,555	52.7	19,857,711	30.9	10,604,526	16.4	66,357,792
1935	32,537,556	51.0	19,885,070	31.2	11,304,691	17.8	63,727,317
NEW TONNAGE CONSTRUCTED UNDER RULES OF LLOYD'S REGISTER							
1929	600,270	34.5	351,113	20.2	786,353	45.3	1,737,736
1930	680,699	37.7	276,144	15.3	847,403	47.0	1,804,246
1931	318,107	18.3	203,457	11.8	1,212,525	69.9	1,734,089
1932	57,120	6.2	259,897	28.4	598,247	65.4	915,264
1933	110,959	24.8	148,171	33.1	188,020	42.1	447,150
1934	89,373	25.7	14,927	4.3	243,897	70.0	348,197
1935	150,445	20.0	49,695	6.6	552,060	73.4	752,200

world (which formerly consumed substantial quantities of Welsh steam coal) and by the merchant service with regard to the bulk of its passenger and liner tonnage. Moreover, it is evident from the very high percentage of oil-burning ships figuring in the new construction statistics that the transition has not yet been completed. The Government's "Scrap and Build" subsidy programme, introduced to assist the tramp shipping industry, is also having unfortunate results for the coal-mining industry, since it is resulting in practice in the scrapping of two coal-fired ships and their replacement by one diesel or oil-fired ship.

Factors in the Decline of the Bunker Trade

These figures probably reflect the effect of the transition from coal to oil on the bunker trade more reliably than do the statistics of the bunker trade itself, which are subject to other influences. The decline in the bunker trade has been due in part merely to the shrinkage in the volume of international trade and the under-employment of shipping, though the relationship is not direct since a declining volume of trade may involve merely a higher percentage of voyages in ballast and a dearth of return cargoes. In the second place advances in marine engineering, by increasing the average speed of shipping by two to three knots since 1914 and simultaneously reducing the fuel consumption per sea mile, have considerably lessened the dependence of the world's merchant marine on the services of the bunkering stations which were established along the principal sea routes. In this case the effect on the coal industry is cumulative since not merely is less coal required from bunkering stations, but also less coal is needed for fuelling the ships that carry the coal to the bunkering stations.

The decline in the bunker trade is certainly no less severe than is indicated by the Board of Trade's figures of coal shipped for the use of steamers in the foreign trade. These figures refer only to coal shipped by vessels refuelling at United Kingdom ports and certainly do not represent the total amount of British coal consumed by the world's shipping. In past years quite considerable quantities of British coal have been shipped to such places as Gibraltar, Malta, the Canary Islands, the Azores, etc., and figure in the trade returns as "exports," although in fact they represent to a large extent supplies for the replenishment of the bunkering stations at these places.

Consequently the exact magnitude of the volume of coal consumed by shipping is difficult to ascertain, although it has clearly been much reduced. It has, for instance, been estimated that the total bunkers supplied by all companies at Buenos Aires fell from 252,525 tons in 1927 to 69,301 tons in 1931. Exports of coal from this country to Gibraltar fell from 373,601 tons in 1928 to 137,520 in 1931, though they rose to over 400,000 tons again in 1934.

South Wales especially has been a sufferer from these tendencies in the bunker trade, since the best steam coal came almost exclusively from the Rhondda and neighbouring valleys and practically all went into shipping. 21.8 per cent of the bunker shipments in 1934 were met from the Bristol Channel against 20.2 per cent from the Humber and 20.3 per cent from the North-East Coast. These figures do not, however, adequately represent the dependence of South Wales on the shipping demand relatively to the other two areas, as South Wales supplies the bulk of the "export" shipments to foreign bunkering stations.

It is clear that with a revival in the volume of international trade, the demand for steam coal for bunkers will again increase, even though that revival may be long delayed. But although coal will probably remain the best and most economical fuel for tramp steamers, it must be remembered that a limit has been set to the possible expansion in the bunker trade

by the use of oil by navies and by liners, and by the general improvement in the efficiency of fuel utilisation in shipping. Moreover, diesel ships are being introduced to an increasing extent in the coastal shipping trade, which consumes about 1¼ million tons of coal per annum. It is unfortunate, but none the less clear, that the limit referred to above lies far short of that necessary to secure the re-employment of the Welsh steam coal valleys on the pre-war, or even the immediate post-war, scale.

Promotion of Coal Sales

The coal industry made no collective effort to resist the invasion of its market by oil until, in October 1932, the Coal Utilisation Council was set up to promote the sale of coal. This body is representative of the Mining Association, the National Council of Coal Traders, the Coal Merchants' Federation, the British Coal Exporters' Federation, the Co-operative Wholesale Society and the Co-operative Coal Trade Association; and therefore includes Colliery Owners, Factors, Merchants and Exporters. Its first work was to investigate market conditions, methods of distribution and the needs, views and problems of consumers of fuel. Under the last heading it looks for the co-operation of gas and electricity undertakings in meeting the competition of oil.

The activities of the Council are varied. It has, perhaps, met with most success in its attempts to improve the methods of combustion of coal by the improvement of automatic stoking and the perfection of temperature control—factors which constituted two of the best selling points for oil-burning appliances—though in this matter it has found a powerful ally in the duty on fuel oil which it had always advocated. The Council has also set up area committees, and is now providing technical advice to consumers on the suitability of coals for various purposes and their proper utilisation, and is co-operating with the distributors —who have advanced in this direction of their own accord also—in the technical education of distributive staff.

A certain amount of market investigation has also been carried out on the economic side of coal distribution.

Generally speaking, the very comprehensiveness of the Council, which is in one way its strength, is also its weakness. With so many profitable avenues of investigation—except by Royal Commissions the coal industry has not been the subject of any collective research hitherto—and so many divergent interests among its members, it is naturally difficult to pursue each road to its conclusion. Moreover, the work of the Council has been made no easier by the failure of certain sections of the industry to implement their promises of financial support. In view of the encouraging results which have attended certain branches of the Council's work, the industry might be well advised to consider the expansion of its work and simultaneously its sub-division into technical and economic sections. The importance of the latter aspect—as is unfortunately too common among the trade associations of many industries —has probably been under-estimated. It is doubtful in any case whether the resources of the Council are sufficient to do justice to both aspects at present.

Research

Apart from the private organisations maintained by one or two of the larger firms, little research work has been done within, or on the initiative of, the coal-mining industry. Most of the initiative in this direction has come from outside the industry, as in the case of the

chemical investigation of coal seams at present being undertaken by the Fuel Research Board; of the use of steel underground by the steel industry, and of a recent report on the treatment of pitprops with preservatives by the Forest Products Research Laboratory. On the consumption side, it is well known that most of the impetus towards improvements in the utilisation of coal have come from the consumers rather than the producers.

Government research, apart from that of the Fuel Research Board, has been mostly concerned with safety in mines and occupational diseases.

The Need for a National Fuel Policy

The ultimate division of the fuel market on genuine economic considerations between coal, oil, gas and electricity, as well as between coal and oil alone, which must be desirable in the national interest, has received little assistance from the Government which has yet to formulate a long-term policy on this question. In the present circumstances the production of raw coal is under the supervision of the Mines' Department (formerly a separate Ministry); the gas industry, the coking industry, the oil industry, and the distributive trade under the Board of Trade, and the electricity industry under the Ministry of Transport. If there is a case for the co-ordination of the three Defence Ministries under a single Minister of Defence, there seems to be an equally strong case for the co-ordination of the fuel industries under a single Minister of Fuel and Power.

The Effect of Legislation on Coal and Oil Competition

In the competition of coal with oil, most of the political decisions have gone in favour of the former, but they have been taken for very different reasons, and that they have had this effect must be regarded as largely fortuitous.

The duty of 4d. per gallon on imported motor spirit, for instance, which was imposed in 1928, and was potentially of some advantage to the coal industry, was introduced by Mr. Churchill to provide revenue to pay for the industrial de-rating scheme, but was excused on the grounds (a) that it would assist in the scientific utilisation of coal, and (b) that it would assist in holding the balance between road and rail.

The duty was raised to 6d. per gallon with even greater reluctance by Mr. Snowden in April 1931, and again to 8d. in the emergency budget of September 1931, as a temporary expedient to find more revenue. The tax has not been reduced in the ensuing four years.

In April 1933, Mr. Neville Chamberlain imposed a duty of 1d. per gallon on heavy hydrocarbon oils with the exception of those used in fishing vessels, coastwise shipping and foreign bunkers, partly for revenue purposes and partly in the interest of the coal industry, and of others with parallel interests (the gas and electricity supply industries and the railway companies). It may be added that of the heavy oils only fuel oil is used directly in competition with coal as a means of raising heat. Kerosene competes with the coal and allied industries only to a limited extent for lighting and cooking in country districts, and lubricating oil even less, while gas oil and diesel oil may or may not be used in competition with coal.

This measure was followed by the British Hydrocarbon Oils Production Act of 1934, which guaranteed a preference at the rate of 4d. per gallon for nine years, or an equivalent total for a shorter period, on light oils produced from indigenous sources. At the present time the preference is at the rate of 8d. per gallon for 4½ years. Mr. Ernest Brown, then Secretary

for Mines, on this occasion stated that the object of the preference was to secure at least a proportion of the national oil consumption from coal, the country's greatest national asset.

Finally, in April 1935, Mr. Chamberlain raised the duty on heavy hydrocarbon oils used for road transport from 1d. to 8d. per gallon, giving as his reason the necessity for safeguarding the yield of revenue from light hydrocarbon oils, which was threatened by the successful competition of diesel with petrol engines for road transport purposes.

The only conclusion that can be drawn from this sequence of events is that the Government's power to influence fuel consumption has been used not to further a long-period policy, which in fact it has yet to formulate, but to meet various circumstances in which the desire to produce additional revenue has predominated. Against such a background, the few but worthy efforts that have been made to secure a balanced fuel policy or to advance technical developments in certain directions, can only be expected to meet either with continual frustration, or with semi-fortuitous assistance, both of which make for unbalanced development.

(6) THE PROCESSING OF COAL

In his presidential address delivered to the Institution of Civil Engineers in November 1934, Sir Richard Redmayne mentioned three outlets on which the future of the coal industry seemed to depend—hydrogenation, though as a means of producing oil from tar rather than

ESTIMATED CONSUMPTION OF COAL BY VARIOUS PROCESSES*

	1913		1929		1934	
	Mill. Tons	Per Cent	Mill. Tons	Per Cent	Mill. Tons	Per Cent
Coal burnt raw:						
In locomotives .	13.20	7.25	13.41	7.80	12.17	7.58
In collieries . .	18.00	9.90	13.69	7.95	11.68	7.27
For domestic and industrial purposes	97.70	53.75	95.01	55.10	91.33	56.90
TOTAL . .	128.90	70.90	122.11	70.85	115.18	71.75
Coal burnt in electric power stations . .	4.90	2.70	9.84	5.75	11.17	6.95
Coal carbonised:						
In gasworks . .	16.70	9.20	16.75	9.75	16.66	10.40
In L.T.C. plants .	—	—	—	—	0.30	0.20
TOTAL . .	16.70	9.20	16.75	9.75	16.96	10.60
Coal consumed by the Steel Industry . .	31.40	17.20	23.43	13.65	17.21†	10.70
Total Consumption . *(excluding coastwise bunkers)*	181.90	100.00	172.13	100.00	160.52	100.00

* These figures are given in greater detail on page 96. †Provisional.

direct from coal; low-temperature carbonisation for the production of a smokeless fuel to be substituted for raw coal in the domestic grate; and the use of compressed town gas instead of petrol as a fuel for motor vehicles. He estimated that the complete change-over from raw coal to low-temperature fuel in domestic grates would necessitate the raising of an additional 12 million tons of coal per annum, giving employment to 35,000-40,000 additional miners, and would result in a by-product output of 1½ million tons of diesel oil, 2 million tons of tar oils and 450 million gallons of petrol, the latter amounting to about half of the country's total imports in 1932; though it is doubtful whether the additional consumption of coal would be as large as Sir Richard Redmayne envisaged.

While the realisation of these objects in these precise terms is hardly within the bounds of practical politics, this illustration serves well to show the general direction in which the future of the coal industry lies—the production of a range of specialised products, each suited to the maximum convenience of the consumer. It should, however, be fully emphasised that the economics of processes for the upgrading of coal are still mainly—and may always remain—dependent on a nationalistic economic policy which aims at developing home resources to the full and reducing competing imports. While there may be a sound economic justification for such a policy—as, for instance, in increasing employment in the coal industry at the price of a higher cost of motor fuel to the consumer—it is of the utmost importance that the balance of these forces should be borne constantly in mind.

The Preparation and Carbonisation of Coal

Already since the war considerable progress has been made, both in the preparation of raw coal and in the conversion of raw coal into alternative types of fuel. Yet, as the table on p. 120 broadly shows, the volume of coal burnt raw for domestic and industrial purposes showed a higher proportion to total consumption in 1934 than it did in 1913, largely owing to the decreased demand of the iron and steel industries.

Although quantitatively the proportion of coal burnt raw has not declined, however, there has been a considerable qualitative change in consumption.

Coal Washeries

In 1934, nearly 87½ million tons, or 39½ per cent of the total saleable output of coal, as compared with about 77½ million tons and 37½ per cent in 1933, was mechanically washed. When it is considered that only the finer and smaller coals are suitable for cleaning, it is clear that a large proportion of that part of the output which can be treated in this way is already being mechanically cleaned. Washing still remains the most important process and accounted for 84 per cent of the coal cleaned in 1934, but dry-cleaning is gaining ground and accounted for 15 per cent of the coal cleaned in that year; the remaining 1 per cent was treated by the froth flotation process. The increase in the tonnage of coal dry-cleaned between 1933 and 1934 was 21 per cent as compared with an increase in the same period of 11½ per cent in the tonnage of coal passed through washing plants. Dry-cleaning plants have been introduced principally in Durham, where nearly 7 million tons (or more than half the total throughout of dry-cleaning plants for the whole country) were so treated in 1934. Washeries, on the other hand, are more popular elsewhere, particularly in South Wales and Yorkshire, and their use is practically universal in Scotland. Availability of water supplies is naturally a conditioning factor.

The distribution of coal washeries and cleaning plants through the country is very uneven. Their use is highest in relation to total output in Cumberland (65.1 per cent), South Yorkshire (55.7 per cent), Fife (52.0 percent), The Lothians (50.1 per cent), Lanarkshire (49.1 per cent), West Yorkshire (46.5 per cent), Ayrshire (42.4 per cent), and Durham (40.1 per cent). More than 30 per cent of the coal output is cleaned by one process or another in Northumberland, Lancashire and Cheshire, Nottinghamshire, North Staffordshire, South Staffordshire and Worcestershire, Bristol, Kent, South and North Wales. The percentage falls below 20 in the case of Leicestershire and Warwickshire, while in the small districts of South Derbyshire, Shropshire, the Forest of Dean and Somersetshire, hardly any of the coal output is cleaned.

While local mining conditions must limit the extent to which coal cleaning is practically possible, and the nature of the demand for the type of coal produced in each colliery the extent to which it is economically worth while, there is good reason to suppose that the further development of coal cleaning would prove advantageous. The importance of a clean fuel for efficiency in the generation of heat has, of course, long been axiomatic for steam raising as well as for process work. But prior to the introduction of the automatic stoker, the type of coal most in demand for these purposes was the large hand-picked grade. The introduction of the automatic stoker and of other special types of grate has enabled small-sized coal to be efficiently consumed under boilers, and has, therefore, created a demand for the small grades of cleaned coal which can be mechanically prepared. The importance of this transition even in as short a period as three years may be gathered from the following figures showing the division of British coal exports according to types:

U.K. Coal Exports

	1932 Per Cent		1933 Per Cent		1934 Per Cent	
Small . . .	16.25	41.50	15.95	44.80	14.10	45.30
Sized . . .	25.25		28.85		31.20	
Through and Through (unscreened) .	20.70	58.50	19.75	55.20	20.60	54.70
Large . . .	37.80		35.45		34.10	
Total . .	100.00		100.00		100.00	

Exports of large coals have fallen steadily in importance whereas sized coals increased from 25 per cent to 31 per cent of the total in a space of three years.

Pulverised Fuel Consumption

A recent development of importance in this connection is the increasing use of pulverised coal and of dust and duff, for which there was formerly little demand and which has been generally disposed of for whatever price it will fetch where it has not been used for briquetting.

Pulverised fuel has been used for some years in process work, notably in the cement and lime-burning industries, where a clean heat is essential in conjunction with a low fuel cost.

The most significant development in recent years, however, is the doubling of the pulverised fuel consumption of power stations for steam-raising purposes, which has been made possible by the improvement in coal-burning appliances. Within the last few months, the first power station in the country to operate on anthracite duff has been completed by the Swansea Corporation at Tir John.

The following figures, issued by the Department of Mines, show the increase in pulverised fuel consumption since 1929:

CONSUMPTION OF PULVERISED FUEL
(000 tons)

	1929	1930	1931	1932	1933	1934
For Steam-raising:						
By collieries . .	229.3	304.1	374.3	462.7	479.1	551.5
By commercial firms	525.8	425.6	477.8	613.2	630.0	589.6
By authorised electricity undertakings*	714.5	941.0	1,055.3	1,206.3	1,455.2	1,630.0†
For heating:						
In metallurgical furnaces, etc. .	41.1	45.3	43.6	50.0	87.4	129.2
In cement and other kilns . .	1,244.4	1,373.1	1,473.0	1,346.8	1,364.0	1,602.4
TOTAL . .	2,755.1	3,116.1	3,424.0	3,679.0	4,015.7	4,502.7

* In the case of local authority undertakings the figures of consumption included in these totals refer to years ending on March 31st of the year following that shown.
†Provisional figure.

The increase in pulverised fuel consumption by authorised electricity undertakings is in contrast to a relative stability of consumption by commercial firms for steam-raising purposes. This is explicable by the fact that the use of pulverised fuel has made the greatest progress for burning under water-tube boilers of very large capacity such as few commercial firms would need to employ. Of a total consumption of pulverised fuel for steam raising of 2,771,113 tons in 1934, 1,860,917 tons were burnt under water-tube boilers of more than 75,000 lbs. per hour capacity, of which 1,444,100 tons were consumed by electricity undertakings and 416,817 tons by commercial firms.

Since, however, the trend of engineering practice is towards the use of still larger boilers at the highest possible pressures consistent with the present limitations of engineering materials, this does not necessarily imply that the field for the use of pulverised fuel is very strictly limited to a few consumers. It would, in fact, appear that little progress has yet been made in making supplies of pulverised fuel available to small consumers. One colliery in South Yorkshire installed plant for this purpose in 1933, and a second installation by a distributing company (Rickett, Cockerell & Co. in conjunction with the Buell Combustion Co.) was reported in the London area in 1934, but this appears to be as far as the matter has at present developed.

Coal/Oil Mixtures for Shipping

In this connection, something may be said of another method from which, for many years, the coal industry has hoped for an eventual revival in the demand for coal—the development of a successful coal/oil mixture, sometimes referred to as a colloidal fuel. On several occasions claims have been made that a satisfactory coal/oil fuel has been evolved, but these have usually proved to be premature. The difficulty of retaining the coal in full suspension in the oil, particularly when the temperature of the latter is raised, has given rise to a great deal of trouble, as also has the cost of pulverising the coal to the requisite fineness on a commercial scale which may amount, it is believed, to 10s. or 15s. per ton. Substantial progress has, however, recently been made by a Cardiff company—Wyndham's Marine Patents Ltd.—and it appears that most of the difficulties have been overcome. This company claims to be able to produce a coal/oil mixture satisfactory in use, with a calorific value slightly below that of fuel oil but at a cost 24s. per ton less than the price of fuel oil in this country.

A few experiments have been carried out with the use of coal/oil mixtures in ships, particularly in the United States. The most recent trial, however, was undertaken with the Cunard liner "Scythia," which crossed the Atlantic in 1932 with 156 tons of coal/oil fuel which was used in one of her six boilers. Though the experiment was stated to have resulted in the realisation of every expectation, no further development has occurred.

The Briquetting Industry

The manufacture of patent fuel by briquetting has been developed in this country for some years, particularly in South Wales, where the whole of the industry is now under a single control. Patent fuels are manufactured from coal dust and waste or pulverised coal by compression with the use of a binding agent such as pitch; the resultant product has a content of about 94 per cent of coal and is suitable for the firing of locomotives or road-traction vehicles. Patent fuels are much used for domestic heating on the Continent, but they do not produce a very satisfactory fire and for that reason have never been popular in this country. Consequently, seven-eighths of the production of briquettes is exported, chiefly to the Continent. Protective tariffs have severely restricted this trade in recent years, as British briquettes compete strongly with the domestic article in foreign countries. South Wales has the major share in this industry, as the following figures show, while steam coal is mainly used as the raw material:

U.K. Production and Export of Patent Fuel
(000 tons)

	Production	Exports
1913 . .	—	2,053
1927 . .	1,478	1,349
1928 . .	1,135	1,032
1929 . .	1,373	1,230
1930 . .	1,131	1,006
1931 . .	870	760
1932 . .	908	760
1933 . .	941	795
1934 . .	877	730

PATENT FUEL MANUFACTURE, 1934

District	Output Tons	Materials used: Steam Coal Tons	Household Coal Tons	Anthracite Tons	Other Sorts Tons	Total
England .	43,152	17,295	21,831	2,070	—	41,196
Wales . .	786,329	735,703	2,101	2,996	1,689	742,489
Scotland .	47,743	270	43,456	270	—	43,996
TOTAL .	877,224	753,268	67,388	5,336	1,689	827,681

Development of Coal Crushing

A development of considerable importance for the future of the industry which has arisen as a result of the increasing demand for small coals, is the growth in the installation of machinery for breaking down large coal into smalls. The make-up of run of mine coal according to sizes depends mainly upon the nature of the seam, and can only be altered within limits by changes in the method of working. Traditionally the best demand has been for large round coal and this has always commanded the highest prices; smalls and slack being disposed of at lower prices, sometimes for whatever they would fetch, in order to contribute something to the cost of production. Changes in methods of coal utilisation, stimulated in part by the incentive to use low-grade and low-priced coals, have in recent years much increased the demand for smalls, and have probably set up a long-term tendency towards the raising of the prices of small coal and the lowering of those for large coal.

Coalowners have scarcely begun to appreciate the significance of this change or to consider its technical and economic implications, though coal-crushing machinery is already being introduced on a considerable scale. In the first place, there are technical limitations to the extent to which coal crushing can be introduced, as some coals when crushed yield such a high percentage of dust as to make the process uneconomic. In the second place, the production of smalls by artificial methods will inevitably raise their cost of production, which must lead eventually to a rise in prices. A rise in prices is likely to stimulate consumers either to use progressively lower grades of coal or, after a certain stage, to decide that the difference in price is not sufficiently great to justify the use of an inferior fuel. The introduction of crushing machinery accordingly requires to be pursued with caution until the elasticity of the market has been adequately tested.

Low-Temperature Carbonisation of Coal

Low-temperature carbonisation and hydrogenation are so often advanced as the panacea for all the troubles of the coal industry that it is of the greatest importance to examine them dispassionately and critically.

Low-temperature carbonisation was developed from the outset as a means, primarily, of deriving "oil from coal." When coal is carbonised under high temperatures, as in a coke-oven or gas-retort, the higher hydrocarbons given out by the coal are completely or partially cracked into gases, and only a relatively small proportion can be recovered as oils. By carbonising at medium or low temperatures no cracking takes place, or only to a limited extent, and these hydrocarbons are merely driven off in a gaseous state and can subsequently

be condensed or scrubbed from the gas. The residue consists of a semi-coke, whose properties are about midway between those of coke and coal, as it is a porous, smokeless fuel but ignites readily and can be burnt easily in open grates. This fuel, which was originally visualised as a secondary product of low-temperature carbonisation, may be said to have justified the process on economic grounds, and the light oils and tars which the process was originally intended to produce have been relegated virtually to the position of by-products, although there is at present a good market for them. If the number of low-temperature carbonisation plants were to be much increased, however, this would not be so certain, though there are promising possibilities in the hydrogenation of low-temperature tar.

There are, in this country, as many as 50 registered processes of low-temperature carbonisation of coal and coal-oil mixtures which are moderately well known (as well as many more abroad), but not all of them will bear scrutiny. The first plant to work on a commercial scale was erected in 1927, and by 1932 ten plants were in action. One of these went out of action in 1933 and 1934, but it seems that by the end of 1935 there will be at least twelve plants at work. The throughput in 1934 was only 284,000 tons of coal compared with the level of 317,000 tons which was reached in 1933. In spite of this setback to throughput, however, nearly all of which occurred at one plant, the output of semi-cokes was nearly maintained. In fact, the yield of products per ton of throughput has improved steadily as the following figures show, which is probably attributable to technical advances and the results of experience with different types of coal. Practically the whole of the output in 1933 and 1934 came from the two plants of Low-Temperature Carbonisation Ltd. and from the "Coalite" plant operated under licence from that firm by the South Metropolitan Gas Co.

LOW-TEMPERATURE CARBONISATION PROCESSES

	1931	1932	1933	1934
Coal Distilled (tons) .	214,097	222,616	317,703	284,242
Products:				
Semi-coke (tons) .	151,729	162,797	222,245	220,793
Gas* (000 cu. ft.)	1,744,200	1,287,000	2,112,195	1,479,900
Tar (gallons) .	3,118,131	3,091,537	4,899,820	4,693,832
Crude spirit from gas (gallons) .	374,390	429,755	741,177	767,438
Yield per ton of throughput:				
Semi-coke (cwts.)	14.2	14.6	14.0	15.5
Gas (therms) .	33.0	32.1	34.4	33.3
Tar (gallons) .	14.6	13.9	15.4	16.5
Crude spirit from gas† (gallons) .	1.7	1.9	2.3	2.7

* The yield of gas varies widely according to the process and the kind of coal treated.

† Spirit is not scrubbed from the gas at all plants. The average yields calculated on the coal distilled at the plants where the gas is scrubbed are as follows: 1.9 gallons per ton of throughput in 1931; 2.2 gallons in 1932; 2.7 gallons in 1933; and 2.9 gallons in 1934.

(Fourteenth Annual Report of the Secretary for Mines.)

The oldest-established and most important concern—and, incidentally, the only one to date which has paid a dividend—is Low-Temperature Carbonisation Ltd. This company has plants at Askern, near Doncaster, and Barugh, near Barnsley, and is contemplating the erection of plants in other parts of the country. A smaller plant is, as stated above, worked under licence by the South Metropolitan Gas Company.

The company produces "Coalite," which is the best known of the smokeless fuels, and for which it has been unable to meet the full demand. At present the whole of the company's output of petrol is being taken by the Royal Air Force. Following the starting up of the hydrogenation plant at Billingham by Imperial Chemical Industries, the latter concern began to take from Low-Temperature Carbonisation Ltd. their output of low-temperature tar to be used for hydrogenation. The first shipment of low-temperature tar took place in April 1935 and it was subsequently announced that a long-term contract had been drawn up by the two companies. I.C.I. are also hydrogenating considerable quantities of creosote obtained from tars produced at gas-works and coke-ovens.

Two other processes of more recent origin, which have yet to prove their economic justification on a commercial scale, have attracted a great deal of public interest and one of them of public money subscribed at a substantial premium. An ambitious scheme for a chain of low-temperature plants around the country is being implemented by the National Coke & Oil Co. Ltd. The original plant at Cannock, with a capacity of about 50 tons of coal per day, is marketing a smokeless fuel under the name of "Naco" and a petrol under the name of "Napet," in the Birmingham district. Additional plants have now been erected, or are in course of erection, at Tipton, Staffordshire; Trafford Park, Manchester; and Erith, Kent. The complete programme of the company involves the erection of 20 plants at various places in the country. In the process used by the company (the Cannock wet-charge process) it is claimed that a yield of over 15 gallons of petrol and 15½ cwts. of smokeless fuel can be obtained per ton of coal. The retorts are charged with a mixture of 50 per cent pulverised coal with 46.5 per cent residual coal-oil and 3.5 per cent creosote.

Another large-scale venture which is now beginning operations is the Seaham Harbour plant of Coal & Allied Industries Ltd., which is planned in the first instance to consume coal at the rate of about 500 tons per day and to produce 4 million gallons of motor spirit and 100,000 tons of smokeless fuel annually. The process operated by this company has been evolved as the result of a small scale commercial experiment at Slough. The yield of light oil and smokeless fuel which the process is claimed to produce, is much higher than has been achieved in any other plant.

It is understood that neither of these plants has been the subject of an official test by the Fuel Research Board (though the Seaham Harbour plant is shortly to be tested), and it would be premature to pronounce upon the economic prospects of either company at the present stage. But should the present expectations of their directors be fulfilled, an entirely new view would have to be taken of the future of the low-temperature process. On the other hand, it should be remembered that many previous processes which have given flattering preliminary results have been disappointing both to their inventors and to the shareholders who have financed them. There are many other processes which have received less public attention or which have reached a less advanced stage of development. In general, the state of technical knowledge with regard to the possibilities of low-temperature carbonisation is still very incomplete, and much more experience must be gathered before it is possible to say precisely what is the significance of this development for the coal industry.

Hydrogenation of Coal, Creosote and Low-Temperature Tar

The hydrogenation of coal is being operated in this country only by Imperial Chemical Industries Ltd. at Billingham-on-Tees. The process is quite different in every respect from low-temperature carbonisation, although frequently confused with it, and although some carbonisation processes are claimed to result in the hydrogenation of the charge to a limited extent. In the case of carbonisation the volatile content of the coal is merely removed by distillation, leaving a carbon residue. In the hydrogenation process, part of the carbon is actually converted into volatile hydrocarbons by the addition of hydrogen. The process was originally established on a commercial scale, using brown coal (lignite) and brown coal-tar, at the Leuna works of the I. G. Farbenindustrie, as a result of the pioneer work of the German chemist, Bergius. Coal-tar and oil are both composed of carbon and hydrogen (with oxygen in the case of tar-acids), but in different proportions, the carbon ratio of coal, for instance, being more than twice as high as the carbon ratio of petrol; it should, therefore, be possible theoretically by increasing the hydrogen ratio of coal to convert it eventually to petrol, which, broadly speaking, is what the hydrogenation process does. But the reaction will take place only if the whole process is carried out under the high pressure of 200 to 250 atmospheres at a temperature of 300 degrees to 500 degrees Centigrade, and in the presence of a catalyst. The evolution of satisfactory plant in view of the high pressures involved and the perfection of the catalyst, together with the fact that the motor spirit produced cannot compete economically with petroleum spirit, have been chiefly responsible for the delay in the passing of hydrogenation from the laboratory to the industrial scale. Development has been more rapid in Germany, where the Fischer process is also being developed.

Moreover, the capital cost of the plant, which includes grinding mills for pulverising the coal, for mixing with oil into a paste prior to treatment with hydrogen, owing to the exceptional quality of the materials required, is extremely high. The Billingham plant has cost approximately £3 million and the value of the existing plant used in the production of hydrogen is approximately £2½ million, so that the total capital cost is about £5½ million. This, however, is substantially more than would be required for the erection of an entirely new plant of similar output. The Billingham plant will produce about 150,000 tons of petrol per annum: 100,000 direct from coal and 50,000 from creosote and tar. The total coal consumption of the plant, including that required for heating, power and hydrogen generation, may well reach 600,000 tons per annum. It is practically impossible to say at the present time exactly how much hydrogenated petrol will cost, but it will certainly be well in excess of the price at which the natural product can be landed in the country (under 3½d. per gallon in 1934), and is more likely to be in the neighbourhood of 7d. to 9d. per gallon. The Government has guaranteed a preference of not less than 4d. per gallon for 9 years, or an equivalent total for a shorter period, on home-produced petrol. Imported petrol pays a duty of 8d. per gallon, but no duty is at present payable on petrol produced from coal, so that the present preference amounts to 8d. per gallon. At this rate, and unless it is reduced, the preference will only last for 4½ years. If it is reduced to any figure between 4d. and 8d. it will last as long as the total remission does not exceed 36d. for the 9 years period.

There is little doubt, in view of the present early stage in the development of high-pressure chemistry, that economies will be made both in capital and operating costs, and in particular the increased use of tar and creosote supplied by low-temperature carbonisation plants and by coke-ovens and gas-works, in place of coal hydrogenated direct, may result in a cheaper final product, seeing that creosote and tars are more easily hydrogenated than coal; though the supply of them is limited according to the output of the main products of

the carbonisation industries. To this extent also, and in view of the fact that low-temperature carbonisation processes are developing more and more obviously into processes for the production of smokeless fuel and not of oil, the hydrogenation and low-temperature carbonisation processes are not, as is often supposed, competitive, but rather complementary; and were a second hydrogenation plant to be laid down, which is not at all likely at the present time, there would be a lot to be said for locating it alongside a large low-temperature carbonisation plant for the purpose of using the creosote output of the latter.

Position of Low-Temperature Carbonisation and Hydrogenation as an Additional Outlet for Coal

From the point of view of the coal industry, the two processes occupy different positions. Low-temperature carbonisation, since it produces smokeless fuel, threatens to displace almost as much raw coal at present being burnt in domestic grates or used in gas-works and power stations as it will consume; as a means of producing oil on an economic basis and on a large scale it can be dismissed from consideration at the present time. On the other hand, it is perfectly possible that by working up coal into products of more specialised application and selling them separately, a higher net return might be made than by selling the coal for burning raw under conditions where many of its constituents are wasted.

Hydrogenation, on the other hand, is a means of producing oil from coal, and with an adequate amount of protection may be made to compete with imported oils, while its establishment must also be considered from the point of view of national defence. It will not compete with domestic coal, but, on the contrary, every extra ton that is used for hydrogenation will give extra employment to British miners. The extension of hydrogenation will appear desirable to a greater or less extent, according to the current view of economic nationalism and national defence, and of a policy of supporting coal mining by some measure of protection. The choice must also be influenced by economic considerations. On the basis of the experience of Imperial Chemical Industries at Billingham, which is admittedly somewhat preliminary, since it is the first plant of its kind in the country, it would appear that the capital cost of a hydrogenation plant amounts at present to about £12 per 100 gallons per annum of capacity. Imports of motor spirit in 1934 amounted to approximately 1,128 million gallons, so that the replacement of each 1 per cent of imported supplies of motor spirit by hydrogenating British coal would seem to involve an expenditure of £1,353,600 on capital account alone. To this must be added the potential loss to the Treasury, which would have to be recouped elsewhere, of the 8d. duty on imported light hydrocarbon oils, which brought in approximately £376,000 for each 1 per cent of motor spirit in 1934. Moreover, owing to the patent position the process probably could not be carried on by anyone other than Imperial Chemical Industries, so that further developments must inevitably wait upon the success of the Billingham experiment, and the financial ability of this concern to enter upon further developments. It may also be wise to recall the statement made by Sir Harry McGowan at the opening of the Billingham plant in October 1935. While stating that it was quite likely that success at Billingham would lead to the erection of similar large plants in other parts of the country, he added that the financial risk was not to be disregarded, and that "one considerable difficulty concerned the suitability of different coals, the determination of which had necessitated and would involve elsewhere much expensive research work." It is believed that Imperial Chemical Industries will be satisfied if they can write off the capital cost of the present plant out of gross proceeds in nine years.

Hydrogenation has been widely advocated as a solution for the troubles of the South Wales coal industry, and a committee has been set up with the aid of a grant

from the Commissioner for Special Areas, to investigate the question. It should, however, be fairly obvious that since hydrogenation stands its best chance of becoming economic if undertaken with a coal of low-carbon ratio (e.g. Lignite is being successfully hydrogenated in Germany, while Billingham is using Durham and Yorkshire coals of a high-volatile content) South Wales, with its very restricted supplies of bituminous coals, would be severely handicapped from the start. The same consideration applies with even greater force to low-temperature carbonisation, for which a coal of high-volatile content is essential. The South Wales coalfield contains a small volume of coal of this variety, but it is one of the few types which local coalowners experience little difficulty in selling at good prices, while South Wales as a whole is compelled to import quantities of gas coals from other districts. Moreover, as the bulk of the South Wales coal output is of anthracite and hard steam coals, which are smokeless or practically smokeless when burnt raw, the setting up of plants which would merely produce a competitive smokeless fuel as the primary product can hold little appeal for the South Wales coalowners.

While the future of hydrogenation must obviously await developments at Billingham, and is likely, in any case, to be somewhat restricted owing to the enormous capital cost and loss of revenue to the Treasury, there seems to be no reason to doubt that low-temperature carbonisation will increase in importance as a means of producing smokeless fuel. The industry is comparatively a very young one, however, and progress will probably not be achieved without some painful consequences as the efficient processes are improved and the inefficient eliminated. Since the public appears to have taken kindly to the use of smokeless fuels, and the demand is already in excess of the supply, there should be no difficulty in selling increased quantities of a satisfactory product, but whether the tonnage of raw coal consumed, and the amount of employment required to raise it, as opposed to the net return per ton, can be increased by this method for the coal industry as a whole, rather than for the locality in which a carbonisation plant is situated, is open to some doubt.

The Future Trend of Demand for Coal

This brief survey of the principal factors entering into the consumption of coal, points unmistakably to the conclusion that a large increase in the total demand of the home market cannot be anticipated in the immediate future. It is equally clear that the quality of the demand has undergone a radical change since the War, and that the coal-mining industry is being called upon to supply a very different range of products from that which was formerly in greatest demand. Even the household consumers, who are probably on the average consuming more heat and energy than ever before with the increase in the number of separate families and separate dwellings, are consuming less raw coal and more coal that has been worked up into coke, gas or electricity.

The chief consequence, in the aggregate, of these developments is that the coal-mining industry is tending to lose some of its characteristics as a purely extractive industry, and to assume some of the functions of a manufacturing industry, particularly as regards the production of screened and graded products. The sooner these facts are universally recognised throughout the industry and the sooner its policy is adapted to them, the sooner is it likely to recover some measure of prosperity. For although progress in the scientific utilisation of coal and its by-products tends to curtail total consumption by preventing anything of value in the raw coal from being wasted, this very fact makes each ton of coal more valuable, and should enable the realisation at the pithead to be raised, provided that the sales organisation of the industry is capable of exacting a fair price from the consumer.

IV. DISTRIBUTION, PRICES AND TRANSPORT

Present Organisation of Distribution

The marketing of coal from the pithead to the ultimate consumer normally involves its passing through the hands of three kinds of distributive organisation—the colliery sales department, the factor and wholesale merchant, and the retail merchant—with each of which it is proposed to deal shortly in turn. It should be emphasised at the outset, however, that one or other of these steps is often short-circuited in practice. Large industrial consumers, and particularly public utilities, frequently, and in coal-mining districts almost exclusively, buy direct from the colliery, while the larger retail merchants also buy direct from the colliery, cutting out the factor, and sell to small retailers as well as to the ultimate consumer. Finally, several collieries have set up their own distributive services and trade as merchants themselves, some of them with considerable success. Many collieries in industrial areas maintain a distributive organisation strong enough to supply small industrial consumers in the local market by road. Exporting is a specialised business, and the exporter approximates most nearly to the factor, buying from the colliery and arranging shipment to the foreign importer or consumer, although he seldom carries stocks of coal himself, unless he is also interested in the bunker trade. The character of the exporting trade has, however, been changing rapidly since the War, and the small exporter, acting as little more than a go-between, has lost ground to the large exporting firm, which is often closely associated with a group of collieries, if it does not actually control them, and undertakes the maintenance of depots and service representatives abroad.

COLLIERY SALES

Relations of Mine Management and Sales Management

Sales management in the coal-mining industry has received less attention, carries less prestige and, owing to the remuneration offered, has generally attracted a less competent personnel than the productive section of the industry. While it is not intended to suggest that the productive efficiency of the industry is as high as it might be, it is certainly relatively higher than the efficiency of the sales side. This is mainly the result of the historical evolution of the industry. In other industries the sales manager is usually allowed an important share in the responsibility for shaping the production programme, and in some industries he may even call the whole tune. In the coal-mining industry the influence of the production manager has always dominated the influence of the sales manager. The chief emphasis has been laid on the reduction of costs through the raising of a maximum output of coal; the sales manager is given the coal to sell, but has little power to control the amount of tonnage which he has for disposal. In these circumstances it is not surprising that coal is often launched on the market by a distracted colliery sales manager at uneconomic prices or that the whole policy of laying an exaggerated emphasis on productive efficiency has tended in the long run to defeat itself. Frequently when the production staff has succeeded in reducing mine costs by 1d. per ton the sales organisation will have to give away 3d. per ton in order to dispose

of the coal. Remarkable results might be achieved by the application of the factory outlook to the relationship between the production and sales sides of colliery management; it will, in fact, often be found that the most successful collieries at the present time are those which have paid special attention to the problem of selling coal. On the whole, however, the average coalowner concerns himself only with the disposal of his coal at the pithead, and indeed often appears to be incapable of caring about what happens to it subsequently. Though complaints about the level of pithead prices are frequently heard, few attempts have ever been made until recently to improve them by improving the efficiency of colliery sales management. Interest in the problems and the requirements of the ultimate consumer on the part of the production side of the industry, which is essential if right quantities of the right product are to be produced consciously, has not been very conspicuous in the British coal-mining industry, which is one of the few great raw material-producing industries of the world not to have led the efforts to improve the utilisation of its product. The impetus in this country came mainly from the consumer and the distributor prior to the foundation of the Coal Utilisation Council, of which the coalowners are members.

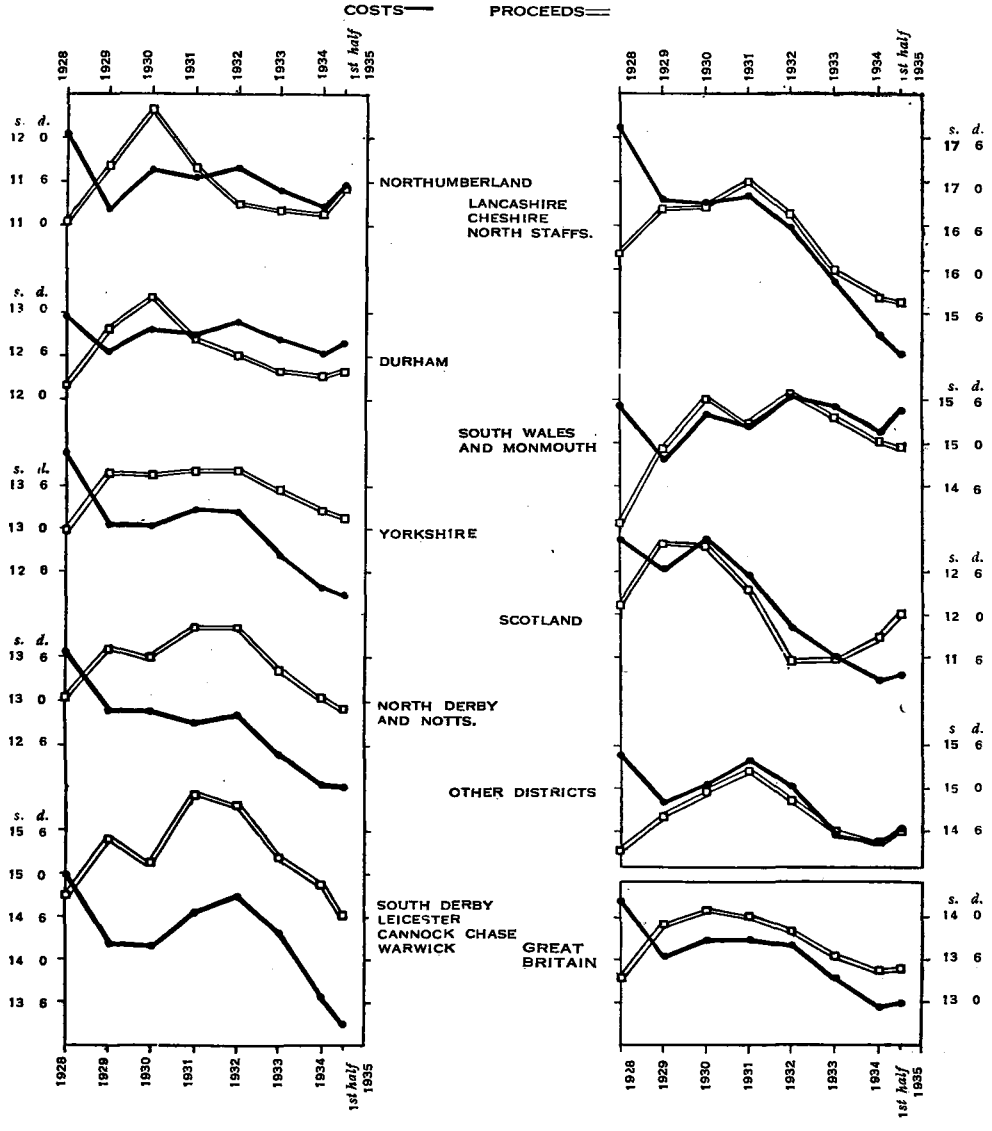
Inferior Bargaining Power of Collieries

Even if the efficiency of the sales organisation of each individual colliery were of the highest order, however, it would not avail as long as the inferior bargaining power represented by a large number of small and competing selling units is opposed to a much smaller number of strong buyers. As long as the strong buyer can play off one small colliery against another there is little hope that any colliery will realise adequate prices. This factor has operated particularly in the relationship of the collieries with the big public utility companies and large industrial buyers, while even though there is far from being any marked concentration in the distributive trade, as will be seen later, many distributors have been powerful enough to act in the same way. This factor also has been reinforced by an historical influence—the changing balance of the structure of prices within the last twenty-five years. Before the war large coal was generally considered to be of more value than small coal because of its greater cleanliness, and small coals were consequently more difficult to dispose of and had to be sold at the best prices which they would fetch. Owing to engineering progress, not only can dirty small coals now be economically consumed but they can also be made as clean as large coal by washing or dry-cleaning processes, so that they are in greater demand than large coal. The large consumers, such as electricity undertakings, have for so many years been in the habit of buying small coals cheap that it will be easily appreciated that to bring the price of small coals to these consumers to a figure which would represent a profit on the average cost of production would be a difficult operation and one which would be strongly contested by the largest consumers. Under the present circumstances the public utility companies normally buy under long-term contracts, which may represent a substantial proportion of the whole output of a single colliery, so that, as stated above, they are in a position to extract very favourable terms. Similarly, the larger merchants are in a position to use their bargaining power to the full and have, of course, done so, even to the extent, in some cases, of devising ways of breaking down minimum prices.

Effects of Price Cutting on Proceeds

The extent to which the hard-won economies in production have been dissipated in price-cutting is very evident from a study of the relationship between costs and proceeds such as is provided in the accompanying graphs:

COSTS AND PROCEEDS (Per Ton of Saleable Coal)



It is interesting to note, however, that the parallel tendency of the two curves has been broken to some extent in 1935 in the case of some of the export districts, notably Scotland, as prices have definitely improved in certain restricted markets, where a shortage of British coal has even tended to develop.

Ineffectiveness of Minimum Price Regulations

It is the weakness in the selling side of the industry and its failure to translate working economies into greater profit margins owing to the continual cutting of selling prices that is largely responsible for the unprofitable position of the bulk of the industry. Under the 1930 Act, and the minimum price provisions which it enforced, the industry was given half a chance to make more money, which would have reflected advantageously upon the scale of wages paid to the miners, but the opportunity was only taken to a very limited extent. It was only half a chance because the minimum prices as enforced by the Act were pithead prices, and if rigidly drawn penalised those collieries which were unfavourably situated in respect of markets to the extent of the additional rail rates which the purchaser had to pay. As a result, the prices were either immediately evaded, or else the minimum had to be fixed so low (as in Scotland) that it penalised nobody and was in fact practically meaningless. Attention was drawn at the time, but without avail, to the impracticability of fixing prices at the pithead, and an example of the only effective method existed, and still exists, in the system of price-fixing according to zones of delivery employed by the Rheinisch-Westfälische Kohlensyndikat.

Marketing Schemes—the Midland Scheme

Numerous attempts have been made in the past on a local basis to secure a more water-tight system by co-operation between the coalowners. As early as 1928 the West Yorkshire area sounded the local merchants on the possibility of setting up a working agreement between them, but the Coal Merchants' Federation, to whom the proposal was referred by their Yorkshire members, decided that the scheme would be better worked on a national basis and the local scheme was dropped. In accordance with this decision, the Coal Merchants' Federation re-examined the proposal in 1929 and by a large majority decided to attempt to prepare a scheme of co-operation with the coalowners of the Central Collieries Commercial Association, which has since been transformed into the Midland Amalgamated District. By 1931 agreement had actually been reached between the two negotiating bodies. The scheme set out, first, to limit the number of distributors, who had hitherto been legion; second, to endeavour to obtain more satisfactory pithead prices for house coal; third, to control the prices at which coal was sold to domestic consumers by common agreement between the producers and distributors. The scheme was, in consequence, an ambitious one and introduced two novel and much needed principles—that the limitation of the number of distributors would be most advantageous to the producing and distributing industry as a whole, and that colliery owners should take a hand in determining the retail price of coal.

Unfortunately, at the eleventh hour, the scheme was not ratified owing to the opposition of a group of London merchants who were able to prevail upon some of the coalowners to support them. Their opposition appears to have been due mainly to personal issues and an unfounded suspicion that the scheme had been put forward for the benefit of certain groups of influential distributors at the expense of their competitors. The provincial merchants were, on the whole, strongly in favour of the scheme and would probably favour its revival, since

the evils of unregulated distribution are far greater in the coal-producing areas than in London or the South-East of England, which are not affected by land sale.

The project has, however, as far as is known, never been revived nor has any other district put up a scheme so comprehensive or ambitious.

The Lothians Agreement

There are, nevertheless, two schemes in existence whereby the whole of the district output is centrally marketed. The first operates in the Lothians district of Scotland, and the second was brought into operation by the coalowners of Lancashire and Cheshire on July 1st, 1935, by an amendment to the district scheme under the 1930 Act.

The Lancashire Associated Collieries Scheme

Since the Lancashire scheme is likely to serve as a model for many of the central selling organisations which all the other districts have agreed to create before July 1st, 1936, it may be appropriate to describe it in some detail.

The object of the scheme is to eliminate internal competition and consequent waste through the establishment of a single selling agency, and the desire solely to raise prices has been officially disowned. That is to say, the Board does not intend to raise the price of house coal to household consumers, which, it concludes, with every appearance of justification, is already quite as high as the market will bear, although it would welcome an improvement in prices for sales to industrial users and public utilities, in which severe price-cutting has taken place. It may be added that in spite of this resolution Lancashire Associated Collieries, in December 1935, raised the price of house coal by 1s. 8d. per ton in order to provide the wherewithal to give an immediate increase in wages to the men. This decision, it may be imagined, was taken with reluctance, and it will be for the good of the industry in the long run if similar increases—the necessity for which is dictated by the pressure of immediate events—were made with similar reluctance in other districts. It is imperative that the raising of the price of house coal should be regarded as a temporary measure in an emergency, to be removed as soon as possible, since the effects on the volume of consumption may otherwise be serious.

The Executive Board in Lancashire has wide powers—it can cause an owner to limit his output below quota, and to pass on the balance of his quota to another owner, though compensation is paid to an owner in respect of any deficiency in the amount of coal taken from him by the Board below his trade share, determined according to his results in the year 1934. Receipts by each undertaking in 1934 are taken as a basis for determining the prices paid by the Board to the owner for the purchase of his coal, and the profits made on the sale of coal are pooled and divided between the participating undertakings on a tonnage basis.

The executive Board may enter into agreements with factors, merchants, dealers and other colliery districts—the latter an important point, as the chief difficulty which any such scheme has to face is that of inter-district competition. The scheme covers fifty-one colliery undertakings, employing over 50,000 men, and having an annual output of thirteen million tons.

In the absence of other similar bodies operating on behalf of other coalfields, the Lancashire scheme might have been severely tested by the competition of other districts and little improvement in prices might have been possible, for although the Board is fully empowered to enter into agreements with other colliery districts, it is difficult to negotiate with bodies that have no head.

Since the miners' wage application was made in the autumn of 1935, however, all the other colliery districts have agreed to prepare central selling organisations as a means of improving the financial condition of the industry to the extent where a general wage increase will be possible. As the position stands, the districts are obliged to bring schemes before the Government as soon as possible, and in any case they must come into operation not later than July 1, 1936. It was announced at the end of January 1936 that South Yorkshire owners had already formed a South Yorkshire Collieries Federation with this object.

Advantages of Central Selling Organisations

The advantages of a well-organised and efficiently operated central selling organisation in each district may be summarised as follows:

(i) It should enable a more reasonable balance of prices to be secured by raising the bargaining power of the industry.

(ii) It should raise the sales efficiency of the industry from the standard of the lowest to the standard of the highest of its existing members. In some cases it may be impossible to find men of sufficient calibre and experience in sales management on a large scale to operate the district schemes efficiently; it may be necessary for the coalowners in a district faced with this problem to appoint men who have had experience of the organisation of large-scale selling in other industries.

(iii) It should lead to inter-district agreements and the elimination of inter-district competition and perhaps eventually to the partition on an agreed basis of the contested markets of London and the South of England.

(iv) It should render minimum prices at the pithead unnecessary, since prices will, in effect, be fixed according to zones of delivery.

(v) It should lead, on the lines of the abortive Midland agreement, to the negotiation of agreements with local distributors with a view eventually to tackling the redundancy problem in the distributive trade. It is believed that some progress in this direction has already been made in Lancashire.

(vi) It should greatly encourage the amalgamation of companies and the concentration of production. Under the 1930 Act a pit acquires the right to produce a certain standard tonnage, but there is no certainty that it will be able to sell this tonnage or that it will be able to sell it at any particular price. Anyone who acquires that pit acquires a right to produce but not the ability to sell. Under the Lancashire scheme each participant receives what is in effect a market quota, since the Board undertakes to compensate him in respect of any deficiency in the amount of coal taken from him below his trade share in 1934. Anyone who to-day buys out a colliery company in Lancashire can consequently do so with the knowledge that he is buying a definite share of trade. In these circumstances there will be a definite incentive to companies which are working a small output at a high profit margin to acquire companies working a large output at a smaller margin, and the transaction can be satisfactory to both sides.

Essential Features of Central Selling Schemes

It cannot, however, be sufficiently emphasised that these advantages only stand a chance of being achieved if genuine central selling organisations are set up. There may be an attempt in certain districts, where individualism is strong and suggestions for co-operation or reform

from without have always been resented, to substitute for genuine central selling organisations schemes merely for the central control of sales. Schemes of this sort would be likely merely to involve the partitioning of orders among the constituent members by a board or committee, leaving the actual selling, and perhaps also the collection of orders, to the existing colliery sales organisations. It is not necessary to enlarge upon the administrative difficulties of a scheme of this kind, involving, as it would, the task of allocating orders carrying varying margins of profit, or none at all, or to do more than point out that where the actual sales are left in the hands of individual collieries any attempt to maintain some sort of a minimum price is likely to be doomed at the outset.

It is probable, as has already been mentioned, that schemes of this sort will be put forward on such pleas that present commercial contacts must be maintained in order not to lose the goodwill of customers. In view of the shortness of the time in which the Government has pledged itself to see central selling organisations universally adopted, the future must accordingly be regarded with some misgiving, for to secure the adoption of sufficiently comprehensive schemes involving genuine central selling and the pooling of receipts, against the expressed wishes of a district, would probably necessitate new legislation.

Central Co-ordination of Schemes

In the second place, in order that district central selling organisations should operate efficiently and harmoniously it is imperative that there should be a national supervisory body charged with the co-ordination of their activities and matters of general policy. Such a body would obviously consist predominantly of the district representatives of the coalowners, but it would be immeasurably strengthened by the inclusion of representatives of the distributors and of a number of independent members or representatives of leading consumers.

There are certain matters of general policy which require to be considered on a national basis and on which agreement is essential at the outset if the central selling schemes of the various districts are to work successfully and in harmony with each other. These problems are discussed in greater detail in the next few pages.

(I) PRICE POLICY

When the industry has hitherto had reason to raise prices, it has generally singled out the consumer of house coal for treatment in this way. This has been due mainly to the fact that the consumer of house coal is practically the only consumer of coal who has not had an advantage over the colliery in respect of bargaining power. The effect on the structure of prices is visible even in the export trade, as the figures on the following page show.

Price of House Coal

The price of house coal in the inland market has, however, increased much more heavily. In the two years before the War the range of retail prices was roughly from 21s. or 22s. per ton for stove nuts, up to 28s. per ton for best house coal. In January 1936, including the increases imposed as a result of the wage negotiations, the prices of similar classes of coal ranged from 40s. to 55s. per ton. The price of anthracite nuts stands at about 75s., compared with a pre-war level of 24s.

AVERAGE DECLARED VALUE PER TON F.O.B. OF THE PRINCIPAL CLASSES OF COAL

	Shillings per Ton			Index 1913 = 100		
	1913 s. d.	1929 s. d.	1934 s. d.	1913	1929	1934
Anthracite						
Small	13.1	8.1	8.0	—	—	—
Sized		31.2	31.4	—	—	—
Large	17.8	30.4	33.7	100	172	190
Steam						
Small	10.1	11.9	11.1	—	—	—
Sized		15.4	13.1	—	—	—
Through and Through	12.5	14.8	14.7	100	118	117
Large	15.5	17.6	16.9	100	113	109
Gas						
Sized	*	15.0	14.1	—	—	—
Through and Through	12.4	14.8	14.4	100	119	116
Household						
Large	13.6	20.3	19.5	100	150	144
Other Sorts						
Small	*	12.6	12.1	—	—	—
Through and Through	12.4	14.2	13.0	100	115	105

*Pre-War figures not available.

Very roughly, there has been an increase of 100 per cent in the retail price of house coal over the last twenty-five years. Since average proceeds per ton of coal disposable commercially at the pithead have risen only from 10s. 1½d. in 1913 to 13s. 4½d. in 1934—an increase of approximately 33 per cent—it is fairly obvious that the household consumer has been made to bear the brunt of the increase. There has, in fact, been a strong tendency in the industry in the matter of price policy to follow the line of least resistance, and there is no doubt where part of the responsibility for the displacement of raw coal as a domestic fuel by an increased consumption of gas and electricity should be placed. As a long-term policy, the persistent raising of the price of coal to that section of the market where the demand is most elastic and most vulnerable to the competition of other fuels can have nothing to commend it.

In order to provide the industry with a fund from which to pay an immediate increase in wages, a further increase in the retail price of house coal, varying from 1s. 8d. to 2s., and in excess of the normal seasonal increases, has been made since the beginning of 1936. It may well be that the industry has made this increase in all good faith as an emergency measure and with the honest intention of removing it as soon as circumstances permit. But there will be some temptation to make the increase permanent which, in the long-period interests of the industry, should be strenuously resisted.

Sales to Public Utilities and Industry

In order to facilitate the eventual reduction of the price of household coal, or at any rate to prevent any further increase, and in order to bring about a better balance in the price structure, it should be one of the first functions of the central selling organisations to be set up to secure a moderate all-round improvement in the price received for industrial coals. Such

a policy may be regarded in some quarters with misgiving lest it should so increase production costs in other industries as to affect trade activity or encourage the substitution of other fuels. In order to allay any anxiety in this connection it may be pointed out that over a very wide range of industry the demand for coal is inelastic in a high degree, and the effect of the cost of fuel on the price of the final product is practically negligible. An average increase of 1s. per ton in the pithead price would make a very great difference to the coal-mining industry, where the average profit per ton at the pithead was only about 5d. in 1934. Even in the gas industry, which uses coal as practically its only raw material, and where an increase of 1s. in the price of coal would cost a gross amount of £860,000 per annum, the increase would be spread over sales amounting in 1934 to 290,664 million cubic feet and over 10,277,010 separate consumers. At this rate the additional cost of gas per consumer consequent upon an increase of 1s. per ton in the price of coal works out at approximately two-thirds of a penny per thousand cubic feet, or one-sixth of a penny per therm, or, on the average, 1s. 8d. per consumer per annum, assuming that the whole of the increase is borne by sales of gas and no advance is made in the price of coke or by-products.

(2) CO-ORDINATION OF DISTRICT PRICES

Prevention of Inter-District Competition

In order that the proceeds of price increases over part of the market may not be dissipated in more intense competition in other sections, and in order that central selling organisations should not be made the means of securing increased sales by one district at the expense of another, it is imperative that a national controlling body should be set up to co-ordinate the price policies and generally to supervise the activities of the various central selling organisations of the various districts. Since such a body must concern itself with the price of coal to the ultimate consumer, it would be desirable for distributors to be represented on it and for it to contain a substantial leavening of independent members representative of consumer interests and to be presided over by an independent chairman. One of its first functions should be to supervise the institution of frontiers between their respective sales areas by agreement among the various central selling organisations, for example, between Lancashire and Yorkshire. Within each area it seems probable that one price will be fixed for each grade of coal by agreement with the distributors, as is, in fact, intended under the Lancashire scheme. But the problems both of export sales and of sales to other inland markets, notably the markets of London and the South, in competition with other districts, will still remain. In this connection the marketing system employed by the Rheinisch-Westfälisch-Kohlensyndikat is relevant to the marketing question in Great Britain.

The R·W-Kohlensyndikat Marketing System

Under this system the syndicate responsible for the sale of all coal from the Ruhr coalfield, which corresponds to a district central selling organisation in Great Britain, fixes one price for all sales to "non-contested areas"—that is to say, those areas which are protected by the influence of rail freights from competition from other coalfields—and from the proceeds of a levy on these sales assist sales in the "contested areas" and in the export market. As may be imagined, competition in the "contested" areas has been intense in the past, but has generally

led to agreement between the competitors (which means virtually the gradual extension of the non-contested area) as exemplified by the agreement reached in 1934 between the Ruhr and Aachen districts.

It is not certain how far this system would be appropriate to Great Britain, where the haulage distances are shorter and the influence of freight charges on price consequently less. It is, however, clearly desirable that inter-district competition should be limited to those areas such as London and the South-East, which are by nature both competitive markets, owing to the absence of neighbouring coalfields, and high centres of demand; and that the recurrence, for instance, of the competition of Scottish coal in Lancashire should be prevented, as far as is consistent with the ability of local coalfields to supply the requisite qualities.

It may be desirable, therefore, that the central selling organisations should introduce a system of zoning, based upon rail-haulage charges, in fixing their selling prices; this would no doubt eventually facilitate agreement between the coalfields supplying, for instance, the London market, to divide that market between them in certain fixed proportions.

(3) CO-OPERATION WITH DISTRIBUTORS

Although it is not essential to the immediate successful working of the scheme, it is urged that the co-operation of distributors should be sought at the earliest opportunity by the central selling organisations on the lines of the abortive attempt of the Midland District in 1931. The large margin between the pithead price and the retail price of coal has been the subject of frequent comment within and without the industry, and it has been almost as frequently ascribed to the cupidity of the distributors. To the extent that this is so, the organisation of the producers into stronger units should prove capable of immediately removing the cause and by this method improving the pithead price of coal. It is strongly believed, however, that this is not so to any appreciable extent, and that the wide margin between pithead and retail prices is due to the extreme inefficiency of the distributive trade taken as a whole and to the excessive number of distributors and not to excess profits on the part of individual distributors. The large profits which certain distributors have been able to earn are in the main the reward of good and efficient management in a trade where these qualities are usually absent. While there may be a case for a moderate rise in the price of coal to the consumer in the first instance, any continuation of the tendency would almost certainly act to the disadvantage of an industry for the product of which the demand in the long run appears to be declining. Accordingly, if any substantial increase in the pithead price is to be achieved, it can only be achieved by the elimination of many of the inefficiencies of the distributive trade; and it is strongly urged that the producers should at an early stage use their power as united sellers to force reorganisation and concentration in the distributive trade with the object of raising the pithead price and ultimately reducing the price to the consumer as well. It is believed that this ideal could very nearly be achieved, and in any attempt to do so the producers could certainly count upon the support of the leading distributors, who have for many years been fighting against the results of unlimited competition and inefficient methods in the distributive trade.

For this reason it seems desirable that some of the margin to be obtained from the reorganisation of the distributive trade should be employed in the first place in the improvement

of service to the consumer which many distributors recognise as essential if the present market for raw coal is to be retained, and still more so if it is to be increased, though they have been unable so far to put this policy into practice owing to the intensity of competition in the trade.

In order to illustrate some of the aspects in which the distribution of coal is in urgent need of reform, the following section examines shortly some of the principal features of the present system.

WHOLESALE AND RETAIL DISTRIBUTION

Number of Retail Outlets

One of the difficulties in examining the distribution of coal, as with all the distributive trades, is the almost complete absence of representative statistics. In these circumstances it is only possible, with a few exceptions, to outline existing conditions in general terms.

It was stated before the Sankey Commission in 1919 that there were at that time not less than 27,000 retail coal merchants in the country. It is unlikely that the total has diminished since that year, and in some districts the number is known to have increased. The Coal Merchants' Federation, which probably covers more than 50 per cent of the tonnage handled, certainly does not include more than 10 per cent of the total number of distributors. A recent investigation covering between 11,000 and 12,000 merchants showed, as far as could be ascertained, that only about 70 per cent of the firms investigated handled a tonnage in excess of 50 tons per quarter. Less than 8 per cent did a business of more than 2,000 tons per quarter, and only approximately 2 per cent had a turnover of more than 10,000 tons per quarter. It is therefore obvious that the number of very small merchants is very large indeed. Wholesaling is naturally in fewer hands, and the larger retail merchants in fact do their own wholesaling, which consists of buying and transporting coal from the colliery, storing it in central depots, for distribution to the smaller retailers and delivering direct to industrial users. The business of wholesaling requires considerable capital to be locked up in wharves, barges, tugs, wagons, and unloading and rescreening plant, and involves considerable overhead expenses in rent and maintenance of sidings, depots and other capital assets.

Competition of Small Hawkers

The business of retailing, on the other hand, if carried out on a minute scale and without regard to providing satisfactory service to the consumer, can be carried on with practically no capital at all. All that is necessary is a lorry, which can be borrowed or hired, a small number of bags and sufficient capital or credit with a factor to buy a single truckload of coal. There are, in consequence, a great many so-called coal merchants who come into the trade, often seasonally, with a capital of £20 or £50, and hawk coal, often of indifferent or unsuitable quality, around the streets, sometimes giving short weight and selling under false descriptions, but nearly always undercutting the reputable merchant by reason of their low overhead costs and rudimentary conception of service to consumers. The large retail merchant handling his own supplies from the colliery, and concerned with supplying consumers in any area with a level and suitable product, is forced to maintain depots and re-screening plant and generally to keep on the road a much larger fleet of vehicles than the size of his turnover would otherwise justify in order to be able to meet the competition of the small hawker over the area in which he sells.

The situation is aggravated in two ways. In the first place, the hawker of doubtful origin and business morality can nearly always find a factor who will supply him, even though he may habitually default on his payments, owing to the competition between factors and the dislike of the small factor for the large retail merchant who does his own wholesaling. In the second place, the maintenance by colliery companies of landsale depots, where all comers can buy for cash and cart away loads of coal at pithead prices, is, of course, a heaven-sent opportunity for the small hawker, and explains why this problem has assumed serious proportions in the mining areas, important though it may be in London and the South. Incidentally, this practice illustrates effectively the apathy of many coalowners to distributive questions. It is difficult to see why colliery owners, in their own interests, continue to sell coal virtually direct to small consumers at the same price at which they sell it to large distributors for retail in distant markets.

Prevalence of Short Weight and Misdescription

The elimination, or at any rate, effective control of the coal-hawker would be welcomed in quarters outside the distributive trade. A high percentage of the prosecutions for short weight concerns coal sold off lorries or carts in the streets, and it is understood that the Incorporated Society of Inspectors of Weights and Measures would have no hesitation, in the interest of protecting the public from continual frauds, in recommending the licensing of all retail distributors of coal annually by local authorities under the Weights and Measures Act, and the vesting in the Courts of power to suspend the licence of any person convicted of fraudulent practices.

Profits of Coal Merchants

There is not much doubt that the concentration of the distributive trade in fewer hands would be productive of considerable economies. At the present time a few of the larger merchants are making substantial profits on large, though declining, turnovers, mainly as a result of efficient management. Their experience does not, however, appear to be typical of the trade as a whole, where excessive individual profits are not being made on the average; and their large profits are probably due to the fact that over the greater part of the trade under present conditions a large margin between pithead and retail prices is necessary in order to enable an excessive number of small merchants to make a living out of the trade at all. For while individual profits may not be large absolutely, small merchants continue to make a living out of businesses showing an extremely small turnover which would not provide a living if the margin was a reasonable one.

In the popular imagination the distributor of coal is sometimes pictured as a middleman who provides no useful service but exacts a heavy toll on the consumer. In fact, if he provides the facilities and services which modern consumers and modern methods of coal-utilisation demand, his costs and responsibilities are considerable. The wholesaler is engaged in purchasing coal from the pithead and transporting it by rail or water to wholesale depots in the neighbourhood of large consuming areas, where it is held at the convenience of retail merchants or else delivered immediately by rail or water, or more recently by road, to the works of large industrial consumers. For this reason the coal factor is often of necessity a wagon-, barge-, or ship-owner, he has to maintain sidings, wharves and other storage space and unloading and screening plant for the convenience of his customers. Moreover, it is not often realised that there is a very considerable physical loss of coal in transport through breakage, apart

from pilferage, which is not negligible. In fact, in the case of sized or house coal as much as 5 cwts per ton may be lost through breakage as slack, which is only saleable at much reduced prices, and of course necessitates screening in order that it may be removed. The more progressive distributors are also occupied in blending different types of coal in order to provide the most suitable product for the exact requirements of different consumers, while there has been a recent development of the use of crushing plants in order to supply pulverised fuel to small industrial consumers.

Costs of Coal Distribution

Enquiring into the costs and profits of six wholesale merchants, the Samuel Commission in 1925 revealed that gross profits per ton averaged (for a mean of three post-war years) 13.8d. per ton, the average sale price being 26s. and the average buying price 24s. 10.2d. Of this margin expenses absorbed 7.8d., leaving a net profit of 6d. prior to the remuneration of directors, managing directors and partners. The Co-operative Wholesale Society, which does a considerable factoring business on behalf of its members, worked in 1924 on a gross profit of only 7.6d. per ton, with expenses of 4.6d. per ton and a net profit of 3d. It was pointed out, however, that the turnover of the C.W.S. was about twice as large as the average for the six merchants and that it was dealing with an assured clientele with no bad debts; and it was reported by the accountant to the Commission that some of the largest factors whose accounts were examined for the year ended June 30, 1925, were doing business for a net profit of 3½d. to 4½d. per ton.

Turning to the experience of retail traders, the Samuel Commission examined the accounts of six London merchants for a financial year ended in 1925, and discovered the margin between the wholesaler and the ultimate consumer to be no less than 10s. 8½d. per ton, of which net profits absorbed 6½d.:

	s.	d.	s.	d.
Cost at depot			35	3
Expenses				
Cartage*	5	7½		
Establishment and clerical				
Salaries	3	6¼		
Other	1	0¼		
			10	2
Net Profit			0	6½
Selling Price			45	11½

* Presumably includes bagging

In this case the margin of the co-operative societies appears to have been rather greater than that of the retail merchants, though their coal was obtained much more cheaply in the first instance so that the retail price was somewhat lower.

These figures are long out-of-date, but nothing more recent is available, and the position may not have changed substantially. It is believed, however, that there has been a tendency for distributive costs to increase in London, and probably also in other high centres of population, owing mainly to the more pronounced seasonal tendency of the trade in recent years and to the continued decline in the average storage capacity of household consumers which has resulted in a demand for more frequent deliveries of smaller quantities at each time.

Sheffield quotations for Yorkshire and Derbyshire house coals at the beginning of 1936

ranged approximately from 22s. to 25s. on rail, their price on the London market being from 48s. to 50s. per ton retail. There is, therefore, reason for believing that the distributive margin may have increased since the date of the Samuel Commission's enquiry, although the selling price in this case is the retail price for house coal, and does not, like the Commission's figures, represent the average realisation of the merchant, which is certainly lower owing to breakage in transit and losses on slack. Similarly, it is not improbable that with the fall in average turnover the profit margin per ton of the distributor has also increased. It may be very considerable in the case of the retailer doing a small and sporadic trade and having few overhead costs.

With distributive costs at this level it should not be difficult to indicate several directions in which important economies could be realised in the distributive process, enabling the price at the pithead to be raised appreciably without increasing prices to the consumer, and at the same time allowing the standard of distributive services to be much improved.

The chief reasons for the high distributive costs of coal may be stated as follows:

(i) Railway rates are considerably in excess of the levels ruling before the War, owing to a number of circumstances.

(ii) The merchant with established depots suffers from high overhead costs, as represented by rent of railway sidings, permanent labour staff and maintenance of vehicles, whose incidence tends to increase with each decline in turnover.

(iii) The number of existing distributors combined with the competition of collieries selling direct and the activities of itinerant hawkers is diverting funds which should be spent on improving the standard of service and reducing retail prices to maintaining an excessive personnel in the trade.

These factors may be examined shortly in turn.

(I) THE TRANSPORT AND HANDLING OF COAL

Railway Rates

Railway rates for coal transport are indubitably higher than before the War, being, for instance, 10s. per ton or more for the haulage of coal from the Midland coalfield to London, a rate representing an increase of about 40 per cent above the pre-war charge. The reasons for these high charges are many and various, some of them originating with the coal industry and some with the railways themselves. The principal cause, as indicated by the Samuel Commission, has been the rate of wages and conditions of work of railway employees. It is probable, however, that within the last five years of depression, the railways have achieved considerable economies in labour costs, particularly in the matter of thinning out redundant staff. On the other hand, the probable success of the railway companies in getting their rating assessments reduced, which seems inevitable after the success of the Southern Railway's appeal to the House of Lords, jeopardises the rebates that have been paid on heavy traffic out of the Rebates Fund, and government assistance may be necessary if the rebates are to be continued.

High labour costs on the railways are not, however, the only cause of high freight rates. Among the most important of the remaining causes may be mentioned the very large number

of trains necessary to distribute a relatively small volume of coal and the excessive amount of shunting necessitated by the large number of consignees and consignors.

The question of the optimum size of wagons and of wagon ownership has been the source of endless debate and disagreement in coal and transport circles, so that only the main arguments need be summarised here.

In order to appreciate all the aspects of the controversy it is necessary to understand the function which the railway wagon performs in the distribution of coal. It is not merely the means by which coal is transported from the producer to the consumer; it provides also the only economical method of storing coal for the industry and for the colliery-owner. This will be understood when it is pointed out that the cost of putting coal on the ground and taking it up again may work out as high as 2s. per ton.

The Case for and against the 20-Ton Wagon

There were at the end of 1928, the latest year for which figures are available, over 754,000 wagons in use on the railways, of which 80 per cent, or about 600,000, were of 8 to 12 tons carrying capacity. The Samuel Commission was impressed with the economies in transport which would be effected by the introduction of 20-ton wagons, which have long been in use in the export trade on the North-East Coast. Furthermore, the first report of the Standing Committee on Mineral Transport has recommended the general adoption of 20-ton wagons without reservation on the two grounds of reduction in transport costs and increased storage capacity of sidings. It is, in fact, the case that a 20-ton wagon, while having a capacity 100 per cent greater than a 10-ton wagon, is only 33 per cent to 50 per cent heavier in tare, 16 per cent to 30 per cent greater in length, and shows such a reduction in resistance when running that a locomotive can haul at least 10 per cent more gross load, which means 25 per cent more coal per train. Moreover, shunting work is reduced, owing to the fewer number of wagons, is more rapid and less expensive, the capital cost per wagon is not more than 50 per cent greater, representing a total capital saving of 25 per cent per ton of capacity,* and the distributor can carry on the same volume of business from a much smaller yard and so save rent, owing to the greater storage capacity of sidings. Railwaymen would probably agree that the universal adoption of the 20-ton wagon would enable haulage charges to be reduced by anything up to 10 per cent, representing roughly one shilling per ton on coal consigned from the Midland district to the London market.

There is no doubt that on this evidence the case for hastening the introduction of the 20-ton wagon is a strong one on technical transport grounds. For this reason, the adoption of the 20-ton wagon has been encouraged by the railways. It has long been the standard method of transport for export coal in the railway's wagons in Northumberland, Durham and the North Riding, where it was accepted without any pecuniary concession by the railway company. In South Wales the Great Western Railway has, since 1923, given a special 5 per cent rebate on all "coal class" traffic conveyed over their system in 20-ton wagons, and since 1925 has introduced preferential charges for tipping and weighing coal at their docks when conveyed in wagons of this type. The Company has also built several thousand wagons of this type which it hires to local coalowners on favourable terms, with option to purchase.

Objections have, however, been raised in the distributive trade, where it is said that dealers cannot always take as much as 20 tons at a time. This is a feature of the distributive

* i.e. if a 10-ton wagon costs £140 and a 20-ton wagon £210, the costs per ton of capacity are £14 and £10½ respectively.

trade which, for reasons already touched upon, requires to be eradicated at an early date. It is also said that the amount of breakage in 20-ton wagons is greater than in wagons of smaller capacity, but this does not appear to have been an insuperable obstacle to their introduction on the North-East Coast, though much of this trade is in gas-coals and bunker coals, where the avoidance of breakage is not a matter of first-rate importance.

Practical considerations also make the immediate and universal introduction of 20-ton wagons impossible except at a considerable capital cost.

More than 50 per cent of the collieries in the country are unable to use 20-ton wagons owing to the height of existing screening and loading plants or the radius of curves. The capacity of the ports to deal with 20-ton wagons is limited, though many shipping appliances have been reconstructed or replaced in recent years at considerable capital cost. It was estimated by the Standing Committee on Mineral Transport that the cost of altering all pit facilities (so far as they can be altered) would not be less than £2½ millions. The complete capital cost of alteration was estimated by the Standing Committee at £8.75 millions, including £1.25 millions for private port facilities, £2.4 millions for railway dock alterations, £0.1 millions for alterations to railway stations and £2.5 millions for the adaptation of private sidings.

When the amounts that are being spent on the standardisation of frequencies on the grid are considered, this does not seem to be an excessive price to pay. The Treasury has guaranteed a loan of £27½ millions to be spent on capital development by the railways, and it is hoped that some of this amount will be allotted to this purpose. For while it is clear that under present conditions 20-ton wagons are not suitable for all classes of traffic, greater use would undoubtedly be made of them if the facilities were available and if all the railways were prepared to hand on some of the economies achieved by their use in the form of a rebate to users, as in South Wales.

Wagon Ownership

The question of the optimum size of railway wagons must also be dealt with in connection with the present system of wagon ownership. This, like so many features of the economic organisation of British industry, and especially of the coal industry, is the result of haphazard growth rather than genuine economic expediency, dating from the early development of the British railway system when transport users were obliged to provide their own rolling stock.

The number of merchandise and mineral vehicles owned by the railways in 1928 was 705,500 (reduced by 1933 to 647,000), in which year there were also 638,215 privately-owned wagons. Out of a total of 754,000 mineral wagons in use in 1928 nearly 579,000 were privately owned. Of these only 0.3 per cent were of 20-ton capacity compared with 13½ per cent of the railway-owned vehicles. Under a system of private ownership this situation is practically inevitable. The chief economies resulting from the introduction of 20-ton wagons are in haulage costs and go therefore to the railway companies, and (except on the Great Western) it cannot be anticipated that these will be handed back in reduced freight charges until the bulk of the coal traffic is carried in vehicles of this type. The reduced capital and maintenance cost per ton of capacity alone is not sufficient to induce colliery companies to scrap and replace existing small-capacity wagons which are still capable of being used; and, in spite of the increasing age of the latter, there are, in fact, very few new wagons being built. The average life of a wagon is about 30 years, and many at present in use are much older than this.

Uneconomic Working of Wagons

The 754,000 wagons in use in 1928 were employed to transport about 186 million tons of coal—an average of less than 250 tons per wagon—for an average distance per trip of 42 miles. There are, according to the Standing Committee on Mineral Transport, more than 5,000 separate wagon-owning and operating concerns and 57 different types of private wagon, many of them now 30 years old. It must be remembered that, as stated above, the wagon is also the chief means of storing coal, both at the pit and at the distributor's depot, and that the coal trade is highly seasonal, for which reason sufficient wagons must be maintained to deal with the peak load. Yet the Standing Committee reports that:

> "The average wagon in private ownership makes only two round trips per month and that the average for the wagons of factors and wholesale merchants is little over 1½ round trips. Even for colliery-owned wagons, the best result (South Wales) was only slightly over 3 round trips obtained in the month of May."

It is clear from this evidence that railway wagons employed in the coal trade are actually running for only less than one-third of their life and spend the remaining two-thirds standing still either under load or empty. This compares unfavourably with transport conditions in other countries, and much time is obviously being wasted under the present system of separate ownerships in shunting wagons according to ownership and destination, a task immensely complicated by the large number of consignors and consignees.

Moreover, the Standing Committee discovered that the wagon spends, on the average, one day in twenty-six undergoing repairs. These repairs cannot be centralised effectively, as they would under railway ownership. In addition, there are 57 different types of private wagon in use, and although some standardisation has taken place as regards underframes, there is a considerable variety of fittings and in methods of unloading.

Effect of Quota System

In fairness to wagon-users it must be admitted that the working of collieries under quota has played a large part in recent years in the inefficient utilisation of railway wagons. Collieries often shut down at the end of a month owing to exhaustion of their quota allocation and large numbers of empty trucks not only remain idle waiting to get into collieries but also cause congestion and prevent the easy working of other empty and loaded wagons, while the necessary use of wagons for storage purposes will always have an adverse effect on operation.

The Common-User System

That the railway companies would appreciate the universal adoption of a common-user system is evident from the fact that the Great Western allows a rebate of 2¾d. per ton for all coal carried in common-user wagons, while the whole of the output of the Kent coalfield is dealt with by the Southern Railway on the common-user system, which has also been employed for many years on the North-East Coast.

The resistance of many wagon-owners to the adoption of the common-user system seems to be mainly ascribable to an insensate jealousy of other wagon-owners and a fear of them profiting in the event of a sudden revival of coal demand. Yet there can be very little doubt that a common-user system, involving the use of far fewer wagons than at present, could achieve some substantial economies in distribution.

Unfortunately the ideal is somewhat far removed from the immediately practical. The railways can hardly be expected to purchase outright, at prices which the present owners

would be willing to accept, the whole of the present privately-owned wagons, many of which would have to be immediately scrapped. Time, however, is working on the side of unification of ownership. Even as long ago as 1925 the Samuel Commission found that four-fifths of the existing wagons were 20 years old and over, and the efficient life of a wagon is probably not more than 30 years.

From the point of view of the individual wagon-user, moreover, there is this much to be said for private ownership—that wagons often afford the cheapest means of storing coal and that it is seldom possible, except in times of very brisk trade, for a colliery to despatch all its coal every day. If demurrage charges are enforced strictly on common-user wagons, private ownership may pay indirectly even though the wagons run badly.

Reorganisation of Coal Transport

It would nevertheless seem to be a useful development on balance if all wagons that have to be replaced should be replaced by the railways and run on the common-user system. As far as possible, the 20-ton wagon, and in any case probably the steel wagon, should be introduced, though it may be remarked that as long as a large proportion of the terminal facilities are unable to deal with 20-ton wagons, no great economies need be expected in the necessary amount of shunting and sorting.

As a preliminary step, every encouragement should be given to the pooling of wagons by private owners such as has already taken place in certain districts. It is believed that in some cases the economies in operation have been wholly retained by the railway companies and not handed on to the collieries in reduced charges. This is largely a matter of bargaining between the two parties, and the institution of central selling organisations should improve the position of the wagon-owner in this respect and thus stimulate the extension of wagon-pools.

Economies in the handling of wagons would undoubtedly accrue to the railways, and some reduction in rates might be made if it were also possible to reduce the number of consignors by the concentration of the distributive trade.

(2) DISTRIBUTIVE COSTS AND TURNOVER

The effect of competition through the multiplicity of very small units in the distributive trade upon distributive costs is more serious than is usually imagined. Even in the Coal Merchants' Federation, which represents the larger distributors engaged in the trade, the great proportion of the members probably do not control more than two depots each. A firm with a turnover of 5,000 tons per annum is considered to be in a fairly big way of business, while a turnover of 500 to 1,000 tons per annum is probably about the average for all dealers. The overhead costs of coal distribution are high and grow very much higher if the distributor attempts to provide reasonably efficient service to the consumer. Consequently, at the present time, many distributors of progressive inclinations find themselves financially incapable of undertaking on a sufficient scale additional functions such as suitable advertising and the provision of technical advice to both industrial and domestic consumers, which are in fact essential to the efficiency of the industry and to the retention of the present market for coal owing to the more exacting demands of the present-day consumer.

The effect of variations in turnover upon the overhead costs of such essential services as bag-filling and delivery is very considerable. On a weekly turnover of 20 tons bag-filling

might work out at about 3s. 6d. per ton and delivery at about 8s.—together round about 25 per cent of the retail price. If turnover is increased to about 60 tons these charges might be reduced to about 2s. 6d. and 4s. 6d. respectively and if to 100 tons per week about 1s. 3d. and 3s. respectively, or nearly one-third of the first figure. Even these figures would only account for such overhead charges as are involved in maintaining the necessary labour staff. It is probably no exaggeration to say that if the distributive trade were concentrated into units handling not less than 5,000 tons annually, which is itself not a very considerable turnover, the distributive margin could be widened by an amount of two to four shillings per ton, which would be available for increasing the return at the pithead, for improving service to the consumer, or for a reduction of the retail price as well.

(3) CONCENTRATION OF THE DISTRIBUTIVE TRADE

Improvement in the service offered to the consumer is one of the most urgently necessary improvements in the organisation of the distributive trade, and should be given an early claim to the proceeds of any economies realised in distributive costs. Improved service to the consumer has been supplied for some time by the largest distributors, who have maintained scientific staff to advise on fuel utilisation problems and have undertaken experiments, for instance, on the blending of coals and the supply of pulverised fuel to small industrial consumers. Similar technical service is now being provided on a very much wider scale by the Coal Utilisation Council, acting on behalf of the industry as a whole. Otherwise, it is justifiable to remark that nearly all the improvements in the technique and efficiency of fuel utilisation have come from consumers, and to some extent from plant manufacturers and distributors, but not from the producers of the fuel.

The remedy for this state of affairs, other than a better appreciation of consumers' problems and their relation to coal sales, lies in the provision of funds. The resources which might have been made available for this purpose have been dissipated in maintaining an excessive number of distributors and in paying for the rising overhead costs which result from falling individual turnovers. In this connection the producers themselves have not been guiltless of the chaotic state of the distributive trade. They cannot, on the whole, be blamed for having entered the inland distributive trade in many cases, either directly or through subsidiaries. Most of them appear to have done so in the belief that coal distribution was inevitably a very profitable operation, and most of them have probably now been disillusioned on this point. It also seems reasonable that as long as the distributive trade proper does its job inefficiently the coalowners should at least have the opportunity of trying to do better. But it would not be unreasonable to stipulate in the event of a reorganisation of the distributive trade, which would undoubtedly be beneficial to the producers in the long run by affording better pithead prices, that colliery companies should cease to operate their own independent retail businesses and should at any rate permit them to be amalgamated with those of distributors pure and simple.

This does not mean that the collieries should cease to supply either large industrial consumers or export markets direct. In the case of the latter, the coal exporter has too often been not much more than a go-between, with little fixed capital in the industry. As long as the export trade flourished and buyers came to solicit supplies, instead of sellers having to find

markets, the coal exporter performed a useful function in levelling out price and output fluctuations by guaranteeing in advance to take fixed quantities of coal from colliery companies in the knowledge that buyers would be forthcoming in due course. But it is now clear that his role was too much a passive one and that insufficient contact and development work was done in foreign markets such as is necessary to obtain trade in times when it is not automatically forthcoming. The position has now changed to the extent that it is necessary to pursue a more active policy in marketing coal, and the industry requires a stronger organisation than the average coal exporter can provide in order to maintain direct contact with consumers abroad. This has already led in many cases, notably in South Wales, to the assumption of the functions of the exporter by the colliery companies themselves grouped in strong associations and often in close affiliation with the few large exporters who, primarily engaged in the bunkering trade, have traditionally always maintained depots and landing and service facilities in foreign markets.

There is good reason to suppose that the export trade could be still more strongly centralised with advantage, and the ideal solution would probably be the institution of a single British Coal Export Association, on the lines of the British Steel Export Association, to handle all export business and allot orders to the various districts via the district central selling organisations. Such an association would be purely an export marketing association, and would have a complete monopoly of the export trade. Its nucleus might well be found in some of the existing large exporting firms, and it would probably find it convenient, as the Steel Export Association has done, to come to a working arrangement with other merchants already possessing efficient sales organisations abroad to act as its agents. The potential usefulness of such a body is described in more detail in the chapter dealing with the export trade.*

The industry might be compelled to set up machinery of this sort sooner than it imagines if it seriously desires to participate in an International Coal Cartel, since only with the existence of such machinery in Great Britain are the Germans likely to consider the scheme workable. In this connection experience in organising and operating parallel organisations in the steel industry would be very useful.

The main openings for distributive economies in the inland trade lie essentially in the increase of average turnover and the reduction of the incidence of overhead charges. This inevitably would involve the displacement of many small units from the trade and the amalgamation of others into larger units. Nothing drastic can be done in the first instance, but it is believed that the institution of central selling will give to the coal-owners much greater power to decide the way in which their coal should be marketed to the ultimate consumer and the price at which it reaches him than they have had hitherto. Hitherto, however, these have been features of the coal trade in which it has been hard to interest many coalowners. It is important in the present instance that the opportunity should be taken at an early stage in the evolution of central selling schemes of inviting the co-operation of the leading distributors in each district for the reform of the retail trade. It is not contemplated that the functions of the distributor would in any way be altered except that the formation of larger units, which might be encouraged by scaling prices according to the size of the contract, would probably involve the identification of the factors and wholesalers with certain definite retail outlets, as is already the case with the large merchants. With a greater degree of vertical integration of this nature in the distributive trade, coal could be handled direct from the central selling organisation to the ultimate consumer, whether industrial or household, by one merchanting organisation, which should in itself result in a reduced cost of distribution.

* See Chapter V.

In the interests of the consumer it is desirable that the widespread existence of corrupt practices such as misdescription and short weight should receive official recognition and that steps should be taken to prevent exploitation of the public and damage to the established trade by these means. As a preliminary step, the licensing of all distributors is worthy of consideration, the licences to be freely given, but power to be vested in the Courts to withdraw them if abuses can be proved.

Finally, the question of the regulation of new entrants requires careful consideration. Much of the competition from small hawkers is sporadic in view of the highly seasonal nature of the trade and many of the smaller traders do not remain in business for long at a time. At the same time, it would be well to bear in mind the history of the regulation of milk distribution and to remember that there is a large class of consumer which requires cheap fuel and not fuel with service.

In most of these matters there is little that can be done by way of legislation or by other methods outside the industry; the reduction of redundant retail outlets and the concentration of distributive turnover must be mainly a matter for producers and distributors to work out for themselves in co-operation.

V. THE COAL EXPORT TRADE

Natural Advantages of British Coalfields for Export

The coalfields of Great Britain are situated to the best possible advantage for export trade. With the exception of a small part of the Midland districts, all British coalfields are within easy access of the sea, the average length of haul for export coal being no more than 25 miles. This compares with 50 miles in the case of the Belgian coalfields, 35 to 70 miles in France, 100 to 150 miles in the case of the Ruhr (though the development of internal water transport has minimised the effect of distance from the seaboard in Germany), and 400 miles in the case of Polish Upper Silesia. Polish Upper Silesia can, in fact, only sell abroad, owing to the preferential railway rates given for export coal and by subsidisation through a levy on inland trade. German coal exports are assisted in a similar manner and are subsidised by the industry itself.

The natural advantages of the British industry are such that under conditions of free competition it can land coal on the German North Sea Coast or the American North Atlantic ports rathei more cheaply than it can be supplied at those places from the German or American mines.

The Post-War Decline in Export Trade

The history of British export trade since the War is easily told. Before the War cargo exports had averaged 65½ million tons in the five years 1909-13, the principal markets having been France (10.6 million tons), Germany (9.0 million tons), and Italy (9.2 million tons). The pre-war level of exports was exceeded in 1923 (79½ million tons) when, owing to the occupation of the Ruhr and to some extent the effects of hostilities on the productivity of the French coalfields, exports to both France and Germany were greatly inflated. About three times the pre-war quantities were exported to Holland and Belgium also, but the Italian market was already beginning to decline. By 1925 British exports had fallen back to 50.8 million tons. French demand had returned to the pre-war level; German demand, owing to the re-equipment of the Ruhr during the inflation, was at less than half the pre-war average; the competition of reparations coal was beginning to be felt, particularly in Italy, whose purchases from Great Britain were more than 2 million tons below the pre-war average; the seven-hour day had been abandoned by Germany in October 1923 and the export price of German coal was cut heavily at the end of 1924 in an attempt to recover trade; Polish competition was also beginning to be felt in the Baltic. The British export trade at this time probably suffered as much as anything from the reaction of consumers to the profiteering that had occurred in 1923 during the occupation of the Ruhr. The re-establishment of sterling on a gold basis also raised the price of British coal abroad.

The real turning-point of the export trade did not, however, occur until the stoppage of 1926. This inevitably encouraged the more rapid development of domestic production in Germany, Belgium, Holland, and Poland, and enabled the countries which were able to export, notably Germany and Poland, to gain a substantial foothold in markets which had formerly been mainly British. German exports increased from 22½ to over 38 million metric tons between 1925 and 1926 and Polish exports from 8¼ to nearly 14¾ million metric tons. Until August 1924 exports had been denied to Germany by the Reparations Agreement, except to the Netherlands. There has latterly been a considerable development of Turkish production.

Much of this trade was won back in 1927 and following years but not all of it, and while British exports returned to round about the same levels as before 1926, German and Polish exports showed a permanent increase. Competition from reparations coal continued, although it was to some extent held in check under the Dawes and Young Agreements. This was particularly the case in Italy to which Germany regularly exported more than 4 million tons between 1926 and 1929 compared with less than 1 million in 1913, and to which British shipments declined to between 6 and 7 million tons compared with over 9½ millions in 1913. Even after reparations deliveries ceased, German exporters continued to exploit the commercial connections which they had made on the strength of their reparations supplies.

Competitive Efficiency of Foreign Producers

The advance of foreign coal exporters in neutral markets and the decline of British exports to countries which had formerly been large importers of coal was assisted by the general improvement in the technical efficiency of the other European coal producers at a time when efficiency in Great Britain advanced hardly at all. The following figures of output per man-shift do not take account of changes or differences in hours of work, but they serve to show the magnitude of the advance in foreign countries compared with Great Britain.

OUTPUT PER MAN-SHIFT
(cwts.)

	Great Britain	Ruhr	Polish Upper Silesia	Pas de Calais	Belgium	Holland
1913 . .	21.5	18.6	23.6	14.9	10.4	16.2
1924 . .	17.6	16.9	14.3	11.4	9.1	14.6
1925 . .	18.0	18.6	20.1	11.8	9.3	16.5
1926 . .	18.5	21.9	23.7	12.9	10.1	19.5
1927 . .	20.6	22.3	25.1	12.7	10.1	20.0
1928 . .	21.3	23.4	26.9	13.4	10.9	22.9
1929 . .	21.7	25.0	26.4	14.2	11.3	24.5
1930 . .	21.6	26.6	26.5	14.2	11.3	24.5
1931 . .	21.6	29.3	29.4	14.4	11.6	25.7
1932 . .	22.0	32.1	31.2	15.4	12.0	28.4
1933 . .	22.5	33.0	35.7	16.3	13.1	30.7
1934 . .	22.9	33.0	38.5	16.6	14.4	33.2
Per cent increase 1913–1934 .	7	77	63	11	39	87

By 1934 output per man-shift in Germany had reached 33 cwts. compared with 18½ in 1913, and in Poland 38½ cwts. per man-shift compared with 23½ cwts. in 1913. In Great Britain the improvement has been only from 21.5 cwts. to 23 cwts., so that the pre-war advantage of nearly 3 cwts. over Germany has been transformed into a disadvantage of 10 cwts. while the superior productivity of Poland has been increased from 2 cwts. to 15½ cwts.

Mechanisation Abroad

The transformation has been due (a) to greater progress in mechanisation abroad and (b) to the greater concentration of production abroad in the larger and more efficient mines.

OUTPUT AND PERCENTAGE OF COAL WON BY MECHANICAL MEANS*

	Great Britain		Ruhr		Polish Upper Silesia		Pas de Calais		Belgium	
	Million Tons	Per Cent	Million Tons	Per Cent	Million Tons	Per Cent	Million Tons	Per Cent	Million Tons	Per Cent
1913	24.8	8.2	2.5	2	—	—	—	—	—	10
1926	28.2	22	73.6	66	5.8	22	13	53	18.0	71
1927	59.4	23	95.0	80	7.2	26	16	65	22.3	81
1928	62.4	26	98.9	86	8.4	28	17.9	68	23.7	86
1929	73.1	28	112.8	91	10.6	31	21.1	72	24.0	89
1930	77.0	31	100.5	94	9.0	32	—	—	25.1	91
1931	78.1	35	82.1	96	—	—	—	—	25.0	93
1932	81.6	38	70.4	96	—	—	—	—	20.3	95
1933	89.2	42	74.7	96	—	—	—	—	24.4	96
1934	105.4	47	87.6	97	—	—	—	—	—	—

* In making a comparison of the progress of mechanisation in Great Britain and abroad it should be remembered that Continental mines have been mechanised mainly with ripping picks and British mines with mechanical coal-cutters.

The output of coal won by machines increased in Germany from 2 per cent in 1913 to 66 per cent in 1926 and 97 per cent in 1934. Seventy-two per cent of the output in France was mechanically mined as early as 1929 and 91 per cent in 1931. Progress in Poland has been less rapid and only 32 per cent of the Polish output was won by machines in 1930. It should be mentioned that mechanisation abroad has involved almost entirely the adoption of pneumatic picks, while in Great Britain coal-cutting machines, usually of the chain type, predominate. In 1913 only 8 per cent of the total output was cut by machine in Great Britain and this figure had only increased to 35 per cent in 1931 and 47 per cent in 1934. The chief explanation of the advance of productive efficiency in foreign coalfields, however, probably lies in the concentration of production. There are still more than 2,000 mines in Great Britain raising an annual output of 220 million tons, though their potential capacity is more in the neighbourhood of 350 millions. The Dutch mines each have an annual output approaching 2 million tons. In France, two-thirds of the total output is controlled by about twelve groups. In Germany, by 1929, an annual output of 160 million tons was being raised by 170 mines,† while in Poland 95 per cent of the output is raised by 23 mines, each having an annual output of over half a million tons. Fifty per cent of the Polish mines are producing 1 million tons of coal or more per annum.

Wage Costs Abroad

It has frequently been stated in the past that the competition of foreign, and particularly Polish, coalfields has been subsidised by the employment of sweated labour. This has undoubtedly been a factor, but much less has been made of it in recent years and the gap is in fact being closed. The depreciation of sterling in 1931 has in fact put Continental wages, in terms of sterling, much more on a par with British wages. It is not often mentioned either that the incidence of labour costs per ton of coal raised is much less on the Continent than in Great Britain owing to the more intensive mechanisation abroad. Owing to mechanisation and concentration of output wage costs per ton on the Continent are generally as low as or lower than in Great Britain, and markedly so in Germany and Poland:

† In 1927 there were 20,211 separate workings in the Ruhr, by 1930 the number had been reduced to half. The output per man per working day rose from 20 to 35 tons in the same period.

Wage Costs per Ton of Coal Raised
(shillings)

	Great Britain	Ruhr	German Upper Silesia	Polish Upper Silesia	Saar	France	Belgium	Holland*
1913 .	6.34	5.91	3.47		5.51	6.4	8.2	5.5
1924 .	12.10	—	4.81	—	7.74	9.6	12.4	11.5
1929 .	8.50	7.21	4.90	3.36	8.01	8.1	9.8	7.4
1933 .	8.12	6.35	4.65	3.48	8.90	9.4	9.3	—

Even prior to 1929, as the following figures show, there was a tendency for the gap between British and Continental earnings in terms of sterling to be closed. As a result of sterling depreciation the sterling equivalent of earnings per shift in some countries is now actually higher than earnings in Great Britain (though hours of work are sometimes somewhat longer). In terms of national currencies, miners' earnings abroad have declined substantially since 1929, but on the whole the cost of living has been similarly reduced and real earnings have been comparatively undisturbed as the table at the foot of this page shows:

Average Earnings per Shift
(shillings)

A. Money earnings. B. Earnings including allowances in kind.

	Great Britain A	Great Britain B	Ruhr A	Ruhr B	France A	Belgium A (net)	Nether-lands B	Polish U.Sil. B	Saar A
1913 .	6.35*	—	5.43	5.53	4.28	4.10	4.66	—	4.70
1924 .	10.64	—	6.08	6.80	5.35	5.66	9.43	—	5.77
1929 .	9.22	9.61	8.36	8.85	5.53	5.63	8.69	4.58	6.58
1933 .	9.13	9.51	9.66	10.19	7.69	5.96	11.48	6.20	9.80

* Estimated.

Average Cash Earnings* per Shift and Cost of Living in the Principal Coal-producing Countries of Europe

Country	Average Cash Earnings per Shift worked Below and Above Ground: Year 1930	Latest available: Amount	Latest available: Period	Percentage reduction since 1930	Cost of Living: Percentage reduction since 1930
Germany—Ruhr	†9.00 R.M.	†7.11 R.M.	Oct. 1934	21.0	17.6
Upper Silesia	†6.87 R.M.	†5.57 R.M.	Oct. 1934	18.9	17.6
France . .	36.99 francs	32.66 francs	April-June 1934	11.7	10.2
Belgium . .	51.91 francs	36.72 francs	1933	29.3	20.3
Netherlands .	5.38 florins	4.60 florins	Oct. 1934	14.5	12.9
Poland . .	‡10.31 zloty	‡8.07 zloty	June 1934	21.7	30.3
Great Britain .	9s. 3½d.	9s. 1¾d.	July-Sept. 1934	1.6	9.7

*Including overtime and family allowances where it is usual to make such payments.
†Including persons employed at ancillary works.
‡Including overtime, paid holidays, family allowances and free coal.

Within the last few years the British industry has begun slowly to make up the leeway in productive efficiency which has handicapped it since the War and which has been one of the fundamental factors in the decline of the export trade. The fact that this disadvantage was ever allowed to develop at all seems to have been due to the false sense of security in which the industry lived up to 1925 when coal was readily saleable at high prices owing to the disorganisation of foreign producers. Prior to the War British coal enjoyed a favourable margin in export markets of not much less than two shillings per ton owing to the higher comparative output per man-shift in the British mines. To the false prosperity of the immediate post-war period, many of the present troubles in the industry are probably due and the coalowners, being only human, are not entirely to blame. It cannot be sufficiently emphasised, however, that the amount of leeway to be made up is substantial and that it cannot be made up unless improvements in technique and in pit concentration are accompanied by the radical reorganisation of the structure of the industry in order to permit the concentration of output in fewer mines. Without such efforts, no large or lasting proportion of the lost export markets can be recaptured by the expedient of trade agreements or other forms of political interference.

British Coal Exports in the Depression

Since 1929, the influences of industrial depression and of the contraction of international trade have tended to obscure these basic causes for the failure of British coal producers to hold their former share of export markets. Up to that year, the volume of world coal consumption and of world export demand continued to increase in spite of increasing fuel economy and the competition of substitute fuels. When the demand for export coal contracted, British producers inevitably suffered most since their interests in the export markets were the largest and the most widely spread and they were less able to withstand more intense competition than their more efficiently equipped and organised competitors. To this must be added the growth of protectionism abroad with a view to encouraging home production and conserving employment and the artificial stimulus afforded to the exporters of certain countries, notably Germany and Poland, by such devices as special rail freights for export coal and subsidisation of exports by maintenance of higher internal prices. The decline of British exports in comparison with those of the other principal European exporters is illustrated by the following table:

COAL EXPORTS
(million metric tons)

	Great Britain		Germany	Poland	Belgium	France*
	Cargo	Foreign Bunkers	Cargo	Cargo and Bunkers	Cargo and Bunkers	Cargo and Foreign Bunkers
1924 . .	60.1	18.0	14.21	11.53	2.14	2.25
1925 . .	51.6	17.0	22.47	8.23	2.47	4.51
1926 . .	19.9	7.7	38.14	14.71	3.72	4.25
1927 . .	52.0	17.1	26.88	11.58	2.97	4.33
1928 . .	50.9	17.0	23.90	13.41	4.21	4.86
1929 . .	61.2	16.7	26.77	14.37	3.79	5.06
1930 . .	55.8	15.9	24.38	12.81	3.96	4.07
1931 . .	43.4	14.8	23.12	14.33	5.47	3.53
1932 . .	39.5	14.4	18.31	10.36	3.49	3.16
1933 . .	39.7	13.7	18.44	9.70	3.59	2.97
1934 . .	40.3	13.7	21.94	10.41	3.81	2.92

*Including Saar.

The decline in British coal exports has occurred in practically all markets, but the decrease has been severest in the case of France (13 million tons in 1929 to 7.7 million tons in 1934), Germany (5.5 million tons in 1929 to 2.3 million tons in 1932 with a recovery to 2.5 millions in 1934) and the Irish Free State (2.5 million tons in 1929 to 1 million tons in 1934). The net loss of export trade between 1929 and 1932 was over 21¼ million tons. Between 1932 and the end of 1934, 761,000 tons were recovered on balance in spite of further heavy declines in individual markets, notably France and Italy, mainly through the operation of the trade agreements with the Scandinavian and Baltic countries, which have gone a long way towards retrieving the position enjoyed in those markets prior to the advent of Polish competition in 1926. Germany also has increased her consumption under a new trade agreement; while British exports to Canada have increased, largely as a result of the Ottawa agreements, and the position has been stabilised in Argentina by means of the trade treaty with that country. In 1935, total exports declined by 900,000 tons. Shipments to the Irish Free State increased by over a million tons, to Germany 240,000 tons, and to Egypt 300,000 tons, but there was a fall of 1½ million tons in exports to Italy and ½ million tons to France, with smaller decreases in other markets. The position in all markets in 1913 and since 1929 is shown in the following table:

TONNAGE OF COAL EXPORTED FROM THE UNITED KINGDOM:
PRINCIPAL DESTINATIONS, 1913, 1929-34.
(thousand tons)

Destination	1913	1929	1930	1931	1932	1933	1934
Europe and the Mediterranean							
Russia and Succession States	5,998	712	547	357	946	1,063	1,506
Sweden	4,563	2,336	1,767	1,074	1,365	1,984	2,610
Norway	2,298	1,444	1,202	647	867	983	1,371
Denmark (inc. Faroe Islands	3,034	2,194	1,921	1,590	2,090	2,857	3,089
Germany	8,952	5,521	4,926	3,769	2,308	2,360	2,541
Netherlands	2,018	3,123	2,860	2,274	1,770	1,587	1,617
Belgium	2,031	4,140	3,445	1,979	1,591	1,431	972
France	12,776	13,045	12,969	10,554	8,886	8,696	7,669
Portugal	1,202	1,050	1,136	1,024	906	992	1,028
Spain	2,534	1,783	1,712	1,310	1,079	1,077	1,341
Italy	9,647	7,095	7,167	5,908	5,054	4,793	4,699
Austria-Hungary	1,057	4	—	—	—	—	7
Greece	728	589	530	354	166	132	179
Algeria	1,282	1,808	1,435	1,292	1,222	1,013	1,060
Irish Free State	—	2,456	2,469	2,425	1,930	1,255	1,040
Channel Islands	168	209	238	211	215	221	232
Gibraltar	355	348	210	138	204	267	458
Malta and Gozo	700	185	103	93	94	81	71
Egypt (inc. Anglo-Egyptian Sudan)	3,162	2,303	1,817	1,513	1,279	1,302	1,448
Other European and Med. Countries	888	1,033	862	801	759	776	781
TOTAL	63,393	51,378	47,316	37,313	32,731	32,870	33,718

TONNAGE OF COAL EXPORTED FROM THE UNITED KINGDOM—*continued*

Destination	1913	1929	1930	1931	1932	1933	1934
Africa and Asia							
Canary Islands	1,115	456	364	342	281	247	205
Azores and Madeira	155	67	56	48	40	58	59
French W. Africa	149	216	146	105	81	95	84
Portuguese W. Africa	233	300	177	145	67	67	47
Aden and Dependencies	181	62	32	18	24	21	15
British India	179	22	18	17	12	3	6
Ceylon and Dependencies	240	112	80	41	37	41	31
Straits Settlements and Dependencies (inc. Labuan)	30	91	30	23	37	47	46
Hong Kong	52	6	6	19	17	6	4
Other Countries	426	374	304	165	130	94	95
TOTAL	2,760	1,706	1,213	923	726	679	592
South America							
Chile	589	40	2	6	1	—	—
Brazil	1,887	1,809	1,204	664	815	735	717
Uruguay	724	395	301	263	291	270	267
Argentine Republic	3,694	2,799	2,688	2,091	1,846	1,852	1,937
Other Countries	65	228	127	43	10	19	16
TOTAL	6,959	5,271	4,322	3,067	2,963	2,876	2,937
N. and Central America							
Canada	38	745	975	906	1,615	1,722	1,747
Newfoundland and W. of Labrador	56	23	48	68	137	171	157
U.S.A.	6	335	393	301	234	242	166
British W. Indies	25	46	31	58	187	190	153
Other Countries	47	23	15	27	205	181	57
TOTAL	172	1,172	1,462	1,360	2,378	2,506	2,280
Other Destinations	116	740	561	87	101	137	133
GRAND TOTAL	73,400	60,267	54,874	42,750	38,899	39,068	39,660
Foreign bunkers	21,032	16,394	15,617	14,610	14,209	13,457	13,487

Coal Exports by Districts

The decline in the export trade has not affected all the exporting districts equally, as each is interested primarily in different markets. This question is dealt with in rather more detail in discussing the individual districts in the section on Production.* For this reason South Wales has suffered far more heavily than the Midland districts or the North-East Coast. Although Welsh exports are more widely distributed among foreign markets than the exports of any other district, South Wales has been vitally interested in the French and Italian markets but has practically no trade with the Baltic, the one area to which British coal exports have increased as the following figures show. South Wales has also been most affected by the increased use of oil in shipping.

* See Chapter I.

TONNAGE OF COAL SHIPPED TO VARIOUS REGIONS AND TONNAGE OF COAL SHIPPED FOR THE USE OF STEAMERS ENGAGED IN THE FOREIGN TRADE FROM EACH OF THE PRINCIPAL GROUPS OF PORTS OF GREAT BRITAIN, 1929, 1932 AND 1934

(thousand tons)

Regions to which exported*	Year	East Coast Ports			West Coast Ports			Total (including other ports)
		Scotland†	N. East†	Humber†	Bristol Channel†	N. West†	Scotland†	
Baltic Sea	1929	1,515.9	3,387.0	1,321.4	245.6	4.7	93.4	6,686.4
	1932	1,620.8	2,560.8	720.6	168.0	—	59.4	5,268.0
	1934	2,585.2	4,249.0	1,090.6	238.3	21.4	208.7	8,574.7
North Sea, English Channel and Irish Sea	1929	2,365.7	11,666.3	3,720.6	8,539.8	1,082.0	895.2	28,628.9
	1932	1,428.1	5,887.6	1,653.9	6,144.4	753.0	634.9	16,802.5
	1934	1,214.8	5,339.0	1,336.5	5,428.9	370.2	379.1	14,265.8
Western Mediterranean	1929	581.9	4,446.8	374.0	6,809.8	8.0	585.5	12,808.9
	1932	377.0	3,327.0	138.0	4,740.7	2.8	350.9	8,969.0
	1934	343.2	3,277.0	105.6	4,851.7	12.2	473.4	9,086.0
Eastern Mediterranean	1929	89.5	537.3	143.5	2,366.5	96.6	23.2	3,256.6
	1932	34.4	288.7	165.6	1,168.7	25.5	8.1	1,691.0
	1934	32.9	339.5	88.9	1,257.0	26.1	23.3	1,791.2
West Coast of Africa	1929	3.0	201.9	15.0	910.2	4.8	—	1,134.9
	1932	3.8	115.4	14.7	374.0	6.4	—	514.3
	1934	3.0	131.7	12.0	294.5	4.5	—	445.8
East Coast of Africa and South Africa	1929	—	—	—	87.3	—	—	87.3
	1932	—	—	—	39.4	1.2	2.8	43.4
	1934	—	—	—	32.2	—	—	32.2
Arabia, India Malaya, Australasia and Far East.	1929	27.3	176.9	419.1	423.3	14.0	6.0	1,067.1
	1932	2.0	17.5	0.3	145.5	3.3	10.7	179.1
	1934	—	1.5	—	93.4	8.5	19.2	122.6
North and Central America	1929	157.8	36.1	16.0	803.5	5.0	147.7	1,167.8
	1932	389.9	361.8	150.1	1,335.9	0.2	140.1	2,378.0
	1934	364.5	269.3	60.9	1,388.9	0.9	193.1	2,279.6
South America and Other Regions	1929	88.1	222.0	490.1	4,529.5	14.0	84.2	5,428.7
	1932	46.6	67.6	492.5	2,387.2	3.0	48.9	3,053.4
	1934	52.8	61.0	586.6	2,333.0	8.1	20.5	3,062.0
All Regions	1929	4,829.2	20,674.3	6,499.8	24,715.9	1,229.1	1,835.2	60,266.6
	1932	3,902.7	12,626.4	3,335.6	16,503.7	795.5	1,255.7	38,898.8
	1934	4,596.4	13,667.9	3,281.1	15,917.9	451.8	1,317.4	39,659.9
Foreign Bunkers	1929	1,265.5	3,316.0	2,516.1	4,079.6	2,513.4	1,199.0	16,394.2
	1932	1,224.8	3,034.7	2,722.9	3,220.7	1,996.9	1,100.6	14,209.2
	1934	1,262.2	2,717.9	2,738.1	2,946.9	1,923.3	1,067.9	13,487.2

* † For footnotes, see following page

The Effect of the Trade Agreements in North Western Europe

There are now in force eight trade agreements with Scandinavian and Baltic countries, in which special concessions have been secured for sales of British coal. Those with Denmark, Iceland, Norway, Sweden and Finland have been in force for two years. The agreements with the Baltic States have completed their first year of operation. In each case, the country in question has guaranteed to take a certain minimum percentage of its import requirements from Great Britain; the figure varies from 85 per cent in the case of Estonia to 47 per cent in the case of Sweden which imports substantial quantities of Polish coal. With one exception, each country took more in its first agreement year than the stipulated percentage in that year, the excess varying from 7 per cent in the case of Iceland to 0.2 per cent in the case of Finland. Only Sweden has failed to import the required minimum and then only failed to do so by a quantity of 74,000 tons, representing 1.4 per cent of the stipulated minimum. This deficiency, which was carried forward to the current year, has been made good and at the present time Sweden is ahead of her quota. In each case the undertaking of the importing country related only to periods of one year, so that for shorter periods no question of fulfilment or non-fulfilment can arise.

Month to month fluctuations, however, have been much wider than those shown by the aggregate results for each year. This is only to be expected, but there have also been complaints from Scandinavian countries that supplies have not always been available when required.

It is sometimes forgotten that coal is not to-day one commodity but several, and though there is usually an ample supply of some sort of coal at the ports it may not be of the particular quality required by the foreign importer. It is not certain that the collieries have always done their best to co-operate in this matter, though their position has certainly been made more difficult by the operation of the quota system. This has been particularly the case with exports of coal from the Midland Amalgamated District through the Humber ports, since exports are not of primary importance to this district, and collieries are often able to dispose of the whole of their quota of certain qualities in the inland market. It may be remarked, however, that owing to the complexity of the coal trade it is no new thing for difficulties to arise in obtaining particular grades at particular times.

The working of the coal provisions of the various Trade Agreements to date is shown in the following table. All the countries referred to have fully implemented their undertakings as regards imports of British coal.

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* These regions are made up of the following groups of countries:

BALTIC: U.S.S.R., Finland, Estonia, Latvia, Lithuania, Poland, Danzig, Sweden, Norway, Denmark, Faroe Islands.

NORTH SEA, ENGLISH CHANNEL AND IRISH SEA: Germany, Netherlands, Belgium, France, Switzerland, Channel Islands, Irish Free State.

W. MEDITERRANEAN: Portugal, Spain, Italy, Malta, Gibraltar, Morocco, Spanish Ports in N. Africa, Algeria, Tunis, Tripoli.

E. MEDITERRANEAN: Austria, Hungary, Czechoslovakia, Jugoslavia, Greece, Crete, Bulgaria, Roumania, Turkey, Cyprus, Egypt, Sudan.

W. COAST AFRICA: W. African Ports and Azores, Maderia, Canary Islands, St. Helena.

E. COAST AFRICA: E. African Ports, Union of S. Africa, Madagascar, Reunion, Mauritius and Dependencies, Seychelles.

ARABIA, INDIAN OCEAN AND CONTINENT, MALAYAN ARCHIPELAGO, OCEANIA AND FURTHER ASIA.

NORTH AND CENTRAL AMERICA.

S. AMERICA AND OTHER REGIONS: S. America, Falkland Islands, S. and N. Whale Fisheries, Greenland and Iceland.

† These divisions roughly correspond to the exports of the following coalfields:

EAST COAST—
- SCOTLAND: Fife and Lothians.
- N. EAST: Northumberland and Durham.
- HUMBER: Midland Districts.

WEST COAST—
- BRISTOL CHANNEL: S. Wales and Monmouthshire.
- N. WEST: Lancashire, Cheshire, Cumberland and N. Wales.
- SCOTLAND: Lanarkshire and Ayrshire.

Summary of the Position in regard to Imports of United Kingdom Coal by certain Countries with which Trade Agreements are in operation

Country	Coal Provisions operate from	Minimum per-cent. of annual total imports to be of United Kingdom origin	Period to which figures relate	Coal Imported from		Percentage of total imports from United Kingdom	Deficiency (−) or Excess (+)	
				All Sources	United Kingdom			
			First Agreement year ending	Metric	Tons		Per Cent	Metric Tons
Denmark.	1–7–33	80	30–6–34	3,828,193	3,095,424	80.9	+0.9	+32,870
Iceland .	1–7–33	77	30–6–34	146,983	123,453	84.0	+7.0	+10,276
Norway .	1–8–33	70*	31–7–34	1,791,953*	1,301,867	72.7	+2.7	+47,500
Sweden .	1–8–33	47	31–7–34	5,277,957	2,406,264	45.6	−1.4	−74,376
Finland .	1–12–33	75	30–11–34	1,148,450	864,148	75.2	+0.2	+2,810
Lithuania	1–9–34	80	31–8–35	224,402	200,329	89.3	+9.3	+20,807
Estonia .	1–10–34	85	30–9–35	50,584	45,379	89.7	+4.7	+2,382
Latvia .	1–11–34	70	31–10–35	577,866	440,222	76.2	+6.2	+35,716
			Second Agreement year ending					
Denmark.			30–6–35	3,786,388	3,103,143	82.0	+2.0	+74,033
Iceland .			30–6–35	151,454	121,402	80.2	+3.2	+4,782
Norway .	as above	as above	31–7–35	1,873,788*	1,319,577	70.4	+0.4	+7,925
Sweden .			31–7–35	5,114,668	2,572,472†	50.3	+3.3	+168,578
Finland .			30–11–35	1,012,129	780,173	77.1	+2.1	+21,076

*Excluding imports from Svalbard (Spitsbergen).

†The actual tonnage of U.K. coal imported in this period was 2,646,848 metric tons, but 74,376 tons have been deducted in order to make up the deficiency of that amount at the end of the first Agreement year.

Reference to an earlier table* giving British exports of coal to individual markets will show that in 1934, the first year in which the trade agreements with Denmark, Norway, Sweden and Finland were fully operative, aggregate exports to these countries were higher than in 1929. The advantages of this increase in trade have gone almost entirely to the coalfields of the North East Coast and Scotland exporting through the North Sea ports. These coalfields have, however, suffered simultaneously from the halving of the export trade with Germany since 1929; exports to Germany fell from 5,520,944 tons in 1929 to 2,308,507 tons in 1932 and though there was a slight recovery to 2,540,929 tons in 1934, and a further recovery to 2,884,905 tons in 1935, the aggregate decline of about 3 million tons cancels all the benefits gained in the Scandinavian countries.

Exports to the German market have given a great deal of trouble. British coal exporters can deliver to the German North Sea coast more cheaply than the German coalfields, and formerly enjoyed a large trade in North West Germany both for internal consumption and for the bunker trade of the North German ports.

The restriction of British shipments was achieved by the combination of liberal freight subsidies on German coal and a progressive reduction in the British quota between October 1, 1931, and April 1, 1932, to the very low figure of 100,000 tons monthly. Under the trade agreement with Germany of 1933, the quota was increased to a minimum of 180,000 tons monthly (including coke) with the proviso that it would be increased proportionately for every 1 per cent increase in the total German consumption in excess of 7½ million tons monthly. It is due to this provision that exports to Germany have recently increased. On this basis, the minimum quota had been increased by as much as 24 per cent by November 1935. Exports would probably have been increased still more but for the exchange difficulties which interfered with trade with Germany in the latter half of 1934, but which have since been alleviated by the Anglo-German Commercial Payments Agreement of November 1, 1934.

The Position of South Wales

For South Wales, the other large exporting coalfield, the trade agreements with Scandinavia have brought little direct benefit and some indirect harm. A substantial increase in the Canadian trade, for which the Ottawa agreements deserve some credit, has occurred to off-set a severe contraction of the most important markets for Welsh coal in France and Italy and other Mediterranean markets of less consequence, and the trade agreement with the Argentine has at least secured the maintenance of our share in a market that takes 80 per cent of its British coal imports from South Wales. A similar agreement has been made with Uruguay.

Following the British coal stoppage in 1926, German and particularly Polish exporters had secured the bulk of the British market in Scandinavia and the conclusion of the trade agreements has only caused them to transfer their attention to the free markets of the Mediterranean, particularly Italy, where they have been joined by Belgian exporters and are now rapidly replacing Welsh coal. German exports to Italy increased from 2.2 to 4.8 million tons between 1933 and 1934, and Polish from practically 1 to 1.5 million tons. Moreover, these advances have been consolidated by barter agreements, whereby Germany is now taking Italian agricultural produce and Poland is ordering Italian ships and allowing Italy to fulfil public works contracts in Poland; Belgium has also recently obtained a share of the Italian market by undertaking not to displace Italian workers in the Belgian mines. It is unnecessary to add that both the Polish and the German exporters are assisted by preferential freight

* See p. 157.

rates and subsidation by a levy on inland trade. The British Government carried on in 1934 limited commercial negotiations with Italy, but these never reached a successful conclusion. In February 1935, however, the economic and financial situation in Italy became so serious that drastic import restrictions were introduced, including a quota for coal fixed at 35 per cent of the 1934 imports. Subsequently when a Payments Agreement was negotiated, the British quota was raised to 80 per cent—based on the trading balance between the two countries. Since then the position of the Italian market has been wholly abnormal owing to exchange difficulties and the imposition, through the League of Nations, of economic sanctions so that shipments have virtually ceased. Exchange restrictions have also caused difficulties in other parts of the world and British exporters have on more than one occasion been compelled, through their inability to provide long term credit, to refuse orders which they could have got, and which have afterwards been filled by German or Polish exporters with the assistance of blocked currency or barter agreements.

In France the curtailment of British imports has been due mainly to the pressure of French coalowners and the desire of the French government to maintain employment at any cost. It is, nevertheless, a regrettable fact that British exporters to the French market continue to labour under a special disadvantage, namely that they are required to obtain licences to import from the Direction des Mines while the exporters of other countries are only required to produce a certificate of origin. Difficulties connected with the administration of licences by the Direction des Mines have on occasion prevented British exporters from filling their quota while other countries have exceeded their allotments.* As the "normal quota" has been reduced to 58.5 per cent of the 1928-30 average imports, the reduction in trade is serious. There is also reason to suppose that this protection is uneconomic in view of the high prices which the restricted supplies of Welsh coal are able to fetch at retail, the difference being pocketed mostly by the French importer, and French consumers have become increasingly restive.

Under the Anglo-French agreement of June 27, 1934, by which the French Government guaranteed to the United Kingdom its due proportion of the imports of coal into France under the normal quota, the South Wales coalowners agreed to import French pitwood against part of the coal import quota in the proportion of 2 tons of pitwood to 3 tons of coal. In practice this has given rise to profound dissatisfaction in South Wales. Soon after the barter agreement was concluded, a seasonal reduction in the coal import quota was made by France, which lasted for three months, as a result of which sales of Welsh coal to France have actually fallen while imports of French pitwood by South Wales have increased from 180,000 to 320,000 tons per annum. The Welsh owners have therefore gained no tangible benefit as a result of their undertaking, although no doubt if they had not given it their sales of coal in France would have been still more heavily reduced. There also appears to be an impression in South Wales that the undertaking to buy French pitwood was given in exchange for an *additional* quota, though it is difficult to see how this misconception can have arisen.

Some relief will have been afforded by the agreement concluded in January 1935, whereby the Irish Free State will import all its coal requirements from Great Britain against increased sales of cattle. This should involve an increase in exports to the amount of about 1¾ million tons annually, of which, however, South Wales has only a share, the North West Coast and the Scottish coalfields being also interested in the Irish market. Such gains, however, are almost negligible compared with the shrinkage in South Wales' largest export markets. The 5s. per ton duty on coal imported into Ireland made it impossible in practice to import the better class British coals into the Irish Free State for some time, but it has recently been removed.

* The British Government has recently opened negotiations for the removal of this discrimination.

The Anglo-Polish Agreement

The pact with Poland for the regulation of British and Polish exports on an agreed scale which was concluded at the end of 1934 represents a valuable advance towards the regulation of international coal exports. Details of the pact have not been published, but the basis of the agreement is that Polish exports should bear a fixed percentage relationship to British exports. The percentage fixed is believed to involve some sacrifice on the part of Poland in comparison with her actual exports in 1934, but the basis adopted means that for every success gained by British coal exporters, in those markets to which the agreement relates, Polish coal exports to other markets will automatically increase. Polish competition began to be severely felt after 1926 when Poland stepped into Great Britain's shoes in the Scandinavian market following the dislocation of British export trade by the coal stoppage. As stated above, the trade agreements of 1933 forced Polish exporters to look further afield and Polish competition soon became serious in the Mediterranean, Ireland and even in South America. The Polish industry enjoys the advantage of low wages but suffers from the disadvantage of the long rail journey from the Upper Silesian mines to the Baltic ports which is only overcome by the liberal subsidisation of rail freights.

In the present circumstances the Polish agreement is likely to prove of more value in breaking the ice of unlimited competition than in bringing immediate practical benefits. The prolongation of the agreement has recently been under negotiation.

German exports are far larger than Polish, while Belgian competition has recently appeared, for which reason the practicability of the Anglo-Polish plan to raise prices is only ensured in markets where the two participants are the only competitors. It may be remembered, however, that at the World Economic Conference of 1933, Germany was favourably disposed to the idea of an International Coal Cartel, which was rendered impracticable at that time by the indifference of Great Britain. Since the British attitude has changed, there is some hope of reviving the project, but in view of the headway that has been made by other exporters in the meantime and, in particular, the establishment of their trade in Italy on a reciprocal basis, it is questionable whether the British industry could secure as favourable terms as would have been possible in 1933.

Need for an International Coal Cartel

The British coalowners have hitherto hesitated to respond to invitations to discuss an International Cartel on a practical basis for two principal reasons. The first was the knowledge that in view of the continued decline in British exports, Great Britain would have to take a smaller share of any pooled market than British producers considered appropriate. As a result of their hesitation, the British position has further deteriorated, although the Baltic markets have been won back. It should, however, have become sufficiently obvious by now that not much progress is to be made through the expedient of piecemeal trade agreements, which may improve or stabilise conditions in one market but usually only serve to intensify competition in others. If Cartel negotiations were begun now, for instance, it is fairly evident that in view of Great Britain having reserved a large proportion of the Scandinavian and Baltic markets, the British exporters would have to concede to foreign exporters a larger share of Mediterranean trade than might otherwise have been the case.

The second reason for the British industry's reluctance to join in Cartel negotiations has been the absence of any body capable of speaking for the industry and handling the negotiations with the much better organised industries of other countries. This was always a pretext

rather than a genuine reason since machinery could be set up if the industry so desired, and, in fact, the industry has proved capable of negotiating with Poland, though the negotiations were difficult. This pretext, however, has now recoiled upon the British coalowners, since the German industry, which is no longer so eager to enter a Cartel until it is certain that the limit to the expansion of its exports under free conditions has been reached, now states that it cannot negotiate with an unorganised British industry.

In spite of the German attitude, which is understandable in the circumstances, it is imperative that the British industry should seize the earliest opportunity of forming an International Coal Cartel, which is, in fact, the logical outcome of the Polish agreements. The success attending the efforts of other industries in this direction, notably the participation of the steel manufacturers in the International Ship-plate Agreement, the recently dissolved International Tube Cartel, the International Rail Makers Association, and finally the accession of the whole British steel industry to the International Steel Cartel, would at any rate justify the coal industry in making the experiment. The chief advantage would be the extent to which it would probably be possible to raise export coal prices and restore the export coal trade to a profitable basis. Moreover, with the participation of Great Britain, Germany and the Saar, and Poland, the Cartel would virtually be assured of control of export markets, though if the accession of Belgium, France, the Netherlands and Czechoslovakia could be secured, the agreement would be more comprehensive, and the accession of virtually all important producers is necessary for effective control of the bunker trade. Competition from other coal producers, of which the most important are Russia and Turkey, does exist, especially in the Mediterranean and recently to some extent in South America, but it is of relatively small importance and it has been the experience of many coal exporters that consumers who have taken shipments of Russian and in some cases Turkish coal often revert to buying British, German or Polish on account of quality.

It has already been mentioned that the British industry will have to pay the penalty for having changed its mind at the eleventh hour concerning the desirability of participation in an International Cartel and that it would in the event probably have to accept a smaller percentage share in certain highly competitive markets, such as Italy, than would have been the case six or even three years ago. In illustration of the change in the relative position of the principal European exporters, the following tables show the exports of Great Britain, Germany, Poland and Belgium to certain markets in recent years.

EXPORTS (BY DESTINATION) OF THE PRINCIPAL EXPORTING COUNTRIES

BELGIUM

(000 metric tons)

	1929	1932	1933	1934
France . .	2,997	2,732	2,871	2,939
Netherlands . .	271	313	345	383
Switzerland . .	138	90	77	90
All countries . .	3,790	3,490	3,588	3,811

Great Britain

(000 tons)

	1929	1932	1933	1934
France . .	13,045	8,886	8,696	7,669
Italy . . .	7,095	5,054	4,793	4,699
Denmark . .	2,194	2,090	2,857	3,088
Sweden . .	2,336	1,365	1,984	2,610
Germany . .	5,521	2,308	2,360	2,541
Argentine . .	2,799	1,846	1,852	1,937
Canada . .	745	1,615	1,722	1,747
Netherlands . .	3,123	1,770	1,587	1,617
Egypt and Sudan .	2,303	1,279	1,302	1,448
Norway . .	1,444	867	983	1,371
Spain . . .	1,783	1,079	1,077	1,341
Algeria . .	1,808	1,222	1,013	1,060
Irish Free State .	2,456	1,930	1,255	1,040
Portugal . .	1,050	906	992	1,028
Belgium . .	4,140	1,591	1,431	972
Finland . .	462	474	473	831
Brazil . . .	1,809	815	735	717
All countries . .	60,267	38,899	39,068	39,660

Germany (Hard Coal)

(000 metric tons)

	1929*	1932	1933	1934
Netherlands . .	7,178	4,690	4,794	5,676
Italy . . .	4,827	1,439	2,239	4,843
France . .	5,260	4,147	3,782	3,557
Belgium and Luxembourg .	4,979	3,961	3,368	3,452
Czechoslovakia .	1,427	1,002	879	890
Irish Free State .	—	227	554	512
Switzerland . .	470	467	488	457
Brazil . . .	20	258	336	322
Sweden . .	263	393	348	295
Argentine . .	127	221	223	276
Denmark . .	168	117	113	196
Austria. . .	561	422	331	192
Algeria. . .	310	158	174	179
Egypt . . .	90	62	126	148
All countries . .	26,769	18,312	18,444	21,937

* Excluding Reparations in kind.

POLAND
(000 metric tons)

	1929	1932	1933	1934
Sweden . .	2,673	2,810	2,352	2,265
Austria. . .	3,247	1,319	1,170	1,012
France . .	682	922	913	960
Italy . . .	—	802	906	1,554
Norway . .	605	842	794	377
Denmark . .	1,871	1,422	739	496
Irish Free State .	—	138	440	853
Finland . .	—	348	402	219
Czechoslovakia .	924	511	261	344
Belgium . .	—	139	180	469
Holland . .	—	112	131	271
All countries . .	13,912	10,222	9,098	9,880

Improved Handling of Export Coal

It may be added at this point that the quality of British export coal is not always all that might be desired and that consumers are becoming more discriminating in their requirements in respect of sizes and qualities. This is illustrated by the growing importance of small and sized coal in the export trade in comparison with large and unscreened coal, as is shown in the section dealing with Coal Consumption. One of the chief sources of complaint is the high dust content of some export shipments and irregularities in sized deliveries. No amount of care and expense in washing and sizing at the colliery will remedy this as long as there is a considerable amount of breakage through rough handling in shipment. It is an unsatisfactory commentary upon British export methods that British coal—which is cleaner than foreign coal at the pit-head—is frequently alleged to be in a far less satisfactory condition than foreign coal by the time that it reaches the export consumer, though certain foreign coals enjoy the advantage of being less friable than British coals. The installation of improved coal-shipping appliances and elevators has been undertaken on a large scale at the Bristol Channel ports by the Great Western Railway at considerable capital expense—in fact, in the opinion of many, rather more expense than the situation justified. But while the position with regard to the handling of coal is now fairly good at South Wales ports, and has been much improved at the Humber ports, it is considerably less satisfactory on the North-East Coast, where much of the present equipment dates from the nineteenth century and is in urgent need of modernisation. South Wales has probably been fortunate in that the whole of the Bristol Channel dock system has passed into the hands of the Great Western Railway. There is no parallel concentration of ownership on the North-East Coast, although the London and North Eastern Railway has done something to improve the efficiency of its own coal shipment docks.

There is no simple remedy which can be advocated for the improvement of coal-shipping appliances. In general, it is a problem of securing a balance between the two desirable, but often conflicting, objectives of speed of loading and minimisation of breakage. Moreover, since it is generally accepted that the ideal anti-breakage device has yet to be found, no precipitate step can be taken in existing circumstances. There is, however, room for detailed research in this question by the coal industry and the railway industry, acting if possible on an international basis.

Constructive Aspects of an International Coal Cartel

This is an additional and powerful argument for the institution of an International Cartel, provided that its constructive aspects are fully developed. Much is heard of the losses in the export market of British coal producers to foreign coal producers, but little consideration has been given to the extent to which all coal producers have suffered losses in the export market to other fuels. It is only necessary to refer to the growth in the use of hydro-electric power, notably in Sweden, Switzerland and Italy, the advance of diesel locomotives in Denmark, Argentina and Egypt and the general decline of coal in the bunker trade. It has been said that about 8 million tons of coal have been displaced by imported oil in the European and South American markets alone.

One of the most useful functions of an International Cartel would be the organisation of research and development work on an international basis with the object of securing the maximum utilisation of coal in export markets.

A British Coal Export Association

On the purely economic side, the primary consideration must be the improvement of export prices. At the present time, for instance, owing to the restricted supplies, British coal fetches high prices at retail in the French market, but owing to the competition between British exporters to supply the French importers, the extra profit is being pocketed almost entirely by the latter. The steel industry was at one time also in the position of suffering as much from the competition between British producers as from foreign competition, and its subsequent experience in the organisation of its export trade suggests the lines of development along which the coal industry might with advantage proceed. Having suffered heavy losses in their export trade through price-cutting, the steel producers jointly formed an export sales committee for certain products, which succeeded eventually in fixing a quota for each works and led, in 1929, to the setting up of the British Steel Export Association with a permanent office and staff and facilities for following up and developing business abroad. In the course of the next four years the British Steel Export Association made its influence felt in the international market to such an extent that the Continental producers began to show their willingness to regulate the market for certain heavy steel products, such as ship-plates, on cartel lines. These single agreements worked well and resulted in a substantial rise in prices; they brought to a head the whole question of the British industry's relationship to the Cartel and eventually agreement resulted. At the same time the British Steel Export Association has been transformed and expanded into the British Iron and Steel Corporation in order to control Continental imports and British exports. The prices received on export contracts are all averaged and the profits distributed on that basis, except that works might formerly execute small day to day orders directly provided that a fixed scale of prices was adhered to. In building up its export services and development side, the Export Association has done its best to secure the co-operation of the leading export merchant firms with good representation abroad, and is meeting with considerable success.

This organisation has been described in some detail because it is believed that it provides a valuable parallel for the coal industry. The only important difference is the presence in the coal industry of one or two export merchanting firms which tend to be even more powerful than any colliery group and even control several colliery groups. This fact, however, might make the centralisation of the control of the coal export trade easier rather than more difficult.

There is little doubt that any co-operative effort to raise the price of export coal in international markets would be welcomed in other exporting countries, particularly as the two principal foreign exporters, Germany and Poland, are in urgent need of foreign exchange and are in a large degree reliant on the proceeds of coal exports to provide it. But it must be recognised that the organisation of the British exporting interests into a British Coal Export Association is essential if a Cartel is to be administratively possible. Not until such a body has been formed is a Cartel likely to be discussed in earnest. On the other hand, it would be a mistake to assume that an organisation of this sort is only appropriate in conjunction with an international cartel. The formation of a British Coal Export Association at an early date, whether it led eventually to an international agreement or not, should be capable of improving materially the strength of British exporters in foreign markets and of producing an immediate improvement in British export prices. It is urged, for this reason, that the practical aspects of such a development should be immediately investigated by the coal owners and leading exporters.

VI. LABOUR AND EMPLOYMENT

WAGES AND HOURS OF WORK

The Method of Fixing Miners' Wages

In order to understand the present wage machinery of the coal-mining industry, it is necessary to trace briefly the way in which the present system has been built up.

A miner's wage is made up from two parts—a basis wage and a percentage addition. The basis wage, which may consist of a piece-rate or of a flat rate for day-workers, is determined in accordance with the nature of the work that a man is required to do. Consequently it varies from pit to pit, and even from seam to seam, according to physical conditions, and there may be as many as thirty different basis wages for different grades of work in a single colliery. For the most part the basis wage once fixed remains fixed for very many years, and is only altered in response to radical changes in technique, such as the introduction of machines or a change in the condition of the mine, or by the merging of part of the percentage addition in the basis rate. In Scotland, for instance, the present basis wage list dates from 1888, and that in Northumberland and Durham from 1879; in most coalfields, however, the present basis was drawn up in 1911. When alterations in the basis rate do take place they are based on strictly technical grounds and do not take into consideration the general prosperity of the industry or even the relative prosperity of different districts.

The percentage addition to the basis rate is intended to allow for the relative prosperity of districts and for changes in the cost of living. The percentage addition varies from district to district, but is the same for all collieries within a given district and except for the period of Government control, from 1916 to 1921, when wages were regulated by uniform advances and reductions, applied on a national basis, and in the period 1921 to 1925, when the National Wages Agreement was in force, has always been regulated on a district basis. Originally, before the War, the percentage addition was fixed on a sliding scale based on the price of a representative class of coal, but this method was not satisfactory in that it did not provide a true index of the prosperity of a district and took no account of reductions in the cost of production or changes in the prosperity of the industry. Then, during the early part of the War, until the assumption of control by the State, the percentage addition was determined by conciliation boards, who were guided by such factors as prices, but were not bound by them. The wages agreement of 1921 was an attempt to get back to the old sliding-scale method on a fairer basis. A fixed proportion of the difference between the proceeds from the sale of coal and the production costs other than labour was to be regarded as the share of labour, and the percentage rate was to be determined so as to give this share as wages during the period for which the calculation was made. In May 1924 a new agreement was made continuing this method, but increasing the share of labour from 85 per cent to 87 per cent.

The Minimum Wage System

In addition, both the 1921 and the 1924 agreements contained a minimum wage clause. In 1921 it was provided that whatever the result of the percentage calculation, in no district

should wages be paid at less than 20 per cent above a level approximately equal to the rates in force in 1914. The 1924 agreement increased this figure to 33⅓ per cent. Further, the agreements contained provisions for an additional allowance per shift to the lower-paid men to ensure their receiving a subsistence wage. The result of these agreements was to introduce two types of wage-rate—the minimum wage, which must be paid whether the industry can afford it or not, and the economic wage, determined in times of prosperity by economic conditions. The system was undoubtedly a great advance on any that had previously been in force, and when wage regulation by national agreement was abandoned in 1926 and a return was made to the principle of district agreements, the system of calculating the economic wage on the basis of the ascertainments for each district and the enforced payment of minimum wages were retained. The fact that it has not altogether fulfilled expectations is due, on the labour side, to the alleged concealment by colliery companies of profits from sales to subsidiaries, and, on the employers' side, to the fact that coalowners' losses are not always recoverable after a period of more than one year, though many of the district agreements contain provision whereby part of the overpayments by the owners due to the minimum wage clause when times are bad may be carried forward and set off against their liability to pay above the minimum when conditions improve. It is true in general, however, that while the coalowners are compelled to make up wages to the minimum at times when they cannot afford it on economic grounds, they enjoy no compensating advantage in the shape of a fixed maximum for wages in times of prosperity. Moreover, the present wage machinery has practically from the outset had to cope with a situation in which excess capacity and weak selling have been chronic, and in which, accordingly, there has been a continual tendency for prices to chase costs downwards until the rock bottom of the minimum wage has been met.

District Wage Agreements

The district agreements which came into force with the revision of the wage machinery after the stoppage of 1926 remained in force until July 1931. On their expiry the coalowners gave a guarantee to the Government to maintain the existing level of wages for a further year, after which it was again extended. The agreements finally expired in July 1933 but the owners showed no inclination to press for a reduction.

Only in one district—South Wales—was the minimum wage reduced during the depression. The basis rate for South Wales was fixed in 1915 and the percentage addition had been fixed at 28 per cent. In February 1931, by the Schiller award, this was reduced to 20 per cent, which remained in force for three years. With the expiry of the agreement in 1934 the miners applied for the restoration of the cut with an extra 7 per cent on top, but after protracted negotiations the percentage was raised only to 22½ per cent by the Bridgeman award, which came into force in October 1934.

The following table shows the position with regard to wage agreements in each of the more important districts; in the smaller districts there is often no agreement applicable to the district as a whole although the conditions observed are generally fairly uniform.

District Wages Agreements in Force 1934

District	Basis Rate Fixed in Year	Surplus Divided in Ratio Wages: Profits	Present Minimum Percentage Addition to Basis Rates	Period Covered by Ascertainments: months	Treatment of Deficiencies
1. Northumberland	1879	87 : 13	40	1	Carried forward
2. Durham . .	1879	87 : 13	65	1	ditto
3. Cumberland .	1915	85 : 15	22½	1	ditto
4. Lancashire and Cheshire .	1911	Standard 87 : 13 Surplus 86 : 14	32	3	Ditto, but not beyond corresponding ascertainment in following year.
5. Yorkshire, South	1911	85 : 15	Below ground 32 Above ground 32	1	Carried forward.
6. Yorkshire, West	1911	85 : 15	Eastern Div. 30⅛ Western Div. 27	1	ditto
7. Nottinghamshire	1911	85 : 15	38	3	Cancelled at end of April in each year.
8. North Derbyshire	1911	85 : 15	38	3	ditto
9. South Derbyshire	1911	85 : 15	29 Enginemen, firemen, mechanics 35 Boys 45	3	Cancelled at end of April in each year when outstanding more than 12 months. 40 per cent of any surplus after payment of wages at 40 per cent above basis rates to be applied for recoupment.
10. N. Staffordshire	1911	86 : 14	35	3	One-third carried forward. One-third of any surplus applied for recoupment.
11. Cannock Chase	1911	85 : 15	40 Mechanics and other surface workers not handling coal 42	2	Carried forward
12. Leicestershire .	1911	85 : 15	32	12	Carried forward, but not beyond corresponding ascertainment in following year.
13. Warwickshire .	1911	85 : 15	43	12	Carried forward, but not beyond twelve months.
14. Forest of Dean .	1919	Standard 100 : 15 Surplus 85 : 15	68¾	3	Carried forward.
15. Kent . .	1911	Special ratios*	Lower pd. men 37 Other men 32	3	Carried forward, but ⅛ cancelled at end of each quarter.
16. South Wales and Monmouthshire	1915	85 : 15	22½	3	Carried forward: one-third of any surplus applied to recoupment.
17. North Wales .	1911	84 : 16	22	3	Carried forward.
18. Scotland . .	1888	85 : 15	100	2	Carried forward.

*A district agreement for Kent was signed for the first time in 1934. In dividing the surplus, the share of profits is calculated on the amount of wages paid.

Rates of Subsistence Wages

District*

1. 6s. 9½d. per day.
2. 6s. 6½d. per day.
3. Men 21 years and over: 7s. 1d. per shift.
   Men 18-21 years: 6s. 8.85d. per shift subject to maximum addition of 8.85d. per shift.
   Women: 3s. 8d. per shift.
4. Workers 21 years and over: Allowance not exceeding 1s. per shift to make up to 7s. 9d. subject to minimum of 7s. for men and 4s. 9d. per shift for women.
   Workers 18-21 years: Allowance not exceeding 9d. per shift to make up to 7s. per shift.
   Workers 16-18 years: Allowance not exceeding 6d. per shift to make up to 5s. per shift.
5. Allowance of 6d. per shift provided gross daily wage does not exceed 8s. 9d. per shift.
6. Ditto.
7. Allowance of 6d. per shift subject to a maximum of 8s. 9d. per shift and minimum of 7s. 11d.
8. Ditto.
9. Underground workers: 7s. 7d. per shift.
   Surface workers: 7s. 3d. per shift.
10. Rates the same as for Lancashire, except that no subsistence wage is prescribed for women. From July 1, 1934 subsistence rates were merged in basis rates.
11. Allowance of 6d. per shift provided gross daily wage does not exceed 8s. 9d. per shift.
12. Allowance of not more than 6d. per shift subject to maximum of 8s. 3d. and minimum of 7s. 6d. per shift for underground workers and minimum of 7s. 2d. per shift for surface workers.
13. Underground workers: 8s. 3d. per shift (except in 3 collieries, 7s. 11d. to 8s. 3d. per shift).
    Surface workers: Varying from 7s. 1d. to 7s. 1¾d. per shift (excluding 3 collieries, 6s. 11d. to 7s. 0¾d. per shift).
14. 6s. 1½d. per shift.
15. Married men, excluding craftsmen: 8s. 7½d. per shift underground and 8s. 2d. surface.
    Widowers and single (surface): 6s. 9d. per shift.
    Boys (underground and surface): Allowance of 1s. 1½d. per shift.
    Craftsmen: Allowance of 1s. 3d. per shift.
    All workmen entitled to allowance receive 3d. per shift for each child under 14 years.
16. Unmarried: With no dependents, 7s.; with not less than 2 dependents, 7s. 6d. per shift.
    Married: With no children, or with children living at home and working at or in a mine, 7s. 3d. per shift.
    With children living at home, none of whom are working at or in a mine, 7s. 6d. per shift.
    Youths 16-21: One dependent, 7s. 3d. per shift; not less than two dependents, 7s. 6d. per shift.
    Adult day-wage workers and youths over 16 who are sole support of family: 7s. 8d. per shift.
    Youths 14-16: Sole support of family, 6s. per shift; others, an allowance of 4d. per shift.
17. 6s. per shift.
18. Men 18 years and over: Allowance of 1s. per shift to make up to 7s. per shift.
    Youths under 18: Allowance of 8d. per shift to make up to 3s. 6d. per shift.
    Women 18 years and over: Allowance of 8d. per shift to make up to 5s. per shift.
    Women under 18: Allowance of 4d. per shift to make up to 2s. 6d. per shift.

*See numbers in previous table.

Average Earnings in 1934.

These particulars are of little more than academic interest, seeing that rates above the minimum have rarely been paid within the last ten years. In fact, even from 1926 to 1931, when other industries were prosperous, the payment of minimum wages required the expenditure of a total of £78 millions in excess of the sum which the industry could afford on the evidence of the ascertainments. During 1934 small surpluses were earned, though in no case for longer than five months at a time, in eight districts—Yorkshire, Nottinghamshire, North Derbyshire, Leicestershire, Warwickshire, North Staffordshire and South Staffordshire—but only in two cases—Warwickshire from August to September and North Staffordshire in April and May—were wages paid in excess of the minimum. In the other districts the surplus was swallowed up by the recoupments. During 1934 gross proceeds fell in every district except Scotland, but owing to increased output per manshift costs fell in all but the smallest districts. Average earnings per shift were slightly higher in 1934 than in 1933 (9s. 1¾d. against 9s. 1½d.), and as all districts showed an increase in the number of shifts worked, earnings, though still low, were on the average £5 per annum higher than in 1933. In all districts, however, the wages share of the net proceeds, owing to the minimum wage provisions, was higher than that provided for under the district wage agreements. These figures are summarised in the table on the following page.

Incidence of Labour Costs

From column 5 of this table the wide range of wage costs per ton of coal commercially disposable is very evident—a variation from 6s. 11d. in the case of Northumberland to 10s. 4d. in the case of Lancashire, Cheshire and North Staffordshire. In terms of net proceeds (i.e. gross proceeds less costs other than wages) the variation in the proportion paid in wages was between 87.8 per cent in the case of South Derbyshire, Leicestershire, Cannock Chase and Warwickshire, and 103.3 per cent in the case of Durham. In terms of gross proceeds the following proportions of the realisation per ton of coal disposable commercially were paid out in wages. Figures of output per man-shift have been added to illustrate the importance of this item in determining wage costs per ton.

WAGE COSTS

	Per Ton Disposable Commercially		Output per Man-shift	Percentage of Wage Costs to gross Proceeds
	Gross Proceeds	Wage Costs		
	s. d.	s. d.	cwts.	Per cent
Scotland	11 9¾	7 6½	25.22	64.5
Northumberland	11 1½	6 11	23.74	62.0
Durham	12 3¼	7 8¾	22.12	63.0
South Wales and Monmouthshire	15 1¾	9 9¾	19.83	65.0
Yorkshire	13 3½	8 4¾	26.08	63.0
North Derbyshire and Nottinghamshire	13 1¼	8 3	27.38	63.0
South Derbyshire, Leicestershire, Cannock and Warwickshire	14 11	9 5¾	22.13	63.5
Lancashire, Cheshire, North Staffordshire	15 9¾	10 4	19.62	65.5
Cumberland, North Wales, South Staffordshire, Salop, Bristol, Forest of Dean, Kent and Somerset	14 5½	9 9¾	19.32	68.0

Average Proceeds, Earnings and Profits by Districts, 1934

District	Per Ton Disposable Commercially					Per cent of Wage Costs to Net Proceeds	Per Man-shift Worked		Per Person Employed Per Annum	
	Gross Proceeds	Costs other than Wages	Net Proceeds	Wage Costs	Profit+ Loss−		Output of Saleable Coal	Average Cash Earnings	Average No. of Man-shifts Worked	Average Cash Earnings*
	s. d.	s. d.	s. d.	s. d.	s. d.	Per cent	cwts.	s. d.		£ s. d.
Scotland	11 9¾	3 9½	8 0¼	7 6½	+0 5¾	94.0	25.22	8 9¼	304	133 2 8
Northumberland	11 1½	4 3½	6 10	6 11	−0 1	101.2	23.74	7 9½	282	109 14 7
Durham	12 3¼	4 9½	7 5¾	7 8¾	+0 3	103.3	22.12	8 0½	261	104 19 2
South Wales and Monmouthshire†	15 1¾	5 5¼	9 8½	9 9¾	−0 1¼	101.1	19.83	9 0½	264	119 7 0
Yorkshire	13 3½	4 0	9 3½	8 4¾	+0 10¾	90.4	26.08	10 2	225	114 9 7
North Derbyshire and Nottinghamshire	13 1¼	3 10	9 3¼	8 3	+1 0¼	89.0	27.38	10 5¼	216	112 16 3
South Derbyshire, Leicestershire, Cannock Chase and Warwickshire	14 11	4 1½	10 9½	9 5¾	+1 3¾	87.8	22.13	9 8	228	110 8 7
Lancashire, Cheshire and N. Staffordshire	15 9¾	5 0½	10 9¼	10 4	+0 5¼	95.9	19.62	9 2½	249	114 11 10
Cumberland, N. Wales S. Staffordshire, Shropshire, Bristol, Forest of Dean, Kent, and Somerset	14 5½	4 7¾	9 9¾	9 9¾	+0 0	100.0	19.32	8 8	278	120 10 4
Average for all Districts, 1934	13 5½	4 5¼	9 0¼	8 7¼	+0 5	95.4	22.94	9 1¾	253	115 11 6
Ditto 1933	13 7½	4 7¼	9 0¼	8 9½	+0 2¾	97.5	22.47	9 1½	242	110 5 10

* Includes all classes of workpeople; allowances in kind excluded.
† Twelve months February 1934 to January 1935 inclusive.

It is evident from these figures, therefore, that the wide range of rates per shift is due almost entirely to the wide range of selling prices of the coal produced by each district and that the percentage of the gross proceeds paid out in wages is everywhere about the same. It is equally evident, however, that since wage costs absorb at least 60 per cent of the gross proceeds, and since the margin of profit, if any, is at present extremely small, even a moderate alteration in the rate of wages in one district could alter very materially its power to compete with other districts.

The Ascertainment System and Profits of Subsidiaries

As has already been mentioned, the miners' representatives have often complained that these ascertainments make the financial position of the collieries look worse than the facts justify. They have alleged in particular that the consistent losses shown by the South Wales district are not in keeping with the fact that dividends running into hundreds of thousands of pounds have been paid in recent years to their shareholders by the leading South Wales companies. It is said that colliery companies, by selling their coal cheap to subsidiary companies which they own (e.g. coal merchants, exporters, patent fuel manufacturers, iron and steel companies, fuel process plants, etc.), are able to show a loss for the purpose of the ascertainments by depressing the pithead price, yet can recover profits from the enhanced profits of their subsidiaries. The miners claim that the profits of subsidiary companies should be taken into account in making up the ascertainments, while the owners contend for the most part that the ascertainments are made up on a perfectly satisfactory basis already, with the co-operation and the scrutiny of the miners' representatives and accountants, and that the grounds for the complaints of the miners do not exist.

The Samuel Commission's recommendation for an enquiry, as well as on the main question of the continuance of the wage-machinery on a national basis, was disregarded. The question was, however, raised again by Lord Bridgeman in making his award on the South Wales application in 1934.

Clearly this is a difficult problem; the crux of the matter is not that colliery companies make profits through investment in subsidiary companies, but that the coal which they sell to their subsidiaries is transferred at prices much below its market value. Investigation would probably prove that these allegations have no foundation over the greater part of the country. The miners have the right to nominate a firm of accountants to act for them in working out the ascertainments. These are accustomed to enquire fully into the prices at which coal is transferred and in most districts have made no complaints of the fairness of existing methods to the men. The practice of selling coal to subsidiaries at false prices could probably be minimised by slight amendments to the existing system, but not until it has been satisfactorily determined that the position requires so drastic a remedy would it seem reasonable to bring the whole of the profits of subsidiary companies into the ascertainments. Even if injustice is proved, it would be wise to move with caution. The miners have no right to demand that the whole of the profits of a subsidiary company processing or selling coal should be regarded as profit earned by the coal-mining industry itself, though they are justified in demanding their share in so far as the profits of subsidiaries have been increased by ability to purchase their coal cheaper than other customers. The whole controversy would be much diminished if a method of wage regulation could be introduced which was more intelligible to the average miner than the present complicated system.

On a question of principle, the inclusion of the profits of all subsidiaries engaged in processing coal, as opposed to distributing it, as profits of the parent coal-mining company, raises a dangerous precedent of subsidisation of coal-mining wages out of the profits and wages of more prosperous ancilliary industries. Profits earned by subsidiaries engaged in distributing coal are in a different category and need to be considered along with the whole problem of the equitable division of the price paid by the ultimate consumer between producer and distributor, which depends upon a reorganisation of the distributive trade. It may be felt that if a co-ordinated national fuel policy ever emerges and if improvement of coal prices comes to be sought through the more scientific utilisation of coal, subsidiary concerns such as coking, by-product and chemical plants would then inevitably come to be regarded ultimately as an integral part of the coal-mining industry. It may some day be realised that coal mining is slowly losing its character as an extractive industry first and last. The question of whether or not the profits of subsidiaries should be included in the profits of the collieries themselves is, therefore, merely part of a much bigger problem and must be handled with delicacy. It would, for instance, be unreasonable at the present time to take the results from coke-oven plants into an ascertainment of which the basis was worked out in the past when there were no coke-ovens, or when they were the property of a separate undertaking. But the grievance is a long-standing one and if there is nothing in it, as the coalowners over the greater part of the country assert, it could surely do no harm if the question were to be examined more openly than it has been hitherto.

On the other hand, the large percentage of coal sales which is marketed through or to affiliated companies (which was given as 24 per cent even in 1924 and may now be as high as 40 per cent), indicates that there may be some grounds for the miners' complaints. In fact, the Samuel Commission in recommending in 1926 that the principle of recent wage agreements should be continued, stipulated that amendments should be made in the method of ascertaining the proceeds of the industry, particularly as regards prices at which transfers of coal are made by collieries to associated industries.

Hours of Work

Hours of work have, in effect, been regulated by legislation since 1908 when the maximum number of hours to be spent underground in any consecutive period of twenty-four hours was fixed by Act of Parliament. Under the 1908 Act, time underground was limited to 8 hours calculated from the last cage down to the first cage up. The time taken in winding a shift varies considerably from district to district but is generally taken as an average of half-an-hour for the country as a whole, which understates the actual position by about ten minutes. Accordingly, each shift on the average spends underground the statutory maximum plus one winding time which amounted after the 1908 Act to about eight and a half hours. In 1919 7 hours was substituted for 8 (7½ underground), and a future reduction to 6 hours (6½ underground) was contemplated at that time to come into force in 1921.

For the first few years after the war the coal industry enjoyed a spurious prosperity. The restarting of industry at home and abroad and the devastation of a number of foreign coalfields gave rise to an unlimited demand for British coal for a short period, though the efforts which the British industry made to meet it, at the expense of necessary development work and the orderly exploitation of the mines, were probably deleterious to the efficient progress of the industry in the long run. The labour troubles of 1919 which led to the appointment of the Sankey Commission and the reduction of the working day were, accordingly, due to

the desire of the miners for an increased share in the temporary prosperity of the industry rather than resistance to the impact of depression upon wages and hours. Domestic demand began to decline in 1920, however, and with the falling off of exports in 1921, the first period of fortuitious prosperity was over. At this stage the industry was hastily decontrolled by the Government, and following a stoppage from April to July, the 1921 Agreement came into force on the basis of national negotiation on hours and wages. The miners were forced to abandon their claim to a 6-hour day and the 1919 maximum of 7 remained in force. During the next two years, the underlying unsoundness of the industry's position was again concealed by fortuitous circumstances in the shape of, first, the prolonged coal strike in the United States and, second, the occupation of the Ruhr which stopped abruptly the competition from that important coalfield and left its markets for the most part open to British exporters. It was as a result of this boom that an increase of wages was conceded under the 1924 Agreement just as the boom was coming to an end. But depression began to intervene again by the end of 1924, and the owners were asking for longer hours and a reduction in minimum wages to be applied in certain districts by district agreements. Both of these demands were strenuously opposed by the miners, who clung to the principle of national negotiations. When another stoppage appeared imminent, the Government bought off the industry with a wage subsidy costing about £24 millions, and appointed the Samuel Commission in the hope that in the lull created by the subsidy it would be able to find a solution acceptable to both sides. Broadly speaking, the Commission's recommendations, which have been examined in greater detail elsewhere,* sought the requisite reductions in cost through economies in production and distribution to be achieved by the reorganisation and concentration of the industry rather than by the manipulation of wages and hours of work. The Commission declared the principles (including that of national negotiations) on which recent wage agreements had been based to be sound, recommended that the standard length of the working day (7½ hours underground) should be retained, and held that the subsidy was indefensible and should be discontinued and never revived. But in order to permit the necessary degree of reorganisation to take place, the Commission recommended a temporary reduction in the minimum wage rates enforced in 1924, or, should the miners prefer it, an increase in working hours. Both the owners and the men, however, were adamant in their demands, and on the termination of the subsidy the long stoppage of 1926 occurred and was only brought to an end by the exhaustion of the unions. Under the conditions on which work was resumed, a return was made to the principle of district agreements, and the working day was increased from 7 to 7½ or 8 hours between windings. (The 8-hour day was restored in all districts, except Yorkshire, Nottinghamshire, North Derbyshire and Kent, where the hours of work were increased from 7 to 7½ daily. In Northumberland and Durham the hours of hewers were increased by one hour to 7½ per day.) The extension of the working day was brought about by amendment of the 1919 Act to permit an extension of one hour to take place on any day until July 8th, 1931.

The question of hours was again brought up under the Coal Mines Act of 1930. Under Part III of that measure, the extension of one hour per day permitted under the 1926 amendment until July 1931 was reduced to half-an-hour and it was intended that, when the labour provisions of the 1926 Act finally expired in 1931, the number of hours worked should revert to the level of 1919. The 1930 Act, therefore, reduced hours once more to 7½ between windings, but the further reduction to 7 never eventuated as the owners maintained that it would be disastrous without a parallel reduction in wages. Accordingly Part III of the 1930 Act, which deals with labour questions, has been extended until such a time as the International Convention on the limitation of hours, adopted by the International Labour Conference, shall

* See Chapter II.

come into force. The Convention provides for a working day of $7\frac{3}{4}$ hours, which is equivalent to $7\frac{1}{4}$ hours between windings in this country. In June 1934 a conference of the principal European coal-producing countries discussed the ratification of this agreement, but the British coalowners' representatives claimed that the absence of Germany made ratification by other countries impossible, and there the matter at present remains.

For many years after the stoppage of 1926, financial exhaustion prevented the Miners' Federation from playing a very active part in the industry, but within the last two or three years it has recovered much of its former strength.

National versus District Agreements

Since 1926 the main cause of dispute with regard to wages and hours of work has been the miners' demand for a national agreement similar to the 1921 and 1924 national agreements and the owners' determined adherence to the principle of district negotiation. The miners believe that the various districts cannot be independent of each other, that changes in wages in one district must inevitably affect wage levels in the other districts, and that the wage level in each district is, therefore, a national rather than a purely local standard. They maintain that the present system makes possible competition between districts at the expense of wages and allege that competition of this sort was taking place throughout the period 1926 to 1930. Moreover, the competition that has taken place in recent years owing to the irruption of export districts into markets which have hitherto been the preserve of inland districts can be represented as direct competition between the lower-paid labour of the export districts and the higher-paid labour of the inland districts.

The Samuel Commission was in no doubt as to the potential danger of the district system of minimum wage regulation:

> "We do not see how such a wage, in a community so small and so closely united as Great Britain, can ultimately be fixed by other than national authorities. To give a free hand to each district to settle its own standard of living without consultation and without regard to any other, is to expose the standards of the more efficient and prosperous areas, on which the future of the country rests, to undermining by the weaker areas; it opens the door to 'cut-throat competition between different districts at the expense of wages.' We conclude accordingly that the minimum percentage for each district should be settled, or at least approved, by agreement between bodies representing all the employers and all the workpeople in the industry. This does not mean that the minimum percentage for each district may not with advantage be discussed, in the first instance, by district associations, if they think fit, provided that the minima thus provisionally agreed are afterwards submitted for approval by some national authority."*

Apart from this factor of competition between varying standards of living, the miners base their claim for national regulation on the general grounds that the owners themselves are beginning to attempt, in their own interests, to co-ordinate prices throughout the industry, and that any such attempt could be ruined by the freedom of the various districts to cut prices by means of independent wage reductions. In fact, the whole tendency of the industry on the economic side is towards national control, wherefore the miners contend that the national control of wages and labour conditions would be not unreasonable. It should, of course, be understood that the miners do not demand that the same wages should be paid to every man in the industry. They realise the necessity for variations imposed by geological conditions,

* Report of the Royal Commission on the Coal Industry (1925) Vol. I, p. 152 (Cmd. 2600).

costs of production and market factors. They do demand the establishment of a minimum level in each district below which wages should not fall. The minimum would consist of the same kind of varying basis and percentage addition as now exists, and would be a "national" minimum only to the extent that it could not be changed by any district except with the approval of a national board representative of the miners and owners throughout the industry.

To these proposals the Mining Association is fundamentally opposed, though there is a minority among the owners who would be prepared to consider a national scheme if they could be sure that it would be administered without political bias. The crux of the problem is that the owners would not accept any scheme, even if they were to consider it more efficient on economic grounds, if there were any chance of the industry again becoming a cockpit of political strife. They argue, on their experience of 1921 to 1925, that whereas the existing district settlements have produced the minimum of friction (though this may have been fortuitous owing to the impoverishment of the miners) a national agreement will magnify each local disagreement into a national dispute and threaten the whole industry with a stoppage. There is, moreover, a strong suspicion among the owners that the principal motive of the Miners' Federation in pressing for a national agreement, is desire on the part of the Union officials to regain lost prestige rather than the economic and moral arguments usually advanced.

The Mining Association has, accordingly, consistently refused even to meet the Miners' Federation on the question of a national agreement, claiming that since wages and conditions are now regulated by district agreements they have no power to do so, though it has frequently offered to discuss working conditions on a national basis. Much has been heard of late also of the argument that since, in more than one district, agreements have been entered into by the owners and the men for a period of years, it would be improper for the Mining Association to take any action which might invalidate such agreements. Legally, this argument is exemplary, but it cannot be denied that if both sides were at all disposed to agree to national negotiations, the existing district agreements would not provide an insuperable obstacle.

The Government's attitude in this controversy appears to have been one of benevolent but distant, approval of the principle of national agreements, which it has hesitated to enforce in view of the determined opposition of the owners. But though it has declared its attitude to this effect it has not, to the public knowledge, conducted any enquiry into the pros and cons of the question or tested the validity of the arguments of either side, since the report of the Samuel Commission in 1926.

Unfortunately, there can never be for the Government any half-way house in its treatment of this subject between the policy of benevolent encouragement without legal backing for a principle of which it approves, such as it has hitherto pursued, and the alternative of compulsory arbitration by law, of which the history in other countries is not encouraging.

The Coal Mines National Industrial Board

Part IV of the 1930 Act did, it is true, make some contribution towards the solution of the labour problem, but it was a small one, in view of the refusal of the owners to meet the men on a national basis, and may now be held to have failed. Part IV of the 1930 Act merely provides for the setting up of a Coal Mines' National Industrial Board; six members of the Board were to be appointed after consultation with the Mining Association, six after consultation with the Miners' Federation and four after consultation with the Federation of British Industries, the Trades Union Congress and other bodies. The Board was to record any agreement on wages or conditions of labour and, in case of any apprehended dispute, to

inquire into the position at the request of either side and to make a report, but its powers, such as they were, have been considerably curtailed owing to the refusal of the Mining Association from the start to recognise its authority. In any circumstances its powers could not extend beyond those of expressing its opinions and the Act places on no one the obligation to listen to them.

The unenviable position of the National Industrial Board was well illustrated in the course of the protracted wage dispute in South Wales during 1934. In February of that year the Schiller award of 1931, which had reduced wages in South Wales, alone of all the coal-mining districts, by reducing the percentage addition to the 1915 standard rate from 28 to 20, became terminable at one month's notice. The Miners' Federation immediately presented the owners with a demand that the percentage addition be raised to 35 (against 20), that the minimum day rate be raised to 8s. per shift for unskilled and 8s. 9d. for skilled (against 7s. and 7s. 6d. respectively), for a shortening of the Saturday shift and the grant of 12 days holiday with pay per year. These demands were wholly rejected by the owners. The arbitration agreement provided for an arbitration board with an independent chairman to be selected by joint agreement, or failing agreement by the Lord Chief Justice or the Speaker of the House of Commons. The owners, could not, however, agree with the unions on a suitable body to arbitrate; the owners wanted a committee devoid of members who had any connection with the coal trade or the trade union movement, the unions proposed a committee nominated by the Ministry of Labour. The case dragged on until May when the Miners' Federation placed their case before the National Industrial Board as they were entitled to do under the 1930 Act. The owners, in accordance with their usual attitude, refused to be represented at the enquiry or to make any comment on the evidence or on the Board's ruling, which was for a restoration of the 1928 agreement—a minimum percentage addition of 28 per cent and minimum day rates of 7s. 10½d. This ruling was promptly accepted by the men and when it was inevitably rejected by the owners the former gave one month's notice to terminate the existing agreement at October 1. Further meetings of the joint conciliation board proved entirely abortive, and it was only at the eleventh hour that the Mines Department was able to get both sides to agree to accept arbitration by a tribunal of three under Lord Bridgeman. The new tribunal then reviewed the wage application and, entirely discarding the recommendation of the National Industrial Board, made a far less generous award, raising the minimum percentage addition from 20 to 22½ and the minimum day rate, which previously ranged between 7s. and 7s. 6d., to 7s. 8½d.

It may be questioned whether the National Industrial Board's action in making a wage recommendation was tactically sound in the sense that the immediate dispute was definable as a dispute concerning the constitution of the arbitration authority under the South Wales agreement. In the circumstances it would now appear that Part IV of the 1930 Act has become nothing more than a dead letter, and the Chairman of the National Industrial Board has recognised it by sending in his resignation.

National Conciliation Machinery

One of the chief difficulties of securing agreement between the owners and the men on the question of wages machinery is that, in considering a national wages agreement, neither side sees any further than the national wages agreements of 1921 and 1924. The miners, on the one hand, demand a complete return to the system of those years, and it may safely be said that neither the coalowners nor, more important, the general public will be disposed to hand

over to the Miners' Federation the freedom and wide powers that it formerly enjoyed, and, in the view of many, abused, however much the personnel and political policy of the Federation may be judged to have changed in the meantime. On the other hand, the mention of the words "national agreement" immediately conjures up to many coalowners visions of the 1921 to 1925 system in its entirety, which is anathema, by reason of the political influences which were allowed to dominate it. Yet other great industries, notably engineering, building and shipbuilding, have managed to lead an amicable existence under national agreements for many years, and the fact that the coal-mining industry has not yet followed their example is no great credit to the ingenuity and inventiveness of its members. The argument is usually advanced by the coalowners that conditions in the coal industry are different. Fundamentally, the attitude of the coalowners towards national agreements is based on a claim, whether conscious or unconscious, to regulate wages by capacity to pay to a far greater extent than other industries claim. In other industries the underlying principle of wage agreements appears to be that no employer can engage in the industry unless he can pay his employees a given level of remuneration, variable only to a relatively small extent by reason of differences in costs of living in different localities. Colliery owners, on the other hand, seem invariably to start from the other end and argue that they cannot pay more than a certain limit in each district because the industry in each district would not pay if they granted more. They attempt to justify this attitude by the argument that in manufacturing industries plants can be erected as and where the owner wishes; while in an extractive industry, such as coal mining, the nature and location of the undertaking is dictated by the nature and location of the mineral, which cannot be altered. It may be argued, however, against this that if nature has so placed the coal that it cannot be worked on proper wages, there is no good reason why it should be worked on improper wages and plenty of reason why it should not be worked at all. In acquiescing in the introduction of the principle of minimum wages, the coalowners have, in fact, acknowledged the force of this argument, though they may not realise it, and have abandoned their claim to regulate the wages paid by the industry solely on the basis of capacity to pay.

Much capital is made by opponents of national agreements out of allegations that other industries have recognised standards, that the markets of competing firms or districts are practically identical and that costs of production vary only slightly—to an extent which finds no parallel in the coal-mining industry. On an impartial examination, however, it must surely be admitted that the coal-mining industry can give very little start in the matter of complexity to the engineering industry on either the production or the consumption side. Yet the engineering industry has evolved national wage and conciliation machinery which works satisfactorily and is applied to branches of the industry as widely separated as aircraft and agricultural machinery, automobiles and armaments.

There seems to be no adequate reason for believing that national wage and conciliation machinery could not be evolved for the special circumstances of the coal industry, especially as no serious attempt to do so has yet been made. The chief difficulty lies in the long tradition of acrimonious disputes for which the industry is notorious and in which passion has played a greater part than reason. It is difficult to see why this tradition has grown up in the coal industry, but it will take a long time to live down. For this reason, the type of national conciliation machinery most appropriate to the coal-mining industry needs careful consideration.

It might well be modelled on the system that has been employed for many years by the engineering industry, and which owes its success mainly to the impersonal atmosphere in which it enables disputes to be discussed. By agreement between the employers' Federation

and the Unions, the provisions for avoiding disputes apply to general alterations in wages, alterations in working conditions which are the subject of agreements officially entered into, and alterations in the general working week. When any question arises, the management and the workman directly concerned must endeavour to settle the question at the works. Failing a settlement, deputations of workmen, who may be accompanied by a Union official, are received by appointment by the employers, a representative of the Employers' Association being present. If no settlement is then arrived at, either party may demand a Local Conference. A Local Conference must be held within seven days of an application and consists of a meeting between representatives of the local Employers' Association and local representatives of the Unions. The parties directly concerned only participate as witnesses. Failing settlement at a Local Conference, either party may refer the matter to a Central Conference, where it is discussed by the employers and Unions on a national basis. At a Central Conference, representatives of the district in which the dispute has occurred may only be present as witnesses. Only where this procedure is adopted does a partial or general stoppage of work become permissible on either side. The strength of this procedure lies in the fact that the dispute is taken at an early date out of the hands of the employers and Union officials directly concerned and handled impersonally by other employers and Union officials.

It will be seen that there is nothing in this machinery which prevents disputes from being settled within districts, which is claimed as the chief advantage of the system of district agreements at present obtaining in the coal-mining industry; in fact, the effect of defining closely the procedure by which a dispute can finally arrive at the point where national negotiation can begin is to localise the dispute in the first instance far more effectively than is often possible in the coalfields under district agreements. It is not inconceivable that under such a system a much finer distinction between localities might be possible in the fixing of minimum wages than is possible under the present system where minimum wages are fixed over areas as large as a whole coalfield. The classification of different areas and towns into different grades is an essential feature of the national wage system of the engineering and building industries, and of many other industries as well, and something of this sort would probably be possible in the coal-mining industry.

It must be emphasised, however, that for machinery of this kind to be workable there must be a degree of co-operation and a spirit of give and take between the employers which the coal-mining industry has not hitherto shown. If, however, there is anything to be learnt from the course of the prolonged wage negotiations of 1935 which reached their conclusion in January 1936, it is that, whether the owners like it or not and whatever formalities have been enacted to preserve the façade of district agreements, national bargaining is, in the last resort, inevitable. In setting up, as part of the results of the agreement reached, a National Joint Standing Consultative Committee with very wide powers to consider all questions of common interest and general application to the industry, it is to be hoped that the coalowners and men may have laid the foundation of a happier and less hysterical system for regulating the relations between employers and employed, and one in which reason and not passion will be the guiding force.

The Wage Application of 1935

The negotiations for an increase in wages which occupied the later months of 1935 and were not brought to an end until the end of January 1936, are now happily a matter of history, though it would be over-optimistic to suppose that the agreement reached represents

more than the postponement of the miners' full demands. These demands were, in short, for a return to the principle of national negotiation and for a national flat-rate increase of two shillings per shift for adults and one shilling for juveniles. In point of time, only the first of these demands was made in the first instance, but emphasis was soon shifted from the abstract to the concrete, which, of course, involved a *de facto* recognition of the principle of national bargaining.

It is not proposed to examine here in full the arguments and statistics which the miners produced and those which the owners put forward in reply, but only to summarise the main contentions of each side, which were as follows:

The Miners' Case

The case for the miners was based upon the following main arguments:

(i) The existing wage rates did not afford a living wage for many men engaged in a particularly arduous and dangerous occupation. The average earnings per person employed, including all underground, surface and juvenile workers, were only £115 11s. 6d. or about 44s. 6d. per week in 1934, and many cases of definite hardship were cited where men with a number of dependents earning wages of this sort have been definitely worse off than an unemployed man with the same responsibilities.

(ii) It was admitted that the profits of the industry as revealed by the ascertainments were insufficient to provide for the increase in wages demanded (the increase was estimated to cost the industry £18½ millions per year compared with an aggregate surplus for the whole industry in 1934, before charging interest or depreciation, of little more than £4 millions). But it was alleged that the ascertainments contrive to conceal certain profits made by colliery companies through subsidiaries which receive supplies of coal at less than the market price. It was maintained, moreover, that having waited for nine years for the promised economies in the industry which were to have provided a higher level of wages, it was not the business of the men to say where the money was to come from; they could not, however, wait any longer for their advance. The owners countered by pointing to their proposal to institute the central selling schemes and the effects which were expected from them. To this the miners replied that even if central selling does achieve its object of raising prices, the accumulation of overpayments to the credit of the owners under the ascertainment, would effectively block any automatic improvement of wages through the improvement of the profit margin of the industry, for at least two years.

(iii) Consumers of coal were considered to have been treated with exceptional favour and had, in fact, been obtaining supplies at uneconomically low prices at the direct expense of miners' wages. The consumer could and must pay more and the difference must be immediately handed on to the miners in wage increases.

(iv) Since wage costs constitute 70 per cent of total costs, it is impossible to maintain that the districts can be wholly independent of one another; in fact, variations in wage costs must be the paramount factor affecting inter-district competition. Moreover, if prices and other factors were co-ordinated on a national basis, it was difficult to see how consideration of wages on a national basis could logically be avoided also. The miners accepted the fact that variations in geological conditions, situation and markets necessitated different wages being paid in different districts; but they considered that changes in the wages of one district independently were likely to be detrimental to the industry as a whole and must, therefore, be discussed by the industry as a whole.

The Coalowners' Case

The coalowners' arguments for refusing the men's demand were as follows:

(i) That statements based upon the average wage in the industry are misleading. The average of 44s. 6d. per week includes thousands of unskilled surface workers and juveniles. If 5½ days per week were taken as what a man might reasonably expect to work in times of normal trade, then the average weekly earnings of all workers at the coal face would be 62s. excluding allowances. At the present time there are 110,000 youths of under 20 and 125,700 surface workers employed in the industry. Average earnings per shift, excluding allowances, for all workers at the coal face was 11s. 3¼d. per shift contrasted with 9s. 2d. for all employees. The men employed in the most arduous occupations, therefore, are earning well over 50s. per week which is not "scandalously low," or a "starvation wage."

(ii) That the net profit of the industry as a whole, after meeting all capital charges, was less than £2 millions in 1934 and, although a few companies declared a modest dividend, the industry was palpably incapable of meeting any wage advance. The men were stated to have full access to all colliery books through their accountants for the purpose of drawing up the ascertainments, so that no question should arise of the ascertainments not being representative.

(iii) That the industry was introducing central selling organisations in each district with inter-district co-ordination, which should lead, within a reasonable time, to increases in inland prices as a result of which inland districts might, individually, be able to make increases in wages.

(iv) That district wage agreements were in force so that the Mining Association could not legally, even if the owners desired it, negotiate nationally as long as the district agreements remain in force. In fact, the Mining Association professed to have no power to discuss wages which are the concern purely of the 13 districts. Moreover, the principle of a national agreement is repugnant to nearly all owners who remember the way in which disputes were dragged into the political arena in the 1921-6 period. They believed that these conditions would recur and that the sole purpose of the Miners' Federation in putting their demand forward was to enhance their own prestige. They stated emphatically that the fixing of wages by districts had not played any part in intensifying inter-district competition (there had only been two changes since 1926, one downwards, one upwards, both in South Wales), and that there would be even less possibility of this occurring when central selling has been introduced.

District Wage Increases

It was, however, obviously appreciated keenly by most coalowners that certain classes of men were seriously underpaid and that the concession of an increase in wages in anticipation of the effects of central selling would have to be made. Certain districts, in fact, notably Lancashire, Leicestershire and North Staffordshire made independent offers of wage advances to the miners which the latter refused, in order to preserve the solidarity of the national front. And in Nottinghamshire, where the Miners' Federation is not strong, an offer made by the owners was accepted by the men. At the same time an attempt was made to provide a fund for the payment of an immediate increase by securing an immediate rise in prices to consumers. This was not difficult in the household market, where retail prices have been advanced generally

by as much as 2s. per ton. But industrial consumers usually buy on long-term contracts which only expire periodically, so that the coalowners were entirely dependent, in this case, upon the goodwill of their customers. The response has been considerable, and practically every industry of importance, with the exception of the railways, offered a voluntary increase of one shilling per ton on contract prices. The total addition to proceeds from these increases is estimated at about £6½ millions in a full year. On January 8, 1936, the owners of each district were, accordingly, able to offer an advance of some sort to the men. The offers varied as follows:

Scotland:	9d. per shift, able-bodied males 18 and over. 4½d. per shift, able-bodied males under 18.
Northumberland:	Piece-workers: Over 18, 6d. per day; under 18, 3d. per day. Datallers: Over 18, 6d. per day; under 18, 3d. per day. Subsistence wages: Over 21, 6d. per day. Minimum wage of piece-workers: Over 18, 6d. per day; under 18, 3d. per day.
Durham:	Datal workers: Over 18, 6d. per shift; under 18, 3d. per shift. Piece-workers: Agreed increase of percentage equivalent to these amounts.
Cumberland:	Adults, 6d. per shift; youths under 18, 3d. per shift.
Yorkshire:	Adults (underground men 21 years and over and surface men 22 years and over), 9d. per shift. Youths, 4½d. per shift. No workman or boy to be paid an increase of more than 9d. or 4½d., respectively, in any period of 24 hours, and not in any case more than 4s. 6d. or 2s. 3d. respectively in any week.
Lancashire and Cheshire:	Adult workmen, 1s. per shift; others 6d. per shift.
North Wales:	Adult workmen, 1s. per shift; others 6d. per shift.
South Derbyshire:	Underground men, 1s. per day; under 21, 6d. per day. Surface men, 6d. per day; under 21, 3d. per day.
Leicestershire:	Adult workmen, 1s. per day; others 6d. per day.
North Staffordshire:	Adult workmen, 1s. per day; others 6d. per day.
Cannock Chase:	Adult workmen, 1s. per day; others 6d. per day.
South Staffordshire:	Adult workmen, 1s. per day; others 6d. per day.
Warwickshire:	Adult workmen, 1s. per day; others 6d. per day.
Shropshire:	Adult workmen, 1s. per day; others 6d. per day.
Forest of Dean:	All adult workers, including contractors, of 18 years and over, except continuous shiftmen, 9d. per shift. Continuous shiftmen of 18 years and over, 6d. per shift. Employees under 18, except continuous shiftmen, 4½d. per shift. Continuous shiftmen under 18, 3d. per shift.

Somerset:	Adult workmen receiving basis wage of 4s. 11½d. per day, or less plus existing percentage, 8d. per day gross. Adult workmen and piece-workers receiving basis wage of over 4s. 11½d. per day, plus existing percentage, 6d. per day gross. Boys receiving basis rate and piece-work rate, with existing percentage, 3d. per day gross. Minimum subsistence wage increased from 6s. 3d. per day to 6s. 11d. per day gross.
South Wales:	Increase in minimum percentage in basis rates from 22½ per cent to 25 per cent. Subsistence wage of 7s. 8d. per day to be increased by 5d. to 8s. 1d. per day.
Kent:	Men, 5d. per shift; boys, 2½d. per shift.

These terms were at first rejected by the men, but with slight alterations by the owners, of which the most important was the increase of the offer by Yorkshire to 1s. per shift for adults and 6d. per shift for youths, and with a promise to set up a National Joint Consultative Committee, they were finally accepted on January 24. The concessions are estimated to cost the industry about £6 millions.

The method of offer and acceptance of these terms cannot fail to affect the future of the industry's bargaining machinery. It has constantly been maintained by the coalowners that the system of district agreement of wages has not, and will not, have any effect on inter-district competition, by which it has been implied that the different levels of district wages since 1926 have been based on genuine differences in economic conditions. There is no need to question whether this was in fact the case, but it may be pointed out that the districts have now made varying offers of wage increases to the men which, in view of the fact that wage costs constitute 70 per cent of the total costs of production, must have a material effect upon the competitive relationships of the different districts. In view of this practical example, it is difficult to see how the inter-dependence of district wage conditions can any longer be denied or the necessity for the exercise of national control over the autonomy of districts in their labour relations opposed. The course of the recent negotiations themselves should have made it clear that whatever devices were adopted to preserve the illusion of the autonomy of districts, discussion had to proceed, in fact, on a national basis before any progress could be made.

The Relation of Wage Rates and Earnings

The most important result of these negotiations has been to throw into much clearer relief the present position of labour in the coal-mining industry.

It is clear that with mechanisation a great change has been going on in the quality of the labour force of the industry. Less hewers, who are highly-paid skilled men, are required, but they are replaced by a few machine men who are still more highly skilled and highly paid and a great many less skilled, low-paid men; there has been a corresponding decline in the number of pieceworkers and increase of day wage men, and probably a tendency towards an increase in the employment of juveniles. Hence the low average wage is, to some extent, the result of a lower average of skill than has been required in the past. It may be added, however, that for every case of a man getting more than the average cited by the Mining Association, there must be another man getting less than the average. In fact, the Miners' Federation has shown on the basis of figures produced by the Mining Association,

that 61 per cent of the persons employed earned an average of no more than 38s. 5d. per week in the first half of 1935.

The use of averages, however, which is always dangerous in dealing with the mining industry, is particularly dangerous when dealing with miners' wages and earnings. The classes of labour employed in and about a pit differ widely in skill, occupation, and method of payment. Generally speaking, the labour force of a colliery consists as to 20 per cent of highly-paid pieceworkers, 20 per cent other coal-face workers on day wages, 40 per cent other underground workers on day wages and 20 per cent surface workers on day wages. These proportions are by no means constant and there are wide differences between districts in the matter of payment, generally as a result of local custom. In Scotland, for instance, there is a much smaller margin between the wages paid to pieceworkers and those paid to oncost men; the wages paid to boys are higher in proportion to those of adults than in England, and there is not so much difference as elsewhere between the wages paid to coal-face men and those paid to other men working underground. Moreover, average earnings are much affected by the amount of short-time worked. For instance, Scotland which showed the highest average earnings in 1934, worked on an average per person employed 22 more shifts in the year than any other district. Similarly, the value of allowances in kind varies considerably in different parts of the country. In Scotland miners' houses are often supplied free, or rent allowance is paid; in South Wales, at the other extreme, miners are nearly always compelled to rent their houses, often from the colliery company, and pay in some cases as much as 7s. per week.

In spite of these difficulties there can be little doubt that the present problem is one of earnings and, therefore, of minimum wages rather than of wage rates. The crux of the problem is the short-time that is being worked in the industry largely as a result of the Government's policy of spreading the work and reducing the apparent volume of unemployment. If the concentration of production could be achieved, which would mean automatically the displacement of a great number of men, the problem would no longer exist for the remainder. The Mining Association has cited figures of earnings based on a working week of 5½ shifts, which it calls a condition of normal trade. But trade is not normal. In 1934 the industry as a whole worked an average of only 4.86 shifts per week. Scotland actually worked an average of 5.85 shifts per week, but in Yorkshire the figure was as low as 4.33 and in North Derbyshire and Nottinghamshire only 4.15. For the whole of the country only 4.84 shifts per week were worked in the first half of 1935, and on this basis coal-face workers (38.8 per cent of the total), at 11s. 3½d. per shift, actually got an average of 54s. 6d. per week and the remaining 62.2 per cent of workers only averaged 38s. 5d. Earnings at this rate would not be unreasonable in times of depressed trade for a juvenile or a single man on unskilled work, but even by public assistance standards, they must be considered wholly inadequate for a man with a number of dependents.

The combination of short-time working and the fixing of minimum wages by the shift and not by the week has naturally hit most severely the lower paid oncost men and piece-rate workers with low minimum wages. For this reason, it is unfortunate that in many districts the recent wage increases should have tended to benefit piece-rate workers (whose earnings are generally higher) more than day workers. Only in South Wales, where, however, the total concession was very small, was much the greater increase given to the class of worker most needing it.

A Family Wage System?

As a means of improving the position of the lowest paid workers rather than raising the

standard of wages of all labour in the industry the Miners' Federation might do well to investigate the possibility of introducing the family allowance system in the coal-mining industry. This has been worked in the coal-mining industry on the Continent for some years, and, according to the available evidence, with some success. Although this system needs to be investigated in relation to British industry as a whole, the position is particularly acute in the coal-mining industry and tends to become relatively more acute as the standard of Public Assistance rises. The principle has long been recognised in practice in the Unemployment Insurance and Public Assistance systems, but has not yet been introduced in industry, where it should also appeal to the employer since it is undoubtedly the most economical method of ensuring that every worker in an industry receives a living wage.

It must not be thought that the advances that have been conceded by the districts in January 1936 represent a solution of the problem of miners' wages. The advances have varied between about 2d. and 1s. per shift which may represent an increase in weekly earnings of anything between 8d. and 5s. 6d. Wages are accordingly likely to have first claim on any improvement in the proceeds of the industry for some time to come. But the economic solution of the problem depends upon the realisation of the fact that increases in wage rates alone cannot suffice to improve the earnings of miners as long as short-time is prevalent throughout the industry, owing to the excess of productive capacity and the necessity of maintaining an excessive personnel.

EMPLOYMENT

The Decline in Coal-mining Employment

Employment in and about coal mines, which was more than 1,100,000 in 1913, reached its zenith in 1920 at 1,225,929, but was continually above the one million mark until the stoppage of 1926. Coal-mining employment has never recovered from the effects of the 1926 stoppage and its settlement. At the end of 1927, employment was 998,146 (though the average for the year was higher) and by the end of 1929, the number had fallen to 969,801. In subsequent years, the consequences of the depression and of reduced output have been reinforced by the

EMPLOYMENT IN AND ABOUT COAL MINES—GREAT BRITAIN: 1929-1934

A. NUMBERS

	1929	1930	1931	1932	1933	1934
WAGE-EARNERS						
Below Ground						
Males						
Under 16 years of age	28,786	24,207	19,986	16,334	15,211	17,920
16 and under 18	41,504	40,659	39,089	33,435	29,130	26,688
18 and under 20	45,790	42,180	41,088	39,662	39,574	35,769
20 years and over	657,596	612,314	579,694	540,214	538,656	532,800
Total below ground	773,676	719,360	679,857	629,645	622,571	613,177
Above Ground						
Males						
Under 16 years of age	13,000	12,050	10,521	9,397	9,382	10,660
16 and under 18	11,874	11,982	11,738	10,816	10,097	9,251
18 and under 20	10,091	9,585	9,864	9,811	9,964	9,547
20 years and over	140,573	134,878	128,798	122,533	123,692	124,126
Females						
Under 16 years of age	282	239	236	168	200	241
16 and under 18	489	586	534	440	424	370
18 and under 20	460	423	499	531	517	453
20 years and over	2,078	1,939	1,762	1,621	1,663	1,588
Total above ground	178,842	171,682	163,952	155,317	155,939	156,241
Total wage-earners	952,518	891,042	843,809	784,962	778,510	769,418
CLERKS & SALARIED PERSONS						
Males	16,521	16,097	15,351	14,826	14,741	14,651
Females	762	716	663	700	693	704
Total	17,283	16,813	16,014	15,526	15,434	15,355
GRAND TOTAL	969,801	907,855	859,823	800,488	793,944	784,773

B. PERCENTAGES

	1929	1930	1931	1932	1933	1934
ALL EMPLOYEES						
Below ground .	80.0	79.3	79.0	78.7	78.5	78.0
Above ground .	18.2	18.8	19.1	19.4	19.6	20.0
Clerks, etc. . .	1.8	1.9	1.9	1.9	1.9	2.0
TOTAL . .	100	100	100	100	100	100
WAGE-EARNERS						
Below ground						
Males under 20 .	12.2	12.0	11.9	11.4	10.8	10.5
Males 20 and over	69.0	68.7	68.7	68.8	69.2	69.3
Above ground						
Males under 20 .	3.7	3.8	3.8	3.8	3.8	3.8
Males 20 and over	14.8	15.1	15.2	15.6	15.8	16.1
Females . .	0.3	0.4	0.4	0.4	0.4	0.3
TOTAL WAGE-EARNERS	100	100	100	100	100	100
Males under 20 .	15.9	15.8	15.7	15.2	14.6	14.3
20 and over . .	83.8	83.8	83.9	84.4	85.0	85.4
Females . .	0.3	0.4	0.4	0.4	0.4	0.3
TOTAL WAGE-EARNERS	100	100	100	100	100	100

effects of mechanisation until, at the end of 1934 the number employed in and about coal mines was only 784,773. Of the total number employed in 1934, 78.0 per cent worked below ground, 20.0 per cent above ground and 2.0 per cent represented office staff. The percentage employed below ground has declined from 80.0 per cent in 1929, and of those employed above ground has increased from 18.2 per cent in that year largely as a result of the growing importance of washing, screening and crushing operations. 85.4 per cent of the total wage-earners in 1934 were men of 20 and over and 14.3 per cent men and boys of under 20, the remaining 0.3 per cent consisting of women. 69.3 per cent of the total wage-earners were men of 20 and over working underground, and 16.1 per cent of men of 20 and over working above ground. 10.5 per cent of the total wage-earners were men and boys of under 20 working below ground and 3.8 per cent of such men and boys working above ground. The detailed figures from which these percentages are taken, and those for certain past years, are shown in the above tables. It will be noticed that over the whole period from 1929 the average age of those employed has increased and the percentage of males under 20 has fallen, though not as fast as it might have done. There was, however, an increase between 1933 and 1934 in the employment of boys under 16 above and below ground which must be regarded with misgiving.

The decline in coal-mining employment amounted to 132,914 between 1922 and 1926, 123,214 between the end of the stoppage and the end of 1929, and 185,028 between the end of 1929 and the end of 1934, a total of 441,156 since the War. Comparisons between employ-

ment and unemployment statistics are well known to be dangerous owing to the different bases on which they are calculated. It may, however, be added that the number of coal miners recorded as wholly unemployed at December 17, 1934, was 185,830 and of those temporarily stopped 41,417, a total of 227,247.* Without saying precisely how many, it is clear from these figures that a great many mine workers have been compelled to retire permanently from the industry since the War or to seek other employment. The reduction in the number of those attached to the industry appears to be surprisingly large but is accountable in part owing to death and old age, and in part to the notorious fact that many unemployed coal miners have drifted into other manual occupations, notably public works, where they are still often unemployed, but appear on the register under another trade. It may be added that a great many men were attracted into the mining industry immediately after the War, and though many of them have since departed, many remain who cannot altogether be regarded as genuine coal miners.

Possible Re-Absorption of Unemployed

It is in view of the fate of the 200,000 unemployed mine workers who remain attached to the industry either without having had employment for many months, or with prospects of only occasional work, that the coal problem has long since ceased to be a purely industrial problem and has assumed the position of a national social problem of the first magnitude.

Coal production has fallen from 287 million tons in 1913 to 258 millions in 1929 and 220 millions in 1934, after touching a low point of 207 millions in 1933. The decline has been due in no small degree to the decline in exports from 73½ million tons in 1913 to 60¼ million tons in 1929 and little more than 39½ million tons in 1934. Out of the decline in production of 37 million tons between 1929 and 1934, the shrinkage of the export trade accounts for 20¾ millions and of the bunker trade for nearly another 3 millions.

The possibility of reabsorbing permanently any proportion of the 230,000 mine workers unemployed at the end of 1934, depends obviously on the extent to which a higher level of output can be regained. Home consumption in 1934 was estimated at 161½ million tons against slightly less than 148½ millions in 1933 and 173½ millions in 1929. Owing to the improvements in fuel utilisation which are discussed more fully in the section dealing with coal consumption, any large increase in domestic consumption within the next few years can hardly be expected, and perhaps the most that can be hoped for if trade activity continues to expand is a return to the 1929 level of consumption.

Similarly, the prospect of regaining the whole of the 20 million tons of export trade that has been lost since 1929 seems remote in view of the further development of exporting activities on the part of foreign coal producers and of coal production abroad, which is discussed under the section dealing with exports. Moreover, it must be recognised that in order to recapture any substantial proportion of the export market a great improvement in output per man-shift and in the general cost efficiency of the British industry must be brought about, and it is difficult to see how it can be achieved on any basis except that of greater economy of labour per ton of output.

In order, however, to gain a rough impression of the magnitude of the unemployment problem in coal mining, both for the industry itself and, more important, for the country as a whole, let it be assumed that circumstances will be favourable and that the output level of 1929 can be regained. Owing to the general improvement in technical efficiency since

* Reduced by December 16, 1935, to 167,434 wholly unemployed and 14,922 temporarily stopped, a total of 182,356. Trade at this time was, however, somewhat abnormal owing to fears of a stoppage. See also Appendix I.

1929, as reflected in the general increase in output per person employed, a return to the 1929 level of output will not, unfortunately, involve a return to the 1929 level of employment. In fact, seeing that output per man has been increased in most districts in a period of declining production, it would be only reasonable to suppose that it will be increased even more rapidly if and when production expands, while, as has already been mentioned, any potential expansion in production will to a large extent *depend* upon the ability of the industry to reduce costs by further increasing its output per person employed.

In 1929, approximately 3.71 persons were employed for each thousand tons of coal produced. Between 1929 and 1934 approximately 4.53 persons were displaced for each thousand tons by which output has declined. In 1934, approximately 3.57 persons were employed for each thousand tons of coal produced. If, accordingly, an additional output of 37 million tons were to be produced at the standard of efficiency of 1934, in order to bring

OUTPUT AND EMPLOYMENT : 1929 and 1934

District	Output (000 tons)			Employment		
	1929	1934	Increase (+) or decrease(—)	1929	1934	Increase (+) or decrease(—)
Northumberland	14,547	13,831	— 716	49,496	43,402	— 6,094
Durham . .	39,001	32,590	— 6,411	138,827	107,873	— 30,954
Cumberland .	2,022	1,564	— 458	9,776	6,873	— 2,903
Lancashire and Cheshire .	15,659	13,758	— 1,901	79,233	62,327	— 16,906
South Yorkshire	33,506	28,761	— 4,745	119,157	99,015	— 20,142
West Yorkshire.	12,900	11,092	— 1,808	53,588	44,245	— 9,343
Nottinghamshire	14,738	14,309	— 429	52,702	46,852	— 5,850
North Derbyshire	14,199	11,798	— 2,401	53,021	43,860	— 9,161
South Derbyshire	926	712	— 214	3,921	3,372	— 549
N. Staffordshire	5,891	6,262	+ 371	28,350	23,144	— 5,106
Cannock Chase	5,251	4,938	— 313	23,773	22,809	— 964
S. Staffordshire	1,632	1,542	— 90	4,919	4,572	— 347
Leicestershire .	2,873	2,348	— 525	11,305	9,773	— 1,632
Warwickshire .	4,759	5,150	+ 391	17,025	17,136	+ 111
Shropshire .	652	676	+ 24	2,827	2,656	— 171
Forest of Dean .	1,376	1,205	— 171	5,714	5,263	— 451
Somerset . .	848	696	— 152	4,159	3,577	— 582
Bristol . .	196	174	— 22	992	923	— 69
Kent . .	1,149	2,030	+ 881	4,357	7,088	+ 2,731
South Wales and Monmouthshire	48,150	35,173	— 12,977	178,315	139,806	— 39,509
North Wales .	3,456	2,787	— 669	15,274	10,582	— 4,692
Fife . .	8,516	8,312	— 204	23,650	20,908	— 2,742
Lothians . .	4,949	4,887	— 62	13,501	12,390	— 1,111
Lanark . ..	16,372	14,822	— 1,550	49,998	38,712	— 11,286
Ayrshire . .	4,339	4,011	— 328	12,794	11,052	— 1,742
TOTAL .	257,907	220,726	— 37,181	956,674	788,210	— 168,464

total production back to the level of 1929, approximately 132,000 persons would, in theory, have to be re-employed, compared with the 168,000 that were actually displaced between 1929 and 1934. In practice it is extremely unlikely that anything like this figure would be attained in view of the fact that a considerably larger output could be produced at the present time without employing a single additional man by working up to full time. Moreover, a return to the 1929 level of output is, owing to factors on the consumption side, impossible to foresee at the present time, and would only begin to become possible if there were a considerable improvement in output per man-shift and consequently in the cost efficiency of the industry, which would automatically retard the re-employment of labour.

The effect of the decline of output on employment has been very unequally borne by the different districts as the accompanying table shows. The numbers displaced between 1929 and 1934 amounted to 39,509 in South Wales and Monmouthshire, 30,954 in Durham, 20,142 in South Yorkshire, 16,906 in Lancashire and Cheshire, and 11,286 in Lanarkshire. These five areas between them accounted for 70 per cent of the total net displacement of labour in the five-year period considered, although they only accounted for 59 per cent of the total employment and 52 per cent of the total output in 1929.

It is, in fact, a difficulty particularly characteristic of the unemployment situation in the coal-mining industry that the unemployed are concentrated in certain areas representing for the most part the older coalfields, as the following figures show:

UNEMPLOYMENT BY COAL-MINING DISTRICTS: DECEMBER 17, 1934

	Numbers Wholly Unemployed	Numbers Temporarily Stopped	Percentage of Total Insured Mineworkers Unemployed
North and South Wales and Monmouth	57,337	13,461	34.6
Cumberland and Westmorland	3,294	129	33.0
Scotland	24,662	1,983	23.3
Yorkshire	22,799	14,775	22.9
Gloucester and Somerset	1,321	1,184	22.7
Durham	29,394	1,450	22.6
Lancashire and Cheshire	15,475	2,273	21.9
Nottinghamshire and Leicestershire	8,551	2,239	17.7
Northumberland	8,135	335	16.9
Derbyshire	6,436	1,729	13.3
Staffordshire, Worcestershire and Salop	6,197	1,739	12.4
Warwickshire	934	90	7.6
Kent	345	72	5.4
GREAT BRITAIN, TOTAL	186,318	41,474	23.2

The Problem of Surplus Labour

It is difficult to avoid the conclusion that if the industry is reorganised in order to provide a reasonable return to the capital and labour employed in it, few of the 168,000 men who were displaced between 1929 and 1934 stand much chance of reinstatement, even ultimately, which means that virtually the whole of the 200,000 unemployed men and men on the fringe of employment who are still attached to the industry can never again count on permanent employment. The surplus will be concentrated mainly in the Special Areas of Scotland, Durham and South Wales—districts where the chances of recovery are least favourable—but will be formidable enough in Lancashire and Cheshire and the Midland district also.

Any policy for the reconstruction of the coal-mining industry which presumes to absorb the whole of the present volume of unemployed miners is obviously doomed to failure. In fact, much of the lack of success of the 1930 Coal Mines Act may be attributed to the fact that it places the maintenance of employment first and the reconstruction of the industry second. The care of the greater proportion of the miners who have been displaced since 1929 has become a social problem with which the industry itself cannot deal: it has become the concern of the nation as a whole. The most that the industry itself can do is to attempt to reorganise itself on a basis which will give a reasonable return to a smaller personnel and a smaller volume of capital than it employed in its days of former prosperity; on this basis moderate prosperity may some day again be achieved. Beyond this, it falls upon the community as a whole to find a way of reabsorbing the men displaced from the coalfields or of making their enforced idleness less intolerable. The only method by which the industry can help is to adopt such a labour policy, particularly with regard to recruitment and retirement, as will minimise the difficulties of handling the social problem.

(*a*) Possible Action by the Industry Itself

The most obvious policy for the industry to adopt and the one with which it has, in fact, been saddled since the Coal Mines Act of 1930, has been that of spreading the available employment over as many workers as possible. This policy has involved the continuous operation of relatively uneconomic mines, and the burdening of up-to-date mines with an unnecessarily large labour force. Its effect has been to maintain employment to some extent, but only at the expense of efficient working, on the one hand, and of weekly earnings on the other. It is not a policy which should be continued if the industry is to be restored to economic health.

There are, however, several ways in which the industry itself might help to reduce its surplus labour force to some extent. Thus it might work out a far-sighted policy for the recruitment and retirement of its employees. It might also make arrangements for the transference of some of its surplus workers to undertakings associated with colliery companies, and for the location of suitable industrial undertakings in colliery districts, in cases where coalowners are in a position to influence such location and where it is economic.

Recruitment Policy

Every year the coal industry takes on thousands of new employees who have never worked in or about a coal mine before. Many of these new employees are boys of 14 and 15 recruited directly from school but some are recruited at 16 or 17 after they have had a short spell of other work or unemployment. They are chiefly the sons of men who have been engaged at some time or other in local coal mines.

It is desirable that the intake of these boys should be regulated so that it does not exceed the possibilities of their permanent absorption in the industry. In this connection it might be a useful practice if the number of young entrants in each district were agreed each year in advance by the employers, employees and representatives of the local Juvenile Employment Exchanges in consultation.

There is also a strong case for fixing the minimum age of entry into the industry at 15 years for surface workers and 16 years for underground workers. It would free a certain number of jobs (perhaps 11,000 in Great Britain) for older boys.

Where additional workers are being taken on by mines with expanding output the existing practice (based on the Mining Industry Act 1926) of recruiting from among ex-mine workers should be adhered to, and every effort should be made to retain employees over 35 as long as it is economically possible to do so. The practice of taking on large numbers of young men in their twenties and of dispensing with them in their thirties is strongly to be deprecated.

Retirement Policy

The coal industry is not an old man's industry. It makes heavy demands on the physique of its workers, and as there are not enough light jobs available for all who are unable to keep pace with younger men, the services of many elderly and middle-aged workers have to be dispensed with every year. Of the 88,486 insured coal miners who had been out of work for over a year on July 26, 1935, 43,256 (or nearly 50 per cent) were over 45 years of age; and 23,399 (about 27 per cent) were over 55 years of age. Nevertheless, there is still a large number of elderly men working in the industry. Recent figures are not available, but at the time when the last Census was taken (April 1931) there were 141,348 men over 55 attached to the industry, of whom 90,444 were actually working.

In the absence of a pensions scheme for the industry, there is a good deal of feeling against the dismissal of mine workers in late middle life. There is very little hope of their ever obtaining new employment, and they are more or less condemned to living on the allowances of the Unemployment Assistance Board or the local Public Assistance Committee until they qualify for a contributory old age pension at the age of 65. Moreover, even when they qualify for a contributory old age pension it is still necessary for most of them to have it supplemented by poor relief in order to get an income which covers their bare needs. Feeling on this question was so strong in one part of South Wales that a strike was called as a protest against the dismissal of several men at the age of 65 years.

It is very desirable, therefore, that a pensions scheme for the mining industry should be set up in order that elderly workers could be permanently retired, without serious loss of income, at an earlier age than is possible to-day. Sums of £50,000 and £20,000 respectively were granted last year by the South Wales mine owners and mine workers, in commemoration of King George's Jubilee, for the purpose of establishing a pensions fund for elderly miners, but an adequate scheme even for one district would involve a very much heavier outlay than this *every year.*

In the present economic position of the industry it is quite impossible to expect it to carry the burden of an adequate retirement pensions scheme on its own shoulders. But if the industry worked out a scheme and showed itself willing to make some financial sacrifice, even a small one, there would be a strong case for government assistance on a considerable scale. Granted an adequate scale of pensions there is no reason why the normal retirement age

for British coal miners should not be 55 as it is for their opposite numbers in France. If such a scheme were to be put into operation to-day there would be vacancies for thousands of younger men—now receiving unemployment benefit, unemployment allowances, or public assistance—to fill the places of the elderly men who would be retiring. The off-setting savings to the State on account of various forms of public relief would be very considerable.

Transference Policy

Generally speaking, the transference of surplus miners to other occupations is not, and should not be made a responsibility of the coal industry itself, but colliery companies with industrial interests and associations other than coal mining might play a small but useful part by transferring unemployed miners to jobs in associated undertakings. Colliery companies in the more recent coalfields, which have recruited some of their workers from South Wales, Durham and elsewhere, might also make special efforts to retain as many of their transferred workers as possible, especially during difficult times.

Location of New Industries

Although it is no part of the responsibility of colliery companies to provide alternative employment near at hand for their surplus employees it may sometimes be possible for them, through associated concerns, to attract new undertakings to their neighbourhood and thus effect some reduction in the number of unemployed miners.

But even when all these possibilities have been explored to their limits it seems very unlikely that the coal industry itself will be able to make much impression on the huge total of surplus men attached to it. It should do all that it can be expected to do, but it is unreasonable to expect it to do more than has been suggested above. The residual burden is one which should be shouldered by the community as a whole.

(*b*) Possible Action by the State

The policy of the State in face of the huge surplus of labour attached to the coal-mining industry should have two objectives. In the first place, it should aim at reducing the surplus by as much as possible. Secondly, it should be directed towards providing for the welfare of those who cannot be absorbed into other occupations. The following suggestions refer to the first of these two objectives. The second will be considered during the general discussion of Welfare in the next section.

The possible action of the State directed towards reducing the labour surplus in the coal-mining industry may be considered under four general headings:

(i) Raising the age of entry into the industry.

(ii) Introducing early retirement pensions for mine workers.

(iii) Transferring surplus mine workers to other occupations and other areas.

(iv) Attracting new industrial undertakings to mining districts or to undeveloped areas near to mining districts.

Entrance into Coal Mining

It has already been suggested that the industry might raise the age of entry into coal-mining to 15 years for surface workers and to 16 years for underground workers. Alternatively, the

Government might fix these minimum ages by Statute. The effect would be to provide the equivalent of about 11,000 young boys' jobs for older boys or men.

Almost the same effect might be produced if the Government speeded up its present proposals for raising the school-leaving age to 15, and made it clear to local authorities in coal-mining districts that employment in or about coal mines under the age of 15 should not be considered as "beneficial" for purposes of exemptions.

But there is a strong case for action of a more thoroughgoing kind. It is not sufficient to raise the school-leaving age by one more year. Boys and girls between the ages of 15 and 18 years are still passing through a vital phase of development. Important changes are still taking place in their physical and psychological make-up and their adult character is only just beginning to emerge. It is very undesirable, therefore, that they should be precipitated into industry too suddenly and that there should be no supervision of their welfare during the first few years of their industrial life. Partly because of these considerations and partly because of the belief that it is wrong to use boys and girls merely as cheap labour when thousands of men with families are deterioriating in unemployment, P E P has already published* a comprehensive "Fourteen to Eighteen" policy which recommends, *inter alia*, the raising of the full-time school age to 15 (*without* exemptions) and the introduction of compulsory half-time attendance in day continuation schools between the ages of 15 and 18. As applied to the coal industry these proposals would mean that no boy could be employed until he was fifteen, and that boys between the ages of 15 and 18 would spend alternate weeks in a day continuation school and in or about the mine.

The effect of these proposals on the employment situation would be that older boys would be needed to do the work of the 11,000 fourteen-year-olds at present employed in the industry and that unemployed adult workers would have to be brought in to do half the work at present performed by the 53,000 boys now employed between the ages of 15 and 18. Even taking a very conservative estimate of how many extra workers would be needed it is probable that these proposals would lead to a reduction of the labour surplus in the industry by nearly 20,000.

The day continuation schools would make it possible to improve the existing arrangements for vocational guidance and selection, and would provide a valuable opportunity of co-operation between parents, teachers, juvenile employment officers and the industry. They would also provide opportunities for education directed towards improved technical efficiency, health and safety in coal mining.

Even if it were not immediately possible to introduce these proposals on a national scale the present position of the coal industry would be sufficient justification for introducing them in mining areas, provided that the financial burden were shouldered for the most part by the State, and that the local authorities in these areas were not saddled with heavy additional charges on the rates.

Retirement Policy

It has been suggested above that the coal industry might introduce its own scheme of retirement pensions in order that elderly workers could be retired without serious loss of income earlier than is possible to-day. But it had to be admitted that in the present economic

*P E P Reports "Entrance to Industry" and "Exit from Industry." May 1935. 1s. 0d. net.

position of the industry an entirely self-supporting scheme could not be afforded. Considerable State assistance would be necessary if an adequate scheme of pensions for men of 55 and over were introduced.

An alternative to a State-assisted coal industry scheme would be a retirement pensions scheme for all insured workers organised by the State itself. In this connection P E P has already proposed* that the existing Widows', Orphans' and Old Age Contributory Pensions Scheme should be extended so that insured men retiring from employment at the age of 65 should receive an extra 10s. a week on their pension, thus bringing their total pension to £1 a week in the case of a single man and 30s. a week in the case of a married man. It was proposed that the additional cost of these pensions should be borne by equal contributions of 3d. a week from employers, employees and the State. But as there are probably fewer than 16,000 men over 65 employed in the coal industry to-day the effect of a scheme of this kind in reducing the labour surplus attached to the industry would not be very marked. To be really effective in the special case of the coal industry, it would be necessary to extend the scheme to cover men between 55 and 65 as well. The cost of such an extension would, however, have to be borne almost entirely by the State.

There are obvious objections to introducing a *permanent* scheme benefiting one industry more than others, largely at the expense of the State. On the other hand, it is very difficult to foresee a time when the coal industry will be able to afford a self-supporting scheme providing adequate pensions for men between 55 and 65. Perhaps the most acceptable type of State scheme would, therefore, be a *temporary* scheme directed towards removing as many men over 55 as possible from the industry during the next five years. A life pension of £1 a week for single men or 30s. for married men might be offered to all men over 55 who had been employed in the coal industry for over ten years and who were prepared to retire permanently from the ordinary labour market. The offer might only be kept open for a limited period of time. It should be made quite clear that those who accepted would still be free to supplement their pensions by means of allotments and any kind of subsistence production.

In 1931 there were 141,348 men over 55 attached to the coal industry, of whom 90,444 were actually working and 50,904 were unemployed. The total number of men over 55 attached to the industry to-day is probably lower than it was in 1931 and the number of men over 55 who are actually working is almost certainly very much lower. Nevertheless, it is reasonable to suppose that at least 50,000 employed men and the great majority of the unemployed men over 55 would probably take advantage of an offer of this kind. How many vacancies this would provide for younger men it is quite impossible to estimate, but there would almost certainly be a call for at least 25,000 or 30,000 younger workers to replace the 50,000 elderly men who would be retiring.

The actual cost of a scheme of this kind would depend on the numbers taking advantage of it. If the pension were accepted by 50,000 men actually working and by 40,000 men who were unemployed, the apparent cost of the scheme would be in the neighbourhood of £6-£7 millions a year (allowing for a very high proportion of married men). But the actual cost would be very much less than this. There would be an enormous saving in unemployment benefit, unemployment allowances and public assistance, not only on account of the 40,000 unemployed men who accepted the pension, but also on account of the twenty or thirty thousand younger men who would no longer need public funds as a result of the scheme. The net cost would probably be in the neighbourhood of £2 millions a year for the first few

*See reference on previous page.

years, after which it would decline, unless the offer of a pension at 55 were kept open indefinitely. If more men took advantage of the scheme the cost would be correspondingly greater. But it is difficult to imagine any other plan which would reduce the surplus labour force in the mining industry by so many men at so cheap a cost.

Industrial Transference

When times are bad in any community it is a natural instinct for many of those who are hard hit to seek out new opportunities of employment in other parts of the country or overseas. This has certainly been the case in the depressed coalfields of Great Britain during the last fifteen years. Thus it is estimated that the net outward migration from South Wales between 1921 and 1934 amounted to 290,727, while the corresponding figure for Northumberland and Durham was 243,520. Most of this movement has taken place since the stoppage of 1926, and a good part of it has been between old and new coalfields. Thousands of men from South Wales and Durham have moved to South Yorkshire and Kent and, although many of them have returned to their old homes, many more have settled down permanently near to their new work. There has also been a considerable amount of migration from the coalfields to London and the South of England in general, which has also involved a change of occupation. Thousands of miners have found employment on public works and house-building schemes, particularly in the Greater London area, but this form of transference has, naturally, been less successful than transference to coal mining in other areas.

Since 1928 the Ministry of Labour has encouraged and assisted transference from the depressed areas. In the case of boys and girls it has operated a scheme under which railway fares may be paid, lodgings found and welfare supervised. With the help of voluntary funds it has also been able to make maintenance grants to supplement the wages earned by juveniles in jobs of a progressive type. In the case of adults it has provided training facilities where necessary, and it has arranged schemes under which fares may be paid, small loans advanced against wages, and assistance given towards the cost of household removal. Since the scheme was started in 1928 the total number of juveniles transferred (up to the end of 1934) was 24,705, of whom 10,049 were boys. The total number of adults transferred up to November 1935 was 139,587 of whom 115,849 were men. The great majority of all these transferees came from the coalfields of South Wales, Northumberland and Durham. But it should also be noted that there has been a very high proportion of failures. Thus it is officially estimated that 41,137 of the men who had been transferred up to the end of November 1935 had eventually returned to their own districts.

In view of the economic outlook in many coal-mining districts there is obviously a strong case for continuing the efforts which have been made in recent years to encourage industrial transference. It is also desirable that further attention should be given to the welfare of transferees in their new environment. But some of the limitations of industrial transference should be born in mind. It should be remembered that it is only men under 35 years of age who are, generally speaking, suitable subjects for transference, and that it is not desirable to deplete hard-pressed areas of too many men in the most vigorous years of their lives. Unless the wholesale evacuation of many small towns and villages in some of the mining areas is envisaged, some thought must be given to the social consequences of enticing away from these places their most active and energetic citizens and of increasing the rate burden per head on those who are left behind.

The Attraction of New Industries to the Depressed Areas

While it may be necessary to encourage some unemployed coal miners to leave home and start out again with a new occupation in another part of the country, it is much more desirable that new industries should be attracted to coal-mining districts or to undeveloped areas within a reasonable distance of them. An enormous amount of social capital would be wasted if many of the mining towns and villages in the depressed coalfields were allowed to dwindle out of existence. In a few hopeless cases the loss of almost everything should be resolutely faced, but except in these cases every effort should be made to compensate for the decline of employment in the mines by encouraging new industries to establish themselves in the area. The State is already doing a little in this direction through the Special Area Commissioners. But a much more comprehensive and thoroughgoing scheme of development planning in the Special Areas is called for. Such a scheme would almost certainly involve the expenditure of considerable sums of money on well-planned public works designed to increase the attractiveness for industrial purposes of the districts affected by them. Expenditure of this kind would, incidentally, provide a considerable amount of suitable employment for thousands of unemployed miners.

Industrial Reconditioning and Training

Bound up with the problems of industrial transference and the establishment of new industries in depressed areas is the question of industrial reconditioning and training. Men who have been unemployed for any length of time frequently get out of condition for work and lose their employability even where unskilled jobs are concerned. Men who wish to enter new occupations involving any degree of skill—either outside their own districts or at home—must find a means of getting some industrial training. To meet the need of the first type of men the Government has set up a number of Instructional Centres, at which courses designed to restore and maintain employability are arranged. During the courses, which last for twelve weeks, the men are engaged mainly in clearing, drainage and other work in connection with afforestation, and in trenching, road making and other healthy outdoor activities. A certain amount of indoor instruction is also given in educational subjects and in rough carpentry, simple metal work, and boot and shoe repairing. So far as circumstances permit, physical exercises are arranged and games and entertainments are organised outside working hours. Admission to these Centres is limited to men between the ages of 18 and 45 years (with preference to single men under 35) living in one of the scheduled depressed areas or one of a certain number of other areas where unemployment is exceptionally heavy. To meet the need of the second type of men the Government has established a number of Training Centres. These Centres do not aim at turning out skilled craftsmen, but the training provided is claimed to be sufficient to enable a trainee to obtain employment where he can earn a wage sufficient for his maintenance, while continuing to add to his skill and experience. As it is regarded as essential to the success of the scheme that every man admitted to a Centre should have a reasonable prospect of obtaining employment as the result of his training, the number of trainees is regulated in accordance with the opportunities of placing them on the completion of their courses. The length of a normal course is twenty-six weeks and the training consists of practical and theoretical instruction by skilled craftsmen in one of the following trades:

Building Industry: Bricklaying, plastering, tile fixing, carpentry, painting, and gas and hot water fitting.

Furnishing Trades: Wood machining, cabinet making, upholstery and french polishing.

Vehicle Building Industry: Coach body building, coach trimming and coach painting.

Engineering and Allied Industries: Machine operating, fitting and turning, electric welding, oxy-acetylene welding, panel beating, sheet metal working, metal spinning, metal polishing; and instruction as garage handymen.

Miscellaneous Trades: Hairdressing, hotel-waiting, terrazzo working, glass tube welding and blowing for the illuminated sign industry, and cooking.

Only suitable applicants for training are accepted at these Centres, but a preparatory centre has recently been opened experimentally, with the object of improving the chances of acceptance for training of a number of men who would otherwise be rejected as unsuitable.

Since the commencement of these two schemes over 66,000 men have passed through Instruction Centres and over 50,000 men have been admitted to Training Centres. Over 86 per cent of those who have passed through Training Centres have been placed or have found employment. In the year 1932-33 the approximate net cost of industrial training per man was as follows:

(i) Training Centres: £46 for an average course of 24 weeks or 35s. per trainee week, including allowances, mid-day meal, food and travelling.

(ii) Instructional Centres: £15 for an average course of 9 weeks or 29s. 1d. per trainee week, including allowances, board and lodging and travelling.

While there is no doubt that a great deal of admirable work has been done by these Centres, it is worthy of remark that there has been a considerable amount of criticism of their activities from certain quarters. From the Trade Union side has come the criticism that the Training Centres are sending out half-trained men who under-cut normal Union rates of wages in skilled occupations. From the employers' side has been heard the criticism that Government trainees are recommended for employment before they are ready to undertake skilled work. How much truth there is in these criticisms it is very difficult to say, but it should not be impossible to meet all criticisms of this kind by insisting on reasonable wage standards for ex-trainees and by improving (and if necessary, extending) the courses of training provided.

An extension of both types of Centres is clearly desirable as a corollary of both industrial transference and re-localisation. It should be remembered, however, that the successful development of Training Centres in the coal-mining areas depends on the number of suitable young men who are willing to be trained.

Conclusions on State Assistance

There can be little doubt that if vigorous Government action took place along the lines suggested in the preceding paragraphs, very considerable inroads would be made into the large surplus labour force attached to the coal industry. The probable effect of raising the full-time school-leaving age to 15 and of introducing half-time day continuation schools to 18 would be to provide nearly 20,000 jobs for unemployed miners between the ages of 18 and 24. The probable effect of the suggested pensions scheme would be to provide jobs for between 25,000 and 30,000 unemployed miners in middle life, and to remove permanently from the labour market some 40,000 unemployed miners over 55. A conservative transference policy might be expected to find permanent jobs for another 10,000 unemployed miners under 35 outside the mining areas during the next few years. And it should not be impossible to create an equal number of new jobs within the depressed colliery districts during the same period. These proposals would cost a great deal of money. But money will have to be spent in any case if a complete collapse of social life in the coal-mining areas is to be avoided.

WELFARE

The Welfare problem of the coal industry falls into two distinct parts. In the first place there is the Welfare problem of those actually engaged in the industry. In the second place, there is the Welfare problem of the hundred thousand or more men formerly attached to the industry but now more or less permanently without hope of further employment in it. The first problem is now, and should remain, a responsibility of the coal industry itself. But the second can only be tackled effectively by the community as a whole.

(*a*) Miners' Welfare

A number of progressive colliery companies have done a great deal on their own initiative and at their own expense for the welfare of their employees. Good housing, pithead baths, club rooms and recreation grounds have all been provided in connection with a number of mines by the companies concerned, and considerable sums have been spent quite apart from the actual business of coal production. As might have been expected, it has usually been the proprietors of modern collieries, with seams that will last a long time, who have been prepared to embark on expenditure of this kind on a large scale. But there are some notable examples of up-to-date welfare activity even among relatively small concerns in the older coalfields. On the other hand, there is a large number of concerns which have fallen very far short of what they might have done in these respects. Housing conditions in some colliery districts are still deplorable and there are many areas in which no welfare provision was made until after the establishment of the Miners' Welfare Fund.

The Miners' Welfare Fund was established under the Mining Industry Act, 1920, for "purposes connected with the social well-being, recreation and conditions of living of workers

MINERS' WELFARE FUND: INCOME AND EXPENDITURE 1920-34

	1934	1920–34
Receipts	£	£
Output Levy (1920-34)	416,767	11,731,656
Royalties Welfare Levy (1926-34)	171,000	1,554,000
Interest	73,215	1,224,874
TOTALS	660,982	14,510,530
Grants		
Recreation	160,600	4,963,159
Pit Welfare	358,634	3,454,463
Health	88,818	3,246,254
Education	168,004	1,166,117
Research	44,210	846,642
Miscellaneous	6,763	53,963
Administration	24,412	211,316
Total Grants	853,441	13,941,914
Balance unallocated	—	568,616
TOTAL	—	14,510,530

in or about coal mines, and with mining education and research." Its income was originally derived from a levy of one penny per ton of output. The Mining Industry Act 1926, (Sec. 17), also provided for a levy on royalties. But the Mining Industry (Welfare Fund), Act 1934, while extending the period during which payments are to be paid to the fund to 1962, reduced the output levy from one penny to a halfpenny a ton.

The expenditure on Recreation includes children's playgrounds, grounds and pavilions for all games and swimming pools; institutes and halls; boys' clubs and camps. Pit welfare is chiefly accounted for by pithead baths. Canteens and cycle stores come under this head, too. The Health grants are devoted mainly to homes and funds for convalescents, but they also cover hospitals, nursing and ambulance services and special medical treatment and appliances. Both general education and special mining instruction are included in the Education grant, which covers buildings and equipment, scholarships, safety instruction, and non-vocational lectures. The fund also provides for research regarding the safety and health of mine workers.

(*b*) The Welfare of Unemployed Miners

In view of the vast army of ex-miners who have little or no chance of being reabsorbed in the coal industry, it cannot be too strongly stated that adequate provision for the welfare of unemployed men in the mining areas is one of the major responsibilities of the community. Even if the various suggestions for reducing the labour surplus, which were made in the last section, were adopted in full there might still be a considerable amount of unemployment in the mining areas, and there would be a large number of men in late middle life permanently retired on small pensions. If these suggestions are not adopted in full there will be an enormously greater welfare problem to be dealt with.

The first duty of the community is to make sure that the standard of living of unemployed and permanently retired miners is maintained at a decent level. This is largely a question of the scale and method of administration of unemployment allowances, and of the system of retirement pensions which is introduced. But, apart from these basic income services, there are several forms of activity which add to the effective incomes of those who engage in them. Allotments, group holdings, and several forms of subsistence production have already been developed in the mining areas, often on a very considerable scale. During the year ending August 31, 1935, assistance was given to 120,600 unemployed allotment cultivators, through the Central Allotments Committee and the Society of Friends' Allotments Committee, and at a modest estimate £600,000 worth of produce went into their homes. More than half the cost of these allotments (£53,118) was borne by the unemployed cultivators themselves; £11,270 was subscribed by the public; and £9,634 was added by the Government. In 1932 the Land Settlement Association was formed at the request of the Ministry of Agriculture to carry out experimental schemes for the provision of small holdings for unemployed persons. A series of experiments is now being carried out at a cost which it is estimated will amount to £1 million in all. The Government has agreed to give a pound for pound grant up to £75,000 in each of the first three years, and the Carnegie Trust has promised £150,000 spread over five years. In some cases these schemes involve transference from the mining areas, but there is also a number of schemes including a good many part-time group holdings (one quarter to one half acre each) in the mining areas themselves. The success of these ventures is as yet problematical and they can in any case only make a very small contribution towards the solution of the unemployment problem.

In addition to allotments and group holdings, there have been several experiments in "subsistence production" in different parts of the country—notably at Upholland, near Wigan; in the Eastern Valley of Monmouthshire; and the Homecroft Experiment, near Cheltenham. These experiments are still in their infancy, but they already show promise of raising the standard of living and changing the morale of those engaged in them to an astonishing degree. There is a very strong case for giving additional Government assistance to the various voluntary bodies engaged in developing all these forms of productive activity in the depressed mining areas.

Further assistance should also be given to local authorities and voluntary bodies for the provision of amenities of all kinds. Government assistance to voluntary bodies is at present made through the National Council of Social Service. Up to the present grants have been made through this organisation for school camps for boys and girls, occupational centres and holidays for women, occupational centres for men, social settlements, social centres for adolescents, lecture courses, choral societies, drama groups, other adult educational work and the provision of additional District Nurses. Grants have also been given by the Special Area Commissioners to voluntary local amenity schemes such as the levelling of ground for games; improving the aspect of a waste space by turning it into a garden or recreation ground; and the provisions of paddling pools and small open air swimming baths. But it is very desirable that wisely-planned projects of this kind should be greatly extended, if necessary with the help of Government funds. Everything that is possible should be done to make life interesting and purposeful for the thousands of men who have earned an honourable, though unwanted, retirement from work in an arduous and exacting, but vitally important, industry. For whatever measures are taken to divert part of the surplus of labour attached to the industry into other occupations and to prevent such a surplus recurring in the future, it must be appreciated that the older men will be displaced in the greatest numbers and that these will form an intractable group for whom transference and retraining are alike unpractical. To men who, though past the prime of life, are likely to retain for many years their mental and bodily vigour, the prospect of unwanted leisure at scarcely more than a subsistence level of existence is bleak indeed. Their care must be a matter of national concern no less than the care of the younger generations for whom employment must be sought elsewhere.

Public responsibility in this matter does not, however, end with the improved social planning of the coalfields in the Special Areas. Equally with the regeneration of the existing depressed areas it must be a matter for public concern that the more prosperous coalfields of the present do not degenerate into the depressed areas of the future. Collieries, which are often placed in the most beautiful natural surroundings, are too often also associated in the public mind with squalor and desolation. The exercise of a little foresight in the social planning of colliery districts is not only overdue as an act of social justice to the coal-mining community, but, by making the coalfields less unpleasant places for other industrial workers to live and work in, may also save a vast amount of trouble later.

APPENDIX I

RECENT STATISTICS

NOTE.—In the preparation of this Report it has not, in many cases, been possible to include in the text figures relating to a period later than the year 1934. Certain statistics relating to 1935 have now become available, and have been included in this Appendix.

COSTS OF PRODUCTION, PROCEEDS AND OUTPUT, 1935

	Tonnage Disposable Commercially (mill. tons)	Costs per Ton		Proceeds per ton	Profit (+) or Loss (—) per ton	Output per Man-Shift	Earnings per Man-Shift
		Wages	Total				
		s. d.	s. d.	s. d.	s. d.	Cwts.	s. d.
1st Quarter	51.3	8 6	12 9¾	13 6½	+0 8½	23.40	9 2¾
2nd Quarter	47.6	8 7½	13 2¼	13 2¾	+0 0¾	23.10	9 2¾
3rd Quarter	46.6	8 8¼	13 3¾	13 2	—0 1¾	22.93	9 3¼

EMPLOYMENT

	Total Number of Wage-earners on Colliery Books at Dec. 21st, 1935	Insured Persons aged 16-64 recorded as Unemployed at Dec. 16th, 1935	
		Wholly Unemployed	Temporarily Stopped
Northumberland	43,948	7,155	192
Durham	104,464	27,164	1,349
Cumberland and Westmorland	4,873	4,779	97
South Yorkshire	94,509	21,102	6,037
West Yorkshire	42,153		
Lancashire and Cheshire	59,663	14,129	967
Derbyshire	44,893	5,119	413
Nottinghamshire and Leicestershire	53,923	6,950	400
Warwickshire	16,424	765	33
North Staffordshire	22,540	5,186	824
South Staffordshire, Worcestershire and Salop	28,436		
Gloucestershire and Somersetshire	9,360	1,231	269
Kent	7,291	306	52
North Wales	8,726	50,579	2,815
South Wales and Monmouthshire	130,343		
Scotland	84,573	21,225	1,463
TOTAL GT. BRITAIN	756,119	167,434	14,922

EXPORTS (thousand tons)

A. Qualities

		1934	1935
Anthracite	small	651.3	521.5
	sized	2,504.5	2,398.8
	large	987.4	834.7
	Total	4,143.2	3,755.0
Steam	small	3,541.5	3,298.8
	sized	8,765.5	8,832.1
	through and through	3,405.8	3,360.9
	large	11,854.9	11,831.2
	Total	27,567.7	27,323.0
Gas	small	264.9	296.7
	sized	792.8	839.1
	through and through	2,522.5	2,141.7
	large	88.3	94.3
	Total	3,668.6	3,371.7
Household	sized	173.1	290.6
	through and through	4.8	3.1
	large	574.7	989.4
	Total	752.7	1,283.2
Other Sorts	Total	3,527.8	2,981.3
All varieties	small	5,592.6	5,038.4
	sized	12,374.5	12,567.6
	through and through	8,179.7	7,349.8
	large	13,513.1	13,758.3
	Total	39,659.9	38,714.1

B. Principal Markets

	1934	1935
Irish Free State	1,040.0	2,067.6
Canada	1,746.7	1,667.8
Sweden	2,609.7	2,526.9
Norway	1,371.0	1,311.0
Denmark	3,087.5	3,174.9
Germany	2,540.9	2,884.9
Netherlands	1,616.9	1,507.5
France	7,669.4	7,129.9
Portugal	1,028.5	1,038.7
Spain	1,341.2	1,243.1
Italy	4,698.7	3,189.4
Egypt	1,448.5	1,757.3
Algeria	1,060.0	1,017.9
Argentine	1,937.1	2,013.7
Other countries	5,463.8	6,183.5
Total	39,659.9	38,714.1

APPENDIX II

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REPORT ON INTERNATIONAL TRADE

3

P E P (Political and Economic Planning) is an independent non-party group, consisting of more than a hundred working members who are by vocation industrialists, distributors, officers of central and local government, university teachers, and so forth, and who give part of their spare time to the use of their special training in fact-finding and in suggesting principles and possible advances over a wide range of social and economic activities. By means of the fortnightly broadsheet, PLANNING, P E P keeps in continuous touch with a large number of men and women interested in social and economic reconstruction. The group has issued nearly a hundred broadsheets on a considerable variety of subjects, and has also published full-scale reports on the coal-mining, cotton and iron and steel industries, housing and building, electricity supply, retirement pensions and continued education from the age of fourteen. Details of these are given inside the back cover.

Preparatory work on problems of international trade was begun by the Industries Group of P E P more than four years ago. In the autumn of 1933 a separate International Trade Group was established, and in March 1936 growing international frictions led P E P to pick out the completion of this Report as an emergency task. The fact that a further fourteen months of intensive work have been needed to finish the Report is a measure of the quantity of labour, research and discussion that its preparation has involved. In spite of the amount of trouble which has been taken to secure a comprehensive and balanced treatment, the nature and complexity of contemporary international trade is such that many points have had to be omitted or treated much less fully than we would have liked.

P E P is concerned primarily with British problems, and this Report has frankly been written from the standpoint of United Kingdom import and export trade. We have, however, tried to avoid adopting narrow or insular views, and we hope that it may prove of service also to those who are working to raise standards of life and to reduce economic friction in all parts of the world. Like other P E P publications, this Report is intended to put down as far as possible in an orderly and coherent manner the main facts about its subject at the present time, and to give a progressive and balanced opinion about the next stages in development. The task in this case has been especially difficult as the subject is in a state of flux.

P E P welcomes constructive criticism, inquiries and suggestions, which should be addressed to:

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ON

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SUMMARY AND CONCLUSIONS

This summary of the main findings of the group is necessarily highly condensed. The various points made have been dealt with in more detail in the appropriate chapters of the Report, which should be consulted.

Approach to the Problem of Trade Expansion

This report examines recent trends in international trade with a view to discovering how the volume of world trade may be enlarged in contemporary conditions. We have not felt ourselves bound by traditional concepts regarding international trade which often rest upon an interpretation of economic history not always justified by the facts. For instance, the prevalence of free trade in the period when British trade increased most rapidly was not as great as is sometimes supposed, and the golden age of the British export trade in fact was based largely on the exceptional competitive advantages of British manufacturers in the world market, at that time unqualified. It is therefore unwise, in approaching this problem to adopt either the attitude of the convinced "protectionist" or that of the extreme "free trader." We have, in fact, to consider the present situation as it stands and to attempt to find ways in which the often unpalatable facts can be turned to good advantage.

Economic Function of International Trade

The fundamental economic justification for trade between countries, as for trade between different parts of the same country, is that it enables consumers to take advantage of existing specialisation of economic activities; this, however, is subject to political, social, and other extra-economic factors. The fundamental objective of national commercial policy should be the maximisation of consumption and the increase of the standard of living of the people, using such opportunities as external trading offers towards this end. Thus exporting and foreign investment are not ends in themselves but merely a means of acquiring a claim on the productive resources of other countries for the satisfaction of current or future consumption. Economic specialisation can, however, in practice only be pushed as far as is compatible with overriding political and social requirements—such as considerations of defence and the necessity of avoiding excessive fluctuations of prosperity. These are a stronger influence at the present time than in many periods of the past. Moreover, certain fundamental features of modern economic development are making for less rigid specialisation of activities, or at any rate for a less obvious specialisation than that which existed at the end of the nineteenth century between the industrial coal and iron economy in Western Europe and the primary producing economies overseas. The slowing down in the expansion of populations and development of new territories, the rising standard of life leading to more complicated and more diversified consumer demand, the distribution of sources of the essential

resources of industry, which have themselves changed in character and relative importance, have been the chief factors in this trend. It is probable that under the new conditions, the total volume of international trade will continue to increase but that its composition will change and that it will become of less proportionate importance in comparison to internal trade.

Importance of Invisible Exports and of the Quality of Export Trade

It should be remembered that the United Kingdom's interest in international trade does not end with the trade in goods. Invisible exports—shipping services, insurance, commissions and London financial services—brought in a net income of over £200 millions in 1929, equivalent to over a quarter of the value of the export trade in merchandise and more than four-fifths of the net income from past foreign investment. Income from invisible exports depends upon the volume of world trade as a whole, not merely upon the volume of British trade. Moreover, if the objective of a rising standard of life is to be consistently pursued, it is important that due weight be attached to the composition and quality as well as to the volume of trade. For consumption will be maximised if, in so far as is compatible with world stability, the maximum amount of imports can be purchased with the minimum expenditure of effort in the production of export goods to pay for them. For this reason, constant attention must be paid to the quality of the export trade, in order to ensure, in particular, that a transition is continually taking place from the old staple lines in which competition from newer producers has increased, to newer products which are still highly valued and for which world markets have not yet been highly developed. In this connection the concentration of manufacturers upon the home market, because immediate prospects of profit are better, is dangerous both to their own ultimate interests and to the future prosperity of the nation. For if consumption is to be increased in the future, imports must be at least maintained, and it is therefore essential that the vitality of the export trade should be maintained by the continual infusion of new export industries and new export products.

In seeking to expand the export trade, however, attention must be paid to factors which affect it indirectly. It should, for instance, be remembered that much of the trade of the world, and particularly that of the British Commonwealth, has habitually been conducted on a multilateral basis. Attempts to increase trade on a bilateral basis which may appear on the surface to produce satisfactory results for the parties concerned, often have the effect of interfering with multilateral trade and may, therefore, have unfortunate indirect consequences.

Recent Trends in International Trade

World trade declined by 25 per cent in volume between 1929 and 1932, and in spite of some recovery subsequently, had reached a level in 1936 which was still 14 per cent or 15 per cent below that of 1929. The decline has been greatest in the case of manufactured goods. Trade in raw materials has been relatively well maintained, as has trade in investment goods compared with trade in consumption goods. The decline and the subsequent slow recovery in world trade have not been due to any parallel

tendency in world production. In contrast to the experience of former depressions, world production and not world trade has led the improvement. Both the divergent tendencies of world trade in different classes of goods and the more rapid progress of world production are largely due to the consequences of economic nationalism. The progress of internal economic development has been one of the outstanding features of the economic history of the past five years. This movement, despite a host of absurdities, appears to arise from fundamental economic and technical changes of an evolutionary kind in factors affecting the international localisation of industry, and is essentially a permanent tendency. It has been affected by social and political factors which are not entirely the product of depression. It has been hampered and distorted into uneconomic forms in some cases by the inadequacy of internal working capital in countries where the urge towards internal economic development has been strongest and by the impossibility, in the conditions of the last five years, of obtaining capital from external sources. Hence the regulation of imports and the restriction of free exchange dealings, although aggravated by the more extreme forms of nationalism based on reasons of prestige, war economy, special complications of over-valued currencies and heavy debt burdens contracted before the slump, arises in part from the necessity of satisfying the prior claims of internal economic development for capital equipment and essential raw materials.

Growth of Bilateralism, State Trading and Economic Groups

The growth of bilateralism in international trade and the tendency of countries to unite in exclusive economic groups are partly the result of these difficulties and represent attempts to secure essential supplies with the minimum outlay of foreign exchange and to preserve the power to import freely by forcing or safeguarding outlets for exports. Moreover, "crisis measures," though originally imposed for a definite temporary purpose, have tended to become assimilated in the economic structures of the countries imposing them, and cannot therefore be easily removed. At the same time, increased State control of internal trade has necessitated increased State control of external trade as well. Increased State regulation of external trade, which is not based only on economic motives, has come to stay, even though in course of time it must be subject to the rationalisation which it urgently requires in order to perform efficiently the functions for which it is intended. The process has been pushed furthest in Germany and Italy, though in these countries it merely represents in an advanced state a condition of affairs which exists widely elsewhere.

The British Empire must share in the responsibility for increasing the impediments to world trade since 1931. The British tariff and the Ottawa Agreements which followed the depreciation of sterling were, in a large degree, an inevitable attempt to correct a balance of forces which had been tilted against the United Kingdom since 1925. But they succeeded by diverting existing trade rather than by finding new trade outlets, and for this reason have reacted slowly and indirectly to the disadvantage of the parties which benefited most from them in the first instance. Although these policies met the essential need of economic self-preservation at the time when they were inaugurated, they are not necessarily the right policies if continued without modifications in the conditions of the present time.

Dependence of the British Commonwealth on External Trade

Both the United Kingdom and the British Dominions and Colonies are highly dependent upon their trade with the outside world. The British Empire is a producer of primary products in excess of its capacity, or its potential capacity for some years to come, to consume them. This excess is increased if account is also taken of the balance of production in other countries, such as Denmark and Argentina, which are linked to the Ottawa system by agreements with the United Kingdom. In spite of the unsatisfactory standards of consumption at present, the prospect of a large expansion in the demand of the United Kingdom for Dominion foodstuffs in the future is not good in view of the tendency towards a stationary or declining population. The white population of the rest of the Empire is small, while the standard of living of its vast coloured population overseas is low, so that the prospects of largely increased consumption by British countries overseas of their own produce or of British manufactures do not by any means meet the potential increases in their productive capacity. In these circumstances, it is to foreign countries, and particularly to the industrialised parts of Continental Europe, which have an enormous white population, that the primary producers of the Empire must look if they are to attain anything like their full productive capacity and a large increase in their standard of life.

World Standards of Living

The British Commonwealth, and the United Kingdom in particular, has a vital interest in a large and flourishing world trade. The prosperity of world trade depends upon raising the world's standard of living. It will therefore repay British interests to assist the internal development of foreign countries with the resources which are surplus to the requirements of the British Commonwealth. Such a policy would also go far towards removing the economic pressure which is one of the most potent contributory factors towards political unrest and, perhaps, eventually war. In view of the failure, hitherto, of the tripartite currency agreement of September 1936 to produce any appreciable spontaneous loosening of trade restrictions, a constructive lead by the United Kingdom, in conjunction with the other democratic Powers, is now urgently necessary.

Relation of International Trade to British Economic Recovery

As regards the existence of possible difficulties in finding concessions to offer foreign countries without doing damage to internal interests, it may be added that a relaxation of import restrictions is daily becoming more necessary in the interests of internal stability. Industrial recovery on the basis of home market demand was already leading to a condition bordering upon full employment of labour and capital resources in many industries, when the exceptional and privileged demands of the rearmament programme were imposed upon it. If the competition of these various demands is not to have the effect of bidding up the price of services and resources which are already very fully employed, thus leading to a dangerously inflationary situation, fresh productive resources must in some way be made available. In the short period, and in certain industries, this can only be done by relaxing restrictions on imports. Moreover, the admittance of a larger volume of imports should

have a beneficial effect on those industries which are highly dependent upon export trade and which are the only branches of the productive system remaining at all seriously depressed.

Colonial Economic Policy

The first constructive step, in any case, in any attempt to secure an expansion in world trade on the part of the United Kingdom, should be the return to a policy of non-discrimination in the Crown Colonies. Discrimination is contrary to the consuming interests of the populations of these territories whose standard of living is so low that they are dependent upon purchases of goods cheaper than those with which United Kingdom manufacturers can supply them. In this sense, Lancashire piece-goods and Japanese piece-goods are not the same commodities, and substitution of one for the other can only be effected by depressing total consumption. Moreover, the general economic development of the colonial territories is conditioned by their high dependence upon foreign markets as an outlet for their produce. A policy of discrimination is contrary to the traditional concepts of Imperial Trusteeship and of government essentially in the interests of the colonial peoples which the United Kingdom has always held, and lends force to the colonial aspirations of the "Hungry Powers." Statements such as that which was recently made on behalf of the British Government to the effect that full and immediate imposition of an Open Door would impair the authority of colonial legislatures and impede their progress towards self-government by limiting their authority in fiscal matters, appear to ignore the real issues involved. It is, however, important in this connection to distinguish between a return to non-discrimination, which does not preclude the existence of tariffs, and reimposition of the Open Door which presupposes completely free imports.

Government Attitude to Trade

Before examining other aspects of government commercial policy, the functions of government in relation to trade in general may briefly be considered. These may be defined as, first, the regulation of the workings of economic processes in the light of political and social factors, and, second, the improvement of the working of the economic process itself by economic measures of its own. In the sphere of international trade, the government has to reconcile external economic policy with the requirements of internal economic policy. The government is the ultimate and only arbiter in matters of policy, and changes in policy can only be brought about by government action or government goodwill. The government has the particular responsibility of watching the interests of consumers which are not effectively represented through any other agency. Different governments have placed very different interpretations on their responsibilities in relation to trade, especially in the relation between the formulation or control of policy and its execution. Some governments have monopolised both functions, while others exercise a very direct control over the execution of policy. In the United Kingdom the government takes no part in the execution of policy, and in these circumstances there is a danger that policy will not always be very precisely formulated. The ideal system involves clear definition of policy on the part of the government, while at the same time business operations are left as free and therefore as efficient as possible.

Reduction of Trade Barriers

The realignment of currencies, the abandonment of deflation over the greater part of Western Europe, and the promise of greater exchange stability, which resulted from the events of September 1936, presented the world with a great opportunity to secure a greater volume of international trade. But subsequent events have proved it a mistake to believe that there can be much easy or automatic sweeping away of trade barriers in practice. Constructive action by governments and by industrialists is necessary, and the existing barrier of trade restrictions must be breached at definite points. The United Kingdom has, so far, failed to give any definite lead in this direction, but has, rather, hung back and allowed the initiative to be taken by the Scandinavian countries, Holland and Belgium—who attempted to secure an expansion of trade in 1930 through the Oslo Convention—and by the United States and France. More recently the British Government has co-operated with the French Government in setting on foot a preliminary enquiry into the possibility of breaking down the barriers to trade which will be conducted by M. Van Zeeland. According to a statement made by the British representative at Geneva in the autumn of 1936, following closely on the tripartite currency agreement, the contribution of the British Government was, for the moment, to stop short at abstinence from further depreciation of sterling, or from *increasing* tariffs as a result of the devaluation of other currencies in response to the strong internal pressure for increased protection which the government expected. The attitude of the British Government has been amplified by a further statement made by Mr. Baldwin in March 1937. It appears that, while subscribing to the view that the cause of world peace would be promoted by the freer exchange of goods and services, the government holds that the main obstacle to its achievement in practice is the existence of the present system of quota restrictions on industrial goods and exchange controls, and that tariffs do not form a major impediment to current trade. Action in these matters must, in the opinion of the British Government, clearly be left to other governments, since there are no exchange controls in the United Kingdom, and the only quota restriction on imported industrial goods is the "flexible duty-quota control" of imports of iron and steel which form part of an international industrial agreement among the chief supplying countries. The British Government can take every opportunity to urge action upon other governments, but does not regard the initiative as resting with the United Kingdom.

While the British Government appears to be reluctant to reduce any of its own import restrictions, it also clings to the use of the unconditional most-favoured-nation clause in its most rigid form which seems likely to hamper the efforts of some other nations to create a greater volume of trade in certain directions. For the efforts of these nations have largely been directed so far towards the possibility of increasing trade on a limited regional basis by means of "low tariff clubs." The British Government, according to the same statement, rejects the idea of low-tariff clubs to which it sees two fundamental objections. It is held, in the first place, that the creation of a low-tariff group would involve discrimination against non-participating countries and might lead to retaliation and tariff wars; it would involve the disappearance of the general application of most-favoured-nation treatment, to which the British Government attaches special importance. In the second place, experience is said to have shown that practical

results are not likely to be achieved except by bilateral negotiations, although the Government does not reject the idea of multilateral negotiations, if it can be shown that the time is opportune. In short, the Government appears to have decided that its present commercial policy should be continued without any change or modification, in spite of the general change in international conditions which has been occurring for some years, apart from the more obvious changes since September 1936.

It is because of these changes that we have thought fit to include a critical examination of the efficacy of traditional British commercial policy and to consider some of the alternatives.

British Commercial Treaty Policy

International commercial treaties, and notably British treaties, have been traditionally based on the use of the most-favoured-nation clause, usually in its unconditional form. This amounts, in essence, to a promise which is included in commercial treaties that discrimination shall not be practised in the dealings of one nation with another, although in practice it has taken the form of a pledge of equality of treatment with the "most-favoured-nation." While the unconditional M-F-N clause probably served a useful purpose, particularly to Great Britain, in assisting the establishment of free trade in the middle nineteenth century, its benevolent influence has become less and less obvious and effective in recent years. Generally, the use of the M-F-N clause in its unconditional form would seem to discourage the lowering of tariffs because every concession made to one nation must be broadcast without return to all other nations enjoying M-F-N rights. Alternatively, increased skill in commercial bargaining and Customs administration has had the effect that many of the concessions so broadcast by the automatic operation of unconditional M-F-N are of little or no value except to the original recipient. The chief influences undermining the effectiveness of unconditional M-F-N have, however, been (*a*) the increasing use of quantitative measures of import control (quotas, import licences and cartel agreements) which the existence of M-F-N obligations has, in the event, failed to prevent from being used for discriminatory purposes, and (*b*) the formation of economic groups involving preferential arrangements which fall, either legally or effectively, outside the scope of the M-F-N clause—the British Empire being an important example.

Low-Tariff Clubs

Attempts to widen the area of relatively free trade on a limited basis by the formation of "low-tariff clubs," run up against the difficulty that the existence of such clubs—which, of course, involve discriminatory treatment of imports—contravenes existing M-F-N obligations, except where the countries concerned form a group which has come to be regarded as a legitimate exception to the universal application of M-F-N treatment. The attempt, for instance, of Holland and Belgium to reduce their mutual trade barriers under the Ouchy Convention of 1932 was defeated by the opposition of the British Government on these grounds. If "low-tariff clubs" are to be made possible—and they represent one of the more promising methods of gradually liberating trade—a less rigid

insistence upon the strict interpretation of legal rights under present M-F-N arrangements will have to be encouraged. The United States has already opened for signature an international convention with this object in view.

General Utility of M-F-N

The dropping of any form of M-F-N clause from commercial treaties would be a grave step, since the clause safeguards important rights other than the promise of non-discrimination in the import of goods. It is sometimes suggested that a conditional M-F-N clause should be substituted for the unconditional form in commercial treaties. Under conditional M-F-N, the obligation to extend any concession made to a third party to all other countries enjoying M-F-N rights is not automatic, but is made conditional upon the production by such other countries of an "equivalent counter-concession." Use of the conditional form, therefore, makes possible the creation of a three-line tariff (general rate, preferential rate, and Empire preferential rate) and, therefore, of "low-tariff clubs." But such a step could only be undertaken with full realisation of the administrative difficulties which the conditional form has caused in the past. For it is practically impossible to decide to the satisfaction of all parties on each and every occasion what constitutes an "equivalent counter-concession"—hence the use of the conditional form has, historically, proved a fertile cause of ill-feeling and tariff disputes. The most promising immediate solution would appear to be to secure a much more liberal interpretation of the potential exceptions to M-F-N, which would, in effect, still further restrict its scope, while retaining the present framework intact, should it at some future date again be useful in its original form.

Shortcomings of Bilateral Bargaining

The argument in favour of proceeding by means of "low-tariff clubs"—which means, in effect, progress by multilateral negotiation, though on a small scale at first—is strengthened by the limits which exist to the progress which can be made at this stage by further bilateral agreements. Great Britain was particularly favourably placed to make advantageous bilateral agreements after 1931 and 1932, but even these had some unexpected indirect effects of a harmful nature to set against the advantages secured. In the present circumstances, the indirect disadvantages inherent in bilateral negotiations—which depend largely on the diversion of trade from competitors—often appear to offset the potential concessions to be obtained. If trade in any one market is obtained at the expense of foreign competitors by bilateral agreements, foreign competition is often merely intensified in other markets.

Use of International Industrial Agreements

This consequence may be avoided or minimised if supplementary and parallel negotiations between industrialists are encouraged alongside government agreements, subject to proper government supervision. The lack of adequate organisation in many British industries at present prevents this and, in addition, reduces the efficiency of official negotiators, even in bilateral talks between governments, owing to the inadequate or

unequal representation of industrial opinion. For this reason alone better organisation in industry is most necessary. But better organisation would also be the first step towards facilitating wide industrial negotiations for the purpose of regulating international trade on broader lines.

International industrial agreements, particularly if they are called "cartels," are habitually the object of public suspicion in Great Britain. There is a general belief that cartels are necessarily predatory by nature, injurious to consumers and contrary to public interests. In view of this attitude, cartel agreements are usually surrounded by conditions of secrecy which only serve to intensify public suspicion. The history of certain international cartels and restriction agreements in the past has certainly justified this verdict. But there is reason to believe, on general grounds, that the technique of industrial control is developing in a way which is exercising a modifying and beneficial influence upon the policy of cartellised producers. If the present restriction scheme for rubber and the recently suspended scheme for copper are compared with earlier attempts at market control for these commodities, it would appear that the failure of the greedy and short-sighted policies pursued earlier has taught producers where their real interests lie. The recent schemes show a degree of moderation and enlightened self-interest which earlier attempts at restriction certainly never possessed. It is significant, also, that a number of recent agreements for the control of raw material production are not only recognised by governments, but are enforced by legislation. Producers who are in the position to exercise monopoly powers can make the choice between selling a relatively small quantity at high prices and a high rate of profit, and selling at the lowest prices possible in order to attain maximum consumption. There is no doubt that it is in the latter policy that the best interests of all concerned are to be found.

Cartels in Boom and Slump

There are two main types of cartel agreement. The first is mainly concerned with maximising the earnings of producers over the long period by the regulation of output to demand. This type of control is generally applied to raw material production and often originates in times of slump when excessive output and stocks tend to prevent the recovery of prices. Control of this sort is liable to break down in time of boom owing to disruptive pressure from outside in the shape of increasing output by new or non-participating producers. The growth of disruptive forces of this kind is encouraged if cartel producers who have used their control of the market to restore a reasonably remunerative level of prices, are unable to resist the temptation to go further and "soak" the consumer. The second type sets out to maximise the earnings of producers by the division of the market at a given price level. This type of control would seem to be more vulnerable in times of slump and to the inside pressure which arises from bad faith on the part of members. As slump begins to affect turnover, cartel members may be tempted surreptitiously to undercut the official price in order to maintain their individual sales.

Cartel Policy and Administration

In so far as the mentality of producers is changing for the better, and the technique of cartel administration is improving, the instability of cartels arising from these economic

causes tends to be reduced. Many producers to-day have a far better appreciation of the fundamental economic factors affecting supply and demand in the long period and their reactions upon producer interests. This growing enlightenment is largely the result of experience, both of the drastic consequence of defying the laws of economics and of the commercial success of firms and industries which have respected them. This development would probably be accelerated if cartel policy were made subject to the criticism of public opinion by wider and more detailed publicity. It is growing in any case in so far as cartels are making increasing provision for research and development activities with a view to increasing consumption in the long period by technical advances. For the appeal to consumers on technical grounds can only be successful if it is reinforced by the appeal on economic grounds which results from the pursuit of a moderate price policy. The spread of this outlook should go some way towards removing the destructive pressure from outside upon certain types of cartel. For if a sufficiently broad view is taken by cartel administrators of consumption possibilities in regulating output, extravagant booms and slumps are less likely to develop and destructive pressure will not grow so readily. The technique of cartel management is also improving on the administrative side with increasing skill in devising a constitutional framework which is legally binding on members in practice. In addition, there has been a notable tendency in recent years to eliminate the rigidity in operation of some of the earlier schemes, and therefore to remove the incentive of members to break them, whatever their legal ability to do so. This tendency has taken the form particularly of a trend in favour of export control as opposed to production control. Production control involved interference with the activities of producers in their home markets, and schemes have broken down in the past because manufacturers have been compelled to share an unforeseen expansion in the domestic market with their competitors. Recent cartels have tended more often to apply merely to the division of "free" markets. Control of exports can be less restrictive by nature and less injurious to consumption than control of production. But it contains certain dangers for consumers nevertheless, and requires increasing vigilance by governments to ensure on the one hand that consumers are not exploited by their own manufacturers in conditions where import competition has been removed or controlled, and on the other hand that consumers in "free" markets, where there is no indigenous production, are not subject to exploitation by arrangements between competing outside interests.

Relation of Government to Cartels

We believe that the technique of trade control by cartels is coming increasingly to be based on sound economic principles and can contribute to the orderly expansion of trade, and perhaps also to the elimination of excessive fluctuations in economic activity. But it cannot be sufficiently emphasised that progress in this direction can only be secured by the active intervention of governments to ensure that agreements should not take a form detrimental to consumers. Governments are already in a position to insist on this, since theirs is the primary responsibility for the protection of consumer interests from exploitation by producer groups, although this responsibility is not always adequately fulfilled. Apart from their undoubted constitutional right to intervene, however, governments can offer a substantial inducement to producers to co-operate with them

when making agreements, in the shape of legislation to give statutory force to cartel agreements through the machinery of the distribution of quotas and the alteration of tariffs. The beginnings of a system of this sort are already to be observed in the institution of the Import Duties Advisory Committee in the United Kingdom and the Tariff Boards in the Dominions. Moreover, the assistance lent by the British Government to the iron and steel industry in conducting negotiations with the International Steel Cartel has set a precedent in this country for government intervention. Official bodies, however, have no power to initiate negotiations, and the initiative has not so far been very readily forthcoming from inside industry. Improved industrial organisation is necessary to this end.

Apart from the case for increased government intervention for broad economic reasons, the growth in the importance of international cartels as an influence on world trade may soon compel governments to intervene, if only in order to preserve the efficacy of their own commercial agreements. Examination of the scope and character of some of the cartels at present in existence reveals the large and growing influence which such agreements exercise. The growth of this movement seems to be founded in large degree upon the evolution of the industrial structure itself. At any rate, the existence in practice of a large number of industrial agreements, some of which are secret and cannot be officially recognised, tends to conflict at times with the provisions of government agreements. Where such conflicts occur the devices which have to be employed to evade one or other of the agreements concerned complicate infinitely the mechanism of day-to-day trade. Governments should, therefore, interest themselves actively in industrial agreements in conjunction with their own. The responsibility of governments in this connection is threefold—to fulfil their responsibility of protecting consumers from monopolistic practices, to secure the improved working of the productive and distributive processes and to preserve the efficacy of their own commercial arrangements. The development of such a technique seems to be particularly worthy of consideration at the present time in view of the difficulties surrounding the application of traditional commercial policy and the changed economic background of international trade.

Local Cartels

Regulation of trade by cartel agreements would seem to be particularly suited to alleviate the frictions caused by the growth of secondary industries in the Dominions and foreign countries overseas. The proportions in which such markets may reasonably be supplied by Dominion home industries and British and foreign export industries respectively is a question which the three parties concerned should be encouraged to decide in detail for themselves subject always to official control and the final approval of the government of the consuming country.

British Export Methods

While government and industrial agreements can determine broadly the conditions under which trade is carried on, trade is actually conducted in the event between individuals or individual firms and the efficiency with which it is conducted will depend upon the efficiency with which these contacts are organised.

Taking British industry as a whole, there is an outstanding lack of knowledge of foreign markets. British export methods have, in fact, failed sadly to adapt themselves to the changing conditions of modern international trade. There is even a tendency, in view of the increasing difficulty and complexity of export business and the easy and profitable outlet provided by the home market, to neglect export trade altogether except to Empire countries, where ties of currency and language make business easier. This attitude is injurious to the national interest and to the long-term interests of manufacturers themselves. For the neglect of export markets at the present time may result in a loss of goodwill among potential customers abroad which would prove of incalculable importance at a later date, when the home market is less prosperous. The maintenance of an active overseas business at the present time, even though it may involve a loss of potential profits now, in fact represents a prudent investment—an insurance premium against a less easy state of affairs in the home market in years to come.

Owing to this neglect, the existing machinery of foreign trade is being neglected. It is also becoming obsolete as a result of radical changes in the structure of industry and trade and the nature of consumer demand the world over.

Functions of Merchants

British export trade was built up during a period when trade was fairly free, population and the demand for imported commodities in Great Britain were growing together, and overseas territories were being opened up by capital exports and migration. The multiplication and diversification of the commodities entering into international trade had not, by modern standards, proceeded very far. The merchant house played a large part in the handling of trade during this period. The merchant's outlook was essentially opportunist. The merchant acted not only as an exporter of goods from the U.K. but as an importer and distributor of the produce of the countries to which he sold, and did a variety of other business as well. He therefore performed a vital function in arranging export and import transactions, thus keeping trade moving and facilitating the rapid circulation of funds invested in trade. Moreover, merchants also facilitated the growth of multilateral trade since they were generally ready to buy or sell in any market. And since British merchant houses were closely in touch with the unrivalled facilities of London banking and finance, they brought the cheapest possible means of trading within reach of the world.

There have been two main types of merchant house. The first operates mainly from a United Kingdom port as an exporter of British goods to foreign importers. The second type performs a more elaborate function, being frequently domiciled in the country with which it principally deals and having invested the major part of its capital in maintaining importing and distributive organisations there. The second type has therefore acted as an importer abroad as well as an exporter from Great Britain and has come to acquire a larger financial stake in foreign markets and a much more intimate knowledge of conditions there than the house operating mainly from an English port.

Decline of Merchant Business

The purely merchant business of merchant houses has been declining for some time from a number of causes. In the first place, the composition of the goods entering into

international trade has been changing in such a way as to necessitate more specialised selling, based on technical knowledge of the goods concerned, and sometimes also the provision o service after sale. Merchant houses did not possess this technical knowledge and could not always afford to supply it. Some merchants have made strenuous and not unsuccessful efforts to meet this difficulty by closer collaboration with manufacturers, and even exchange of staff. But for the most part, merchant houses have failed to keep pace with these changes in market requirements, and have come to render less satisfactory service to the manufacturer. That is one side of the picture. If, on the other hand, merchants have done well and have succeeded in developing a growing and important market for the products that they handle, manufacturers begin to become interested in distribution and in taking the merchant's profit for themselves. Merchants have, in other words, suffered to a fate to which all pioneers are subject, whether in trade development, invention or mining.

Apart from technical and internal causes of this sort, British merchant houses have suffered from increasing competition from foreign firms. This competition has taken the form mainly of the growth of local importing houses which may displace a British importing firm of the second type described above. Moreover, the development of local banking has affected the financial business of the merchant house, while, with the growth in organisation of industry and commerce alike in foreign countries, an increasing volume of orders is probably placed direct with the manufacturer in this country instead of passing through a merchant house as formerly.

The third, and possibly the most drastic cause of the decline of merchant business has been the growth of impediments to two-way trade arising from a number of causes. Merchants are vitally dependent upon their ability to trade both ways in order to keep their funds mobile. In recent years a number of influences have arisen which have hampered the free flow of merchant funds. Of these, the most important are the growth of protection in the United Kingdom; the growth of one-way export selling by large British manufacturers; the general growth of exchange restrictions and the decline of multilateral trade, and the growth of State trading. The British tariff increases the difficulties of merchant houses in importing goods as a means of liquidating their export transactions. The growth of one-way export selling not only deprives the merchant of export business, but helps to cause exchange difficulties in the importing country with adverse effects on whatever merchant business remains. The growth of exchange restrictions has resulted in the freezing of merchant balances in many foreign countries. Where State-trading has been adopted, merchants must obviously lose business, except in so far as they continue to be used or tolerated by State-trading institutions.

Agency System

Some manufacturers have made use of the agency system in conducting export business, and this system is, in fact, much more popular with British firms than with most of their foreign competitors. But there are serious practical difficulties for the manufacturer, especially if doing business in a small way, first of all in finding a suitable agent, and then in working out satisfactory arrangements for maintaining effective contact at all times. The agency system can work well, if sufficient care and attention is expended on its organisation, but it can also work very badly.

Need for a New Export Technique

The following position therefore exists with regard to the state of export organisation. The old merchant system has been breaking down, partly from the effects of the growing complexity of trade, but partly from hindrances to that mobility of funds which is essential to the successful conduct of merchant business. Large firms have solved the problem of foreign marketing fairly satisfactorily from their own standpoint by adopting direct selling through marketing organisations abroad under their own control. Many smaller firms, unable to bear the cost of direct selling, are continuing to conduct their business through agents, which is not always a very satisfactory method of trading, unless very carefully organised.

Viewed from a wider angle, the effects of these changes are disquieting. The ability of foreign countries to buy British goods is largely dependent upon their ability to sell their own produce and services, if not in the U.K., at any rate in some other free market. Merchants facilitated two-way trade of this sort, and have, in fact, been highly dependent on it. But neither the overseas sales organisations of large firms nor the agents who represent small manufacturers are interested in two-way trade; they are essentially channels for one-way selling. The selling organisations of large firms are encroaching increasingly upon one function of the merchant house—general export business in British manufactures. For in order to cover the fixed costs of maintaining an elaborate sales organisation abroad, large firms are increasingly undertaking the sale of goods complementary to or quite outside their own range of products; thus acting, in a sense, as general export merchants, and encroaching upon the business of genuine merchant firms. But while they are thus reducing the export turnover of genuine merchants, they are not adopting the other primary function of merchants, which is to keep trade liquid by conducting two-way trade.

The decline in the volume of merchant business due to the combination of factors mentioned above is compelling merchant houses to seek new outlets for their activities. They are finding these particularly in local industrial development, but whether this is advantageous to British interests in general in the long run, or a safe medium for the activities of merchant businesses, is another matter. The merchant houses possess an accumulated wealth of knowledge and experience of the economic and psychological conditions and requirements of the markets in which they operate. This asset is of incalculable importance to an efficient and thriving export trade. Yet there is a danger of it being dissipated or put to other uses. At the same time, there are obvious gaps in the existing structure of export organisation which must be filled. The problem is one, therefore, of devising machinery by which the undoubtedly valuable assets of the merchant can be put more effectively at the disposal of the manufacturer.

Changing Conditions in World Markets

There is something to be learnt from the export methods of other countries which have, generally speaking, relied more than British manufacturers on direct selling and direct representation abroad. At the same time they have developed to a much greater extent the system of joint representation. Foreign manufacturers seem to have less difficulty in obtaining men of first-class technical qualifications to serve abroad. The

export of experts assists in more ways than one a flourishing export trade in goods. Insufficient attention has been given in this country hitherto to the training of personnel for service abroad, nor is the remuneration offered and the security of employment sufficient in many cases to attract the best men, in view of the opportunities available in the home market. Owing to more direct and thorough representation, and sometimes a more sympathetic approach, foreign firms are often more receptive to local colour than British exporters, and better informed of local tastes, preferences, and peculiarities. British manufacturers often fail to appreciate the importance of attention to these seemingly unimportant details. But it should be remembered that the greatest potential markets of the future lie in territories where the standard of living is still low and consumer psychology is primitive and peculiar. Moreover, over the world as a whole, the requirements of consumers are becoming more exacting as the standard of life rises, and as the consumer's range of choice increases with increased competition. Consequently, export markets need to be more carefully studied to-day and export methods overhauled. Methods which were effective thirty years ago are no longer good enough to-day. These factors are largely the result of economic growth and not merely the effects of a period of exceptional depression. The transformation of the "seller's market" of the nineteenth century into the "buyer's market" of recent years is more fundamental than that. And from this emerges the importance of cultivating the goodwill of export consumers at all times, irrespective of booms and slumps.

In the present state of export organisation the difficulties which face the small manufacturer in surmounting these obstacles are enormous. When, in addition he is faced with official restrictions on trade and impediments to the transfer of export proceeds, it is not surprising that the smaller manufacturer often decides to concentrate his activities on the prosperous home market. In so far as it is the small firms of the present which often develop into the new industries of the future, every encouragement should be given to them to export in order to preserve the vitality of the export trade.

Helping Customers to Sell

The intensive methods of selling and sales development adopted by the larger manufacturing firms have, to some extent, provided the solution for the problem of adapting export organisation to modern market conditions. But it must be realised that the efficient presentation of goods at the lowest possible price will avail little if the consumer has no funds wherewith to buy them. And the amount of purchasing power which is possessed by the consumer is directly dependent upon his ability to dispose of his own goods in world markets. Merchant houses fulfilled the function almost automatically of helping their customers to sell. The large firms have not taken over this function from the merchant, and have, at the same time, reduced the merchants' ability to perform it by taking part of his export turnover.

It is suggested that the customers of the British export trade and, therefore, the British export trade itself, might be helped by developments on the following lines. British manufacturers, though they can efficiently undertake the export sale of goods which they do not themselves make, can hardly be expected to extend their activities to buying and distributing the produce of their export customers. It is, therefore, necessary

to devise methods of organising the export of the produce of Britain's export customers with something like the same intensive efficiency. Something can be done indirectly if British firms can be made to see their own long-term interests sufficiently clearly to be willing to assist the reasonable economic aspirations of foreign countries for more rapid industrial development. It is true that the development of domestic industries to produce goods which were formerly imported may in some degree have direct adverse effects on British merchandise exports. But it should be remembered that such development is taking place already, and will continue to take place whether British manufacturers like it or not. It is better, therefore, that this country should take a wide view of the future of its export trade and that individual manufacturers should take a wide view of all their future potential sources of income. If the growth of foreign industries is allowed to proceed, as it otherwise will, without the assistance of British finance, capital goods and skill, the present export trade in certain goods will be lost without any compensating advantages. If, on the other hand, manufacturing industries overseas are assisted to develop on sound lines with active British participation, the inevitable decline in the export of staple consumption goods from the United Kingdom should be offset by rising exports of specialised and capital goods and services, and the individual manufacturer should be able to conserve his profits from abroad through investment interests even if his shipments of goods decline. Moreover, if the development of industry overseas is controlled in this manner, the inevitable transition in the composition of the British export trade away from the old staple lines towards new technical products, should be made much easier and less productive of dislocations.

Direct assistance to foreign nations could be provided by the provision of finance, technical advice and commercial services for the purpose of organising trading companies to secure the more efficient handling of the export produce of relatively undeveloped countries. Many classes of British manufacturers would profit from large schemes of capital development overseas in the shape of increased orders for materials and equipment. British financial interests would probably welcome an opportunity of financing such projects provided they offered sufficient security. Many countries are anxious to undertake projects of capital development, but are prevented from doing so by the inadequacy of internal capital and inability to develop a sufficiently favourable balance of payments to finance development out of income, or to justify the raising of funds externally. Their ability to proceed depends in many cases upon ability to place their exports to better advantage. At the same time, they are understandably anxious that any schemes of internal development should be carried out under their own control. A proposal which is developed in more detail in the body of this report is that British manufacturing, commercial and financial interests, which are likely to benefit from the acceleration of capital development abroad, should combine with the governments concerned in forming trading companies for the purpose of organising the export trade in the produce of those countries. A few foreign governments are already moving tentatively in this direction of their own accord, but their efforts would be strengthened by the assistance of the superior financial, technical, and commercial assistance which the U.K. could provide. There are obviously great practical difficulties in organising companies of this nature, but we believe that the principle is worthy of serious consideration.

Export Consortia

The above suggestions apply mainly to the operations of the larger firms. Smaller firms are essentially in a different position, since most of them have not, acting on their own account, sufficient resources to justify an attempt at developing an intensive system of export selling through overseas branches or subsidiaries. For them combination in export sales organisation would seem to be the most promising solution. The individual resources of a number of firms if applied jointly for the maintenance of a single sales and development organisation abroad, are capable of producing better results than if they are applied in competition. We, therefore, advocate the formation of loose consortia among manufacturers in association with a merchant house and, if necessary, with banking interests, for the purpose of jointly developing a specified territory. Such associations are particularly suitable for handling trade in complementary products, in order that a complete range of services can be offered to the consumer through one organisation. The participation of a merchant house, with its local experience and local funds, would be essential to the success of this type of enterprise. The idea is not entirely new, and represents an attempt to bring the valuable resources of the merchant into closer touch with the needs of industry. It is, in a sense, a development out of the growing importance of merchant agencies. Utilisation of the resources and experience of merchants, which are in danger of being dissipated under present conditions, must, in fact, form the core of any policy designed to improve the efficiency of export trade by devising new types of export organisation. The problem is one of devising a system within which the valuable assets of the merchant house can be placed more effectively at the disposal of industry. The old system, as we have shown, is failing to produce the best results under the strain of changing modern conditions.

Government Assistance to the Export Trade

A certain amount of assistance in the conduct of day-to-day export business is provided by the government commercial intelligence service built up since the War in the Department of Overseas Trade. This service is of particular value to the small manufacturer, though it should be emphasised that at all times it is an ancillary service which cannot do much to increase export trade unless the trader is prepared individually to seek the assistance of the Department. Since there appears to be some misunderstanding regarding the functions of the Department of Overseas Trade—which are more strictly circumscribed than is sometimes supposed—we have included a description of its scope and organisation. The foundation of the Department and the effective organisation of a commercial diplomatic service dates only from the end of the War. The Department is subject to the dual control of the Board of Trade and the Foreign Office, and exercises some of the functions of both in relation to the export trade. It is not sufficiently realised that the Department's responsibilities are largely confined to the assistance of export traders in their daily business with foreign countries. It has, for instance, no responsibility for the external commercial policy of the country which is shared by the Board of Trade and the Foreign Office, or for import policy which falls within the scope of the Board of Trade and the Import Duties Advisory Committee. The Department is charged with the general administration of the overseas commercial diplomatic service (in foreign countries)

and the trade commissioner service (in Empire countries). It seeks to fulfil its function of promoting British exports by the collection and dissemination of commercial information, and by the efforts of its overseas officers in personally assisting firms and their representatives in obtaining and developing markets overseas.

Extension of Government Commercial Services

The field which the Department covers is vast and complicated, and it is difficult to believe that the finance at present available is fully adequate for the task which a government organisation of this type might undertake. The net vote of expenditure for the Department (that is to say, excluding certain self-supporting activities such as the British Industries Fair) was little more than £450,000 in 1936/37, which represents only about one-tenth of 1 per cent of the value of British direct exports in 1936. This can hardly be described as an excessive charge on the nation, and even if the vote were substantially increased there is little doubt that the increased cost would be easily offset by the improvement in services which the Department could provide. The American Government has at times spent proportionately three times as much on the promotion of United States exports, and in several respects the services provided by the Department of Overseas Trade do not compare very favourably with those offered by its opposite number, the United States Bureau of Foreign and Domestic Commerce. This is the case in connection particularly with the information which the United States Bureau collects and disseminates on the productive activities of other countries. The Imperial Institute, which is under the control of the Department of Overseas Trade, does invaluable work of this nature on Empire materials only, though the finance which it receives from Empire governments is inadequate for work on any large scale. It would appear that insufficient attention has been paid by the Government to the more indirect methods of promoting export trade, though it is clear that the Department of Overseas Trade is handicapped to some extent in this connection by the rigidity with which its terms of reference are limited to direct methods of trade promotion.

An increase in government expenditure on trade promotion activities should, however, only be contemplated if it can be permanently maintained, since continuity is one of the most important factors in the creation of a successful service of commercial information overseas. The U.S. Government, which at one time spent proportionately much more on trade promotion than the United Kingdom, was compelled to cut the expenditure of the United States Bureau of Foreign and Domestic Commerce very drastically during the slump, and the Bureau's utility has undoubtedly suffered thereby.

Improvements in the official commercial intelligence services would seem to be needed most urgently at the following points, which should have first claim on any increased revenue. Commercial diplomatic officers abroad can perform valuable services to business men by the organisation of their personal contacts. They would seem to be prevented from making the most of their opportunities in this direction and from travelling as freely in their territories as might be desired by inadequate salaries and the prior claims of routine work. Increased finance and increased staff would help to solve these difficulties, but, if no substantial increase in finance can be made, the possibility might be examined of making more use of honorary consuls in foreign countries. These are

often local business men and can provide British representatives, both official and industrial, with very valuable local knowledge of a detailed and specialised kind. In the second place, an improvement is urgently required in the very inadequate accommodation in which the Department is at present housed.

Financial Measures to Assist International Trade

Apart from the discussion of general economic policy, the suggestions so far put forward for the improvement of the mechanism of trade have mainly been concerned with questions of organisation. It remains to consider in what ways financial measures can be used to assist the mechanism of trade, as well as the influence which finance can exert on the success of general policy.

The relationship of finance to international trade is essentially one of dependence, and it is impossible to expect that the provision of finance alone will recreate facilities for trading which have been destroyed by other agencies. Finance can be used to oil the wheels of such trade as it may be currently possible, in the light of other factors, to carry on, but its use depends on the prior existing of the trading machine. If opportunities for trading do not exist, financial measures themselves are of no avail in creating trade. Hence while finance has a part to play in rebuilding a larger structure of international trade, it can only be used effectively in conjunction with other and wider measures of an economic and political nature. It is true that a country may, for a time, by manipulating the external value of its currency, succeed in securing for its traders temporary advantages of a kind which compel other countries to protect themselves by creating obstacles to the expansion of trade. Under present conditions the misuse of international financial machinery has been at least as fertile a source of hindrance to the exchange of goods and services as tariffs, quotas and other more concrete impediments to trade. The tripartite currency agreement of September 1936 was intended to lead to the removal of a large number of these trade barriers in so far as they arose purely from financial difficulties. But the agreement has not, in the event, had the successful effects which were expected in some quarters, although it provides a basis on which to work, and it is therefore necessary to consider new constructive action.

Regarded purely from the standpoint of their respective financial policies, there are three main groups of countries to be distinguished in the world at the present time. The first of these comprises the principal creditor countries—the United Kingdom, the United States, France, Belgium, Sweden, Holland and Switzerland—all of which have now readjusted the external values of their currencies and which are, as a group, facing a situation in which the continuance of an unwanted influx of gold and capital seems likely to have embarrassing internal consequences. The U.S. Government in fact is being compelled to borrow money for the purpose of buying and "sterilising" gold imports in order to minimise the inflationary effects of continuous capital imports upon the internal monetary structure. The measures adopted are, however, only a palliative. The plethora of funds in the creditor centres is accompanied by acute shortage elsewhere. The real problem is one of maldistribution of capital; it is not enough that money should be plentiful in the leading creditor centres while enterprise is starved elsewhere.

The much larger debtor group falls into two main divisions.

There is, secondly, a number of industrialised debtor countries, such as Germany, Italy, Japan, and, to a smaller extent, Poland. These countries have not for the most part been able to manipulate their currencies openly, but have been engaged in attempting to secure an effective graduated depreciation by discriminating methods of exchange control. By this means, some of these countries have tried to buy at one rate of exchange and sell at another, and to extort forced loans from the countries with which they trade, or from their creditors. Their policies have been conditioned by the necessity of supporting a given volume of production and consumption upon inadequate financial resources. Their position has not been improved by the rise in the general price level of the raw commodities which, as industrialised countries, they must buy in large degree on world markets.

Thirdly, there is a large number of countries, most of them predominantly primary producers, which are either debtors already on a large scale or large potential borrowers. These countries suffered severely from the dislocation of their balances of payments during the depression and tended to seek a solution for their immediate difficulties by attaching themselves to a country in one or other of the two former groups. These countries still have their problems in the shape of insufficiency of internal capital and the burden of past indebtedness, but, as primary producers, they are tending to benefit from the natural consequences of rising commodity prices.

Problem of the Industrial Debtor Countries

Purely from an economic standpoint, the point at which an attack by financial measures upon these various difficulties ought to be begun is the problem of the industrialised debtor countries. If this problem could be solved, its solution would contribute much towards the alleviation of the difficulties of the primary producing debtor group which needs, fundamentally, increased markets. But the problem of the industrialised debtors is not merely one of finance and cannot be solved by financial measures alone. The difficulties of some of these countries do not arise merely from ordinary financial and economic causes, but are, rather, the result of financial and economic policies which have been forced to fit larger national aims embracing also social, political and even "racial" objectives. In default of a comprehensive agreement to co-operate in all these spheres, the extension of piecemeal financial assistance by the creditor countries must be regarded as impossible and highly dangerous, since it might only be used to strengthen isolationist tendencies based on grounds which must appear to be economically unsound in the long run. In fact, financial assistance ought to be extended at any time only as part of a wider scheme of co-operation.

Reconstruction Lending

As soon as a certain political and financial stability within the creditor group can be established—and the slow progress of natural forces in this direction needs to be reinforced by constructive action—it should become possible to make increasing use of the surplus resources of the creditor countries, in conjunction with purely economic measures, to secure an improvement in the position of such of the hard-pressed countries as are willing to co-operate at all points. It would seem, on the one hand, that long-term

capital is likely to be required for purposes of reconstruction and economic development, and, on the other hand, that a larger volume of international trade will require increased short-term financing. Reconstruction lending will be required for the purpose of balancing budgets or stabilising currencies in foreign countries. It is important to remember that lending of this sort is economic only in a general sense, and must be conducted with a full understanding of its nature. For, though loans for these purposes can in theory be secured, the security can seldom be enforced, and the loan is not automatically self-liquidating in the strict sense. Such loans can only be expected to bring in a return in a general and indirect form, by the consolidation of the assets of the debtor and the general amelioration of the trading position. For this reason it may be profitable for the lending country as a whole to make loans of this type, but since the benefit is likely to be general, so should the risks involved in making the loan be generally shared. And this can most equitably be achieved if loans for reconstruction purposes are made subject to a guarantee to the private investor by the government of the lending country.

Development Lending

Since the "old debtor" countries are already linked in large degree to one or other of the creditor powers there is no serious obstacle to the resumption of purely economic lending or investment for development purposes, other than the existence of unliquidated past debts. But the process of debt reorganisation is actually proceeding rather faster than is sometimes supposed. As the expansion and differentiation of international trade proceeds, opportunities of foreign investment for purposes of economic development are likely to increase. Such investments are essentially of a directly economic nature, and in so far as they contribute directly to the development of the fixed assets of the borrowing country they can be regarded, broadly speaking, as directly self-liquidating in a sense which does not apply to reconstruction lending. It is seldom possible to compel the borrower of funds for capital development to spend it on the purchase of goods in the country where the loan is raised. No agreement to this effect is likely to be very binding, and only if manufacturing costs in the lending countries are fully competitive is this condition likely to be fulfilled in practice. Fortunately, the United Kingdom appears to be much better placed in this respect than was the case in the post-war decade. This is a point of some importance, since the ability of a creditor country to lend depends to some extent on the success with which loans can be correlated with exports of goods. The process of linking foreign lending with the export of British capital goods would probably be facilitated if greater attention were paid to the question of providing technical assistance to foreign borrowers for capital development purposes. In order to minimise the disruptive effect on current trade which is exercised in times of depression by the efforts of debtors to continue to transfer a fixed burden of interest, or creditors to collect what is due to them, it is desirable that as much foreign investment as possible should be undertaken on an equity basis in future, where economic and political conditions permit. On balance, as the experience of recent years shows, the security of legal rights to fixed interest payments can be largely illusory. Some such procedure is necessary in order to ensure that the effects of depression are equally shared by creditor and debtor, and that the recovery of the debtor is not impeded by the existence of a burden which he is temporarily unable to bear.

In so far as capital exports can be correlated with exports of capital goods, as already mentioned, the strain imposed upon the balance of payments of the lending country in making foreign investments is minimised. While, therefore, the flow of foreign investment need not be conditioned strictly by the position of the balance of payments of the lending country at any moment, the ability of a country to lend abroad regularly will depend upon the existence of a running surplus in its balance of payments of current income over current outgoings. It is, at any rate, desirable, in the interests of its own stability, that a country should not lend more than the running surplus of income over outgoings. In the interests of international stability, however, a creditor country should lend up to the full amount of this surplus, and should do so with full appreciation of the fact that the surplus will thereby tend to be increased in future years by the amount of the service on the loan, unless the appropriate adjustments are made to the national economy, by permanently increasing imports or reducing exports. Since the United Kingdom is a country which imports mainly raw materials and exports mainly manufactured goods, the adverse balance of merchandise trade of this country will generally tend, apart from a major change such as was caused by the depreciation of sterling and the introduction of tariffs, to be smaller in times of depression and early recovery than in times of boom. For the price level of raw commodities tends to fall in times of slump much more drastically than the price level of manufactured goods. Hence, if it is considered desirable that something should be available for foreign investment, it is of great importance in times like the present, when the excess of merchandise imports tends to be large, that every effort should be made to encourage a flourishing invisible export trade. For it is the income from past foreign investment and from invisible exports which pays for the excess of imports, and contributes any surplus of income over outgoings for investment abroad.

Treasury Control of Foreign Transactions

In recent years, the United Kingdom has not had large sums available for foreign investment compared with past experience, though it is impossible to be precise on this point since numerous difficulties peculiar to the past few years have made accurate computation of the balance of payments very difficult. There was, at any rate, a large surplus of outgoings over income in 1931. The depreciation of sterling was in some sense both the consequence and the cure for this and it was reinforced by the introduction of a wide tariff. At the same time, the Government virtually assumed control of the volume of foreign investment, ostensibly for the purpose of protecting the currency. The control has been quite informal and depends upon the goodwill of individuals and institutions in the City of London in respecting the "advice" which is given them by the Treasury. It must be admitted, however, that the Treasury has also a certain informal ability through its influence with the Bank of England and the Stock Exchange Committee to make things unpleasant for dissentients. The control has been relaxed in certain directions in course of time—for instance, in favour of Dominion borrowers, and certain types of loans by foreign borrowers within the sterling area. But it has been tightened in other directions, and applies effectively not only to new issues, but to any single capital transaction abroad involving the transfer of sterling in large amounts.

In view of the fact that there is no adequate opportunity for public debate or control of the Treasury's policy, and that its influence has clearly on certain occasions been used for purposes other than those originally stated as being the objectives of control of foreign transactions, this dictatorship by the Treasury—for it amounts to that—must cause a certain amount of anxiety. Not only does the policy pursued appear at times to be questionable, without being effectively subject to public control, but the methods employed are not wholly efficient for the purpose for which they are intended. The position has not been materially improved by the appointment of a Foreign Transactions (Advisory) Committee to assist the Chancellor of the Exchequer. The fact is that certain international capital movements—such as dealings on foreign stock exchanges and the disposal of the proceeds of exporters—are not susceptible to the present control or, in fact, to any control short of a rigid regulation of allotments of foreign exchange. This means that an undesirable development in the general situation which is caused by these uncontrollable movements can only be corrected by penalising other activities which may, in fact, be highly desirable. We believe that the whole question of Treasury control needs to be re-examined on grounds both of principle and of the wider requirements of national policy at the present time.

Government intervention in financial business has also extended to the field of short- and medium-term credit. The medium-term credit, which is bound up specifically with a particular contract, is a modern development which is founded in part upon basic changes in the technical and economic conditions of industry, and in part upon difficulties in raising capital abroad arising out of the depression. It is in part, therefore, a permanent development which deserves to receive more attention from private financial institutions.

Government Competition in Trade Financing

Government intervention in this field has increased through the instrumentality of the Export Credits Guarantee Department. From dealing with current trade in a small number of countries, the Department has come, in course of time, to guarantee credits on exports to any country for a period of up to ten years and, subject to certain conditions, will ensure not only credit risks (the risk of insolvency of the buyer), but also transfer risks (the risk that the buyer will not be able to pay in sterling). Unquestionably, the Department has performed a valuable service in facilitating business with certain countries where, during the last few years, financial risks have been so great that it could not have been undertaken by private enterprise. But the Department does not exist solely for the purpose of assisting or subsidising exports to difficult areas. It has always set out to operate on an entirely commercial basis. Hence, in insuring transfer risks, the Department has made it a condition of business that the firm wishing to obtain cover must place the insurance of credit risks on all its export business with the Department. This means, in effect, that the Department is taking in a large volume of business which private institutions are quite competent to conduct cheaply and efficiently. And the conclusion cannot be escaped that this factor is tending to increase the average cost of trading abroad which might become a serious handicap to British export trade at a time when international trading conditions become less abnormal.

The Use of the Trade Bill

At one time, a large volume not only of British overseas trade, but of world trade as a whole, was financed cheaply and efficiently through the machinery of the London acceptance houses and the bill market. The technique of trade financing by the bill of exchange is extremely complicated, and traders can only be expected to use it if expert advice in its use is readily available to them. In the past, the combination of a number of circumstances ensured this. London acceptance houses built up an immense knowledge of the exact credit-standing of individuals and institutions the world over. To this extent, they acted as the intelligence service of the British banking system, and the agency through which the debt of one individual to another could be transformed into a negotiable and self-liquidating security at the lowest possible cost. Moreover, as long as the British banking system was regionalised, there was always a good demand for readily-negotiable securities of this type as a bank investment of a high liquidity; and bankers were actively interested in maintaining the supply of London bills by instructing traders in their use. In addition, the undisputed supremacy of sterling as the major world currency, and the cheapness of London's financial services, encouraged foreigners to conduct their trade through the medium of the sterling bill.

The use of sterling as a common trade currency had certainly begun to decline before 1931. In the first place, the willingness of foreigners to contract obligations in sterling depends partly upon the confidence with which foreigners regard their ability to provide sterling in order to liquidate these obligations, and the general instability of currencies must have an adverse effect on the use of sterling in this connection. The growth of exchange restrictions since 1931 has had further adverse effects in this direction. In the second place, the depreciation of sterling in 1931 had some effect, even though temporary, on its position as the major currency in international trade. In the third place, the decline in the importance of the business of the London commodity exchanges in relation to the total volume of international trade, has had effects tending in the same direction.

But at the same time, the trade bill became less popular as a medium of investment. The growth of the highly centralised clearing bank system has led to an economy in cash holdings in the British banking system as a whole, and therefore to a decline, proportionately to total assets, of the demand for liquid investments. At the same time, the supply of liquid investments has been enormously increased by the growing circulation of Treasury Bills, and bankers have tended to encourage the more lucrative system of trade financing by overdraft. There is reason to believe, however, that bankers would now like to see a revival of the trade bill for investment purposes in view of the difficulty experienced in employing their funds elsewhere and the low level of interest now obtainable on government paper. As a means of conducting trade cheaply the revival of the trade bill is to be encouraged, but it would necessitate an overhaul of the London financial machinery, which has tended to become rusty with disuse, and a campaign to educate traders anew in the use of a system of trade financing which they have largely forgotten.

Invisible Exports and Exchange Stability

But it must be admitted that the revival of the sterling bill is impeded above all by exchange instability and exchange restrictions, since foreigners will always, for obvious

reasons, hesitate to commit themselves to liabilities which they know they may be unable to meet. Something can probably be done to encourage the use of the sterling by laying emphasis on its cheapness. But its full revival, and indeed, the revival of all British invisible exports, which seems so important under present conditions, depends upon the attainment of greater exchange stability. Progress towards this end can be achieved by reconstruction lending on the lines outlined above, as opportunities occur. But reconstruction lending, or, for that matter, any international lending, can only begin if a prior condition of greater stability within the creditor group of countries has been assured.

It may be, and often is, urged that the *de facto* stability which has been preserved between the major currencies in the last few years, and more particularly since the tripartite currency agreement of September 1936, is conducive to this end. But, in the event, the effects of such measures as have been taken are, to say the least, disappointing, and it may be doubted whether an agreement which is subject to denunciation or variation by the participants at such short notice, provides a real basis for that confidence which is necessary for the re-establishment of sterling as an international currency and the resumption of lending by the creditor countries.

Practical Aspects of Currency Stabilisation

The British Government, while reserving its freedom of action, has from time to time declared its intention to re-stabilise sterling eventually. It is clearly unwilling to do so as long as other important currencies remain "free" or markedly out of alignment with their apparent economic parities, and doubtless other governments feel the same. Accordingly, the re-stabilisation of the major currencies is dependent upon international agreement. In contrast to the obvious political difficulties in securing agreement, the economic difficulties which led to the abandonment of former parities, would appear to have been greatly alleviated. In the first place, the increase in world gold production has greatly reduced the difficulties which resulted from a shortage of monetary gold. In the second place, experience in the control of currency policy during the period of "managed currencies" has led to the evolution of a new monetary technique whereby internal conditions can be partially insulated from external forces through the mechanism of exchange funds or dual currency reserves. In the third place, a new agency of international financial co-operation exists in the shape of the Bank for International Settlement.

Moreover, much progress has been made in the fundamental readjustment of British economic and financial conditions in the last five years which places the United Kingdom in a stronger international economic position than in 1931 or 1925. Further, while the process of economic recovery and the intensive demands of rearmament activities have, in course of time, brought production in the home market into a condition bordering upon full employment, certain branches of the national economy which are more intimately associated with external activity, have remained, if not depressed, at any rate seriously under-employed. The question therefore needs to be asked whether the continuation of an indiscriminate stimulus to internal activity is likely to add to permanent stability and whether, in fact, the financial policy which was right in

the circumstances of 1931 to 1936 is necessarily the right policy in the changed circumstances of 1937. A boom based mainly on internal activity and armament construction is too narrowly founded to last for long and the trend of events is demanding with increasing urgency the development of external activity as a balancing factor. It cannot be expected that a financial policy designed principally for the purpose of stimulating internal activity will prove the most effective policy also for the encouragement of external activity, For this reason a change of direction seems necessary, and a change particularly towards the creation of an international exchange position which will permit the recovery of British invisible exports. It has been argued at times that a prolonged period of testing is necessary before any rate can be fixed upon, at which re-stabilisation could safely be undertaken. But it is necessary to add in this connection that since the effects of *de facto* stabilisation are likely to be very different from those of *de jure* stabilisation, conclusions drawn from the one are not likely to be wholly applicable to the other. Moreover, the criterion by which the effects of maintaining any given rate must be measured—its reactions upon the equilibrium of the balance of payments—is itself not very easily measurable. For the effects of currency fluctuation and certain other factors combine to render very approximate indeed the somewhat inadequate calculations of the national balance of payments which are made by the Board of Trade.

We have hitherto considered the problem of securing an expansion of international trade mainly from the purely economic aspect. But it is necessary to take account of the practical effects of modifications of national economic policy which were mentioned earlier as arising from social and political factors. The modifications introduced from these sources are a powerful factor to-day.

Effects of Agricultural Policy on International Trade

Certain important modifications are introduced by the present trend of agricultural policy. The restriction of British agricultural imports from overseas countries according to the policy instituted in 1931 must restrict the ability of agricultural producers overseas to purchase British export goods, and for this reason has been attacked by those who hold strict "free trade" principles. In fact, the rigid specialisation of activities as between industrialism in this country and primary production overseas appears to have caused certain undesirable effects which must not be repeated. For instance, the low cost of production achieved by certain overseas agricultural producers in the past has turned out to be not entirely economic in the sense that it was achieved only at the expense of destroying the fertility of much agricultural land. The objectives of British agricultural policy should be, first of all, to secure ample supplies of cheap and nutritious food for consumers; second, to make the most of the natural advantages of British agriculture by improved technical and economic organisation; and third, to encourage the maintenance and expansion of a lively trade in agricultural produce with our export customers overseas.

Far-reaching changes have been taking place in world agriculture for many years, irrespective of the special factors introduced by the depression. The increase in the production of agriculture has not been accompanied by an equally rapid increase in consuming capacity. This and other factors have led to an exodus of population from

the land all over Europe, with the result that governments have had to take special measures to smooth over the transition or to prevent the movement from taking place. Until some sort of equilibrium is once again achieved, a relaxation of the political, social and economic pressure which is exercised upon international trade as a result of agricultural problems can hardly be expected. The attainment of equilibrium can be accelerated by the assistance of efforts to create secondary industries and by improvements in the mechanism of trade designed to improve the marketing of agricultural produce, in order to raise the return to the farmer while maintaining or reducing the price to the consumer.

Basic Needs of British Agricultural Policy

British agriculture is an important industry even in relation to agricultural activities in certain overseas countries which have become highly specialised in primary production. While we do not subscribe to the view that British agriculture should be stimulated because it is the "best customer of British industry," there is every reason why the attainment of an efficient British agriculture should be regarded as no less desirable than the building-up of efficient secondary industries overseas. Agricultural policy should therefore set out to raise the real income of British agriculture by methods which will not affect injuriously other British incomes or prevent the maximisation of the national real income as a whole; it should set out to assure ample supplies of good cheap food to the consumer and to make the best use of the natural economic productivity of the land. At the same time it is necessary to avoid the dangers which arise in times of slump or war from over-specialisation. Farm incomes are most likely to be raised by improvements in processing and distribution and by such technical changes in agricultural policy as will lead to the production of commodities for which British agricultural resources are best suited. These are mainly fresh foods for the home market which tend to command a high unit-value. Certain modifications to the technical possibilities in this direction must, however, be introduced according to the emphasis which is laid on various methods by which agriculture can contribute to the solution of problems of national defence.

Reconciliation of the long-term interests of the British consumer and industrial exporter and of home and overseas producers of agricultural produce depends, therefore, largely on the extent to which British agriculturists are willing to accept the emphasis on quality production and to discard other relatively unsuccessful lines. This, in fact, is identical with the policy which needs to be pursued in the export trade in manufactures. Government policy should be directed towards preventing a conflict between home farmers and home consumers on the one hand, and home farmers and exporters on the other, by using all the powers of government to secure the requisite transition in the productive activities of British agriculture.

World Standards of Living and the Trade in Agricultural Produce

In the highly artificial conditions of the past few years, when the United Kingdom proved to be almost the only remaining free market for many products, overseas supplies have sometimes been sold in this country at uneconomically low prices. In so far as this

has occurred, the British primary producer and indirectly the British industrial exporter have an interest in reopening alternative markets for agricultural commodities in other countries. Improvements in the mechanism of trade could help to develop these alternative markets. But a powerful influence making for greater freedom in international trade in agricultural produce has recently appeared in the shape of the movement to improve the nutrition of the masses and the standard of living in the world as a whole. It is not too much to say that this movement has captured the popular imagination in some countries and profoundly affected public opinion in others. There can be little doubt that the best solution to the difficulties of world agriculture lies in increased consumption, and it is possible to hope that the urge to achieve a higher standard of living will be sufficiently strong to break down the political and social prejudices which at present prevent a greater freedom of international trade in agricultural produce.

Influence of Politics on International Trade

Certain aspects of agricultural policy are not, however, the only extra-economic factors affecting or modifying the potential economic scope of international trade. No report which pretends to deal at all comprehensively with problems affecting international trade at the present time can fail to ignore the effects of political aspirations and of the part played in greater or smaller degree in national policies by the economics of war. We have accordingly ventured into the controversial field of international politics and attempted to point to certain factors which have profoundly influenced the development of international trade.

Post-War Politico-Economic Structure

The close inter-action of political and economic factors follows upon the results of the War and the developments of the immediate post-War period. The formerly powerful economic influence of the Russian, German and Austrian Empires was temporarily removed by political disintegration. The lead in economic reconstruction was left to the United States, Great Britain, France and Japan. At the same time the principle of self-determination, which was the basis of Versailles and the League Covenant, instilled a strong national feeling in the newly-created nations and inspired them with an urge to build up their national economies. This process was assisted by the loans which the United States poured into Europe, but that country was reluctant to exercise the political responsibilities which this great economic power thrust upon it and which became almost catastrophically plain when the depression arrived. The spread of newly-acquired nationalism, moreover, acted as a deterrent against the resumption of large-scale emigration, which was replaced by strenuous efforts to rebuild domestic agriculture to form the backbone of the new national economies.

The United States, having become for a time the world's most powerful creditor nation, continued to lend prodigally, but refused to accept the responsibilities of this position by either participating rationally in other world activities or allowing debtors to discharge their debts in goods and services. France felt convinced that French security depended on the maintenance of the politico-economic structure created by the Peace

Treaty, and policy was mainly directed to that end. The United Kingdom, in part consciously and in part intuitively, became increasingly preoccupied with the political and economic consolidation of the Empire and with adjusting its internal economic structure which had been gravely dislocated. Italy was not at this time a major force in world politics or economics, being mainly concerned with achieving internal stability and absorbing Fascism. In the Far East, Japan had been turning to good account the temporary withdrawal of other Powers from the Pacific area, in both the political and the economic sphere. The United States, Great Britain and Holland all felt the pressure of Japanese expansion at an early stage, but unfortunately care was not taken to develop the constructive aspects of a policy of Anglo-American co-operation in the Pacific area in order to facilitate economic adjustment and political tranquillity and to avoid action which might be interpreted by other nations as provocative. The League of Nations was to be one of the principal instruments of post-War reconstruction and did invaluable work in that sphere, but unfortunately its political responsibilities were interpreted differently by various of its members, and its authority was weakened at the outset by the decision of the United States not to participate. The primary explanation for the failure of the League to deal effectively with the really fundamental problems of the post-War world must, however, lie in the absence of any executive authority, which was inevitable in a body where instructions and decisions had to emanate from the independent representatives of sovereign States who felt themselves primarily bound by considerations of national policy.

The economic and political revival of the defeated Powers took some time to develop, but Germany set to work deliberately on an economic reconstruction from the ground up. The renewed German penetration of foreign markets was assisted by those Germans who had settled abroad before the War in many parts of the world. Russia at first concentrated on fomenting world revolution, with little success; but in course of time Russian policy became dominated more and more by the programme of internal economic development. Russian trade policy accordingly was dictated for a time by the urge to obtain foreign currency and resulted in a series of attacks on world markets, which caused grave dislocations—not probably from intent as much as from lack of experience and organisation. It is interesting to recall, in the light of subsequent events, that Russian development in the early stages was greatly assisted by Germany, which seems to have regarded Russia as a rich hinterland on the basis of which German power could be rebuilt.

World Situation on the Eve of Depression

On the eve of depression, the world seemed to fall into four main groups. The first consisted of the victorious Powers which were variously interested in reconstruction, economic development, the elimination of war, and the maintenance of the *status quo*. Then came those Powers, the chief of which were Japan and Italy, which, although not defeated in the War were feeling thwarted and possessed expansionist aims. The third group consisted of the nations which had suffered most in the War and were still striving to recreate themselves. Finally there were the new countries, still struggling to assert their national consciousness, but rapidly developing from their position as pawns in international politics to become formidable independent factors.

It is well to ask ourselves at this stage whether the adverse factors in world trade which became acute during the depression and which persist to this day, were implicit in the post-War structure. A number of them had begun to emerge at an early stage after the War, and were probably in large degree the inevitable consequence of the economic and political self-determination which were an essential feature of the post-War settlement. But many of these factors were crisis measures, though it is probably fair to say that both their acuteness and their permanence have been the result of failure to eliminate various points of political friction which have been intensified since the War. At the beginning of the depression certain of these points were clearly defined, and France was still mainly concerned with keeping Germany down and was tending to shut Italy out of certain lucrative fields of economic development. The pressure of Japanese Eastern industrialism and political expansion was coming increasingly into conflict with Western industrialism in the East. German economic penetration was again becoming felt in overseas territories and Russian power was spreading in the Near and Middle East and coming into conflict with Japan and North China. The United States and Great Britain felt the growth of these influences mainly in the field of trade, and being financially and commercially the strongest Powers, seem to have had confidence in their ability to keep them under control. But certain well-meaning attempts to link economic reconstruction and political appeasement were not sufficiently timely or far-reaching in view of the rapidity with which world events were developing. The incompleteness and tardiness of these attempts turned out to be disastrous, particularly in their failure to turn to good account the desire of German traders at one time to join in world co-operation. In the sphere of international politics and economics, the United States was not sufficiently conscious of her power to fulfil adequately the responsibilities of the world's greatest industrial and creditor nation, or to realise that such a nation cannot safely adopt a policy based solely on contradictory internal factors. Great Britain was becoming dangerously preoccupied with internal economic and financial problems, while France, politically the strongest Power in Europe, still adhered to the negative policy of thwarting Germany.

Meanwhile, the factors making for a world slump were rapidly gathering force, and certain undesirable features of economic nationalism were growing fast. The world depression, by depriving the United States and Great Britain of their means of guiding world events and by unleashing certain uncontrollable forces, completely upset the existing equilibrium. It exposed the unsoundness of the economic and political structure built up after the war and caused economic and political friction to coalesce. At the same time it made clear that world development depended on the active circulation of goods, services and population and this slowed down when Great Britain and the United States ceased to lend abroad. There followed the depreciation of sterling which, for the time being destroyed confidence in London and rendered Great Britain temporarily incapable of influencing world affairs. The world was then thrown back upon its own resources and the collapse of the structure which had been set up, together with the new political and economic trends then developing, set in motion a new combination of forces which entirely changed the situation.

We must at this stage emphasise the importance of psychological factors. The attempt, however half-hearted, of the economically and politically powerful nations to

reconstruct the world through the machinery of conferences had apparently failed. Conventional economic and monetary theories lost a great deal of support. New and exclusive political creeds arose and naturally aroused their own opposites. All this undermined once again the feeling of solidarity which had been increasing, and when the sanctity of treaties and the rejection of war as an instrument of policy were violated, the last vestiges of a moral order in politics and economics were gone. We do not mean to imply by this that such an order had been in existence. On the contrary, delay in its establishment was one of the fundamental factors of post-war instability, but the elements of it were undoubtedly there during the years 1925-1929, and have now disappeared because expectancy has given way first to disillusionment and then to fear. This psychological background is of the utmost importance for a proper understanding of the motives governing the present action of nations. The depression threw them back on their own resources and encouraged them to adopt methods of alleviation, the political and economic consequences of which were ignored in the prevailing state of *sauve qui peut.* The sudden cessation of lending and emigration forced many nations back upon agricultural self-sufficiency at a time when falling commodity prices still further depressed primary production. What was primarily an economic problem rapidly became an ethical and social one, so that the creed of economic nationalism which was expressed in the development of industrial self-sufficiency became elevated into a principle of national ethics, under which the status of agriculture became something good in itself and symbolic of a sturdy nation. This outlook happened to blend well with the political aspirations and grievances which were simmering. At the same time, countries which subsisted on the export of primary commodities found themselves without resources. The economic distress resurrected those revolutionary forces which had sprung from post-war chaos, but by this time there were also in existence new counter-forces equally strong. Thus, for the first time, the issue of "have" versus "have not" arose as a political doctrine, not only between classes but also between nations. The economic aspect of political creeds became not only an internal issue but an international one. Economic disintegration had thus shifted the balance from the use of politics for economic development to the use of economics as an instrument of politics.

Significance of the Manchurian Invasion

In the welter of crisis measures, two events stand out as shaping profoundly the future course of world history—the invasion by Japan of Manchuria, and Great Britain's decision to exploit the political aspect of the British Empire through the Ottawa Agreements and by the abandonment of the "open door" in the Colonial Empire.

Japan's opportunism in seizing part of China while the world was preoccupied with the problems of economic depression had consequences which we are still experiencing. The United States made a prompt move to safeguard the position in the Pacific and to enforce the sanctity of treaties. The American Administration appears to have attempted to obtain British collaboration, but without success. Whatever the reasons, the result was that the United States received what was interpreted as a severe rebuff and withdrew again into the politico-economic isolation which had already influenced the course of world events and was to have further disastrous results. It is interesting to speculate what might have been the subsequent course of events if Anglo-American collaboration could have

been made effective on that occasion. In the event, however, the authority of the League was merely weakened further. Japan was antagonised and the doctrines of the so-called "Hungry Nations" and of the "Economics of War" began to become dominating factors in world affairs.

Political Consequences of the Ottawa Agreement

The Ottawa Agreements were necessary to the logical development of the growth of the British Commonwealth as a group of independent units forming a potential economic and political whole and were dictated by the hard times through which the various Empire countries were passing. But Ottawa made clear to the world that the political ties binding the Empire were the dominant factor in the Empire's economic relationships. And whatever the exact constitutional significance and economic consequences of Ottawa, it is clear that foreign countries gained the impression, rightly or wrongly, that Great Britain was henceforth to use political authority in the Empire for her own ends and not primarily in the interests of world economic development. It is equally clear that the Ottawa Agreements were not intended to be an exclusive part of a strictly imperialist policy by British statesmen who probably regarded the Agreements as a first stage in a wider effort at reconstruction. But, unfortunately, the process of normal development by agreement was delayed and impeded; the World Economic Conference was allowed to break down, owing to the failure of economists and politicians to reconcile their ideas with events which had marched ahead of them; and meanwhile hitherto isolated and extravagant political ideas were allowed to crystallise and gather force. The world seems to have concluded that comprehensive schemes had no hope of acceptance, and that piecemeal arrangements offered better opportunities. While alleviating individual difficulties, this process left the principal problems untouched and allowed new political forces to gather strength until they came to dominate the economic mechanism. Financial deterioration and economic difficulties created new economic weapons which in many cases were merely crisis measures in the first instance but which, in powerful and unscrupulous hands, could and did become instruments for political ends.

Current Politico-Economic Policies

At this stage occurred the National Socialist revolution in Germany, which leads us up to an examination of the political influences affecting world trade to-day. Herr Hitler had sufficient internal difficulties in the first instance not to have rejected an equitable politico-economic settlement of outstanding difficulties with the Western Powers. But this opportunity was lost, for one reason or another, and Germany became set on a totalitarian course in which politics and economics, internal and external, were to be closely knit into a single whole. Yet the pattern of it may not, even now, be irrevocably cast. Dr. Schacht has certainly never abandoned the idea of bringing Germany back into the orbit of normal economic intercourse, though the economic measures which events have forced him to adopt have been far from normal and in the Four-Year Plan, in which they have now culminated, represent the most complete exposition of the "economics of war" which has yet been seen. Two main aspects of German policy may be distinguished, of which the first seems favourable and the second detrimental to world economic progress. The first is the development of overseas connections through shipping

services and other communications and technical and contract services. The second is a systematic attempt at politico-economic consolidation in areas adjacent to Germany. It has often been suggested that this involves ultimately penetration in an easterly direction towards the Ukraine. But the balance of evidence seems to suggest that German interests are more concerned with building a Mittel-Europa under German influence which would, in turn, dominate the Eastern Mediterranean and the Near East. It seems that if this policy is pursued, it may come into conflict increasingly with Italian policy which tends to run in the same direction. But Italo-German co-operation in the short period has been inevitable, if only to exploit to the full a situation in which Britain was hesitant and militarily unprepared, and the smaller countries tended to be demoralised.

The situation in the Far East has developed in a manner not dissimilar, for Japan has found a foothold on the Asiatic mainland to be less attractive than once seemed probable, and Japanese aggression has, on the one hand, only served to stimulate the consolidation of China, and, on the other hand, has run up against the increasing power of Russia. The question therefore arises whether any further expansionist efforts on the part of Japan may not be directed towards the Southern Pacific. But the consolidation of Russian political and economic development has had world-wide repercussions as well. Russia appears to be still interested in maintaining tranquillity in order to complete internal reorganisation. But Russia may at some future period enter a more dynamic political phase, and is already learning how, for instance, international influence can be wielded by an increasing production of gold.

The position of France in the international field is increasingly difficult, but the French have always been expert in the use of economic policy for political ends and *vice versa*. France relies on tranquillity over a wide area in the Mediterranean, and therefore imperialistic penetration in Spain or North Africa becomes of vital significance. French policy has accordingly been concerned particularly with the building of a Greater France through colonial assimilation and with maintaining politico-economic alliances with States which are politically or economically useful or must be kept out of other entanglements.

Since the United States has all the resources to become the dominant factor in world affairs, latest developments there may well prove decisive in the event of a crisis. It must be conceded that the Administration has an admirable desire to play a worthy part, even if internal politics inevitably cause actions to fall short of intentions. It is little short of disastrous that opportunities of closer collaboration with the United States which have occurred frequently in recent years, and are still occurring, should be allowed to slip by. For any encouragement strengthens the hands of those who appreciate the potentially great influence for good of the great resources of the United States, and any rebuff serves only to assist the blind isolationists.

Great Britain has been increasingly conscious of the importance of the Empire, and has therefore deliberately fostered economic relations as the main means of keeping some form of political coherence. But, unfortunately, the British authorities appear to have neglected the need to ensure peace in certain areas of the world which are vital for the Empire's safety on any long view, or to attempt to remove those economic grievances, real or imaginary, which so repeatedly lead to economic tension. Is it, for instance, a solution of the problem to dismiss, on the one hand, the colonial question as irrelevant to

the economic rehabilitation of the "poor" countries and, on the other, to refuse to consider any comprehensive plan of economic reconstruction which might involve a change of policy, or an element of risk, or a sacrifice on the part of Great Britain, such as a modification of the M-F-N Clause, the abandonment of bilateralism, and increased lending facilities? On the political side, is not the maintenance of the most rigid interpretation of territorial sovereignty and the indication that the maintenance of peace and justice in certain areas is of no particular concern to Great Britain liable to create an unfortunate impression that British policy is henceforth to be framed on reactionary lines—to preserve the present situation and abandon, for the time being at least—any broader constructive effort? Neglect of these issues would seem to be dangerous because it encourages the use of force, the development of the "economics of war" and at the same time makes Great Britain more and more involved in the latter, to her own great disadvantage in view of the highly complex economic structure and vulnerability of the scattered territories and extensive communications of the British Commonwealth.

The Economics of War

In considering the economics of war we must take account of the external and internal aspects as well as their general influence on the world economy. Externally they render essential the rigid control of trade and credit, in the first place to facilitate essential military imports, and later to eliminate the need for them. At the same time, labour and industry is conscripted in time of peace in order to build a structure which would only be fully employed in time of war. Hence normal economic relations with other nations and the normal development of national social and economic life are destroyed. It is a fallacy to argue that financially a nation cannot afford a vast rearmament programme because as long as it maintains a balance of payments adequate to finance essential imports, and as long as the government maintains complete command of the productive resources of the country, the process of forced saving can be inflicted on the community and the question of cost does not arise in a financial sense. A limit is imposed only by the social resistance of the community to an indefinite lowering of the standard of life. But if, on the short view, such a system is possible, it has very great dangers. Competition for resources causing a rise in world prices can completely upset import calculations. The internal pressure upon individual liberty and upon the standard of living cannot be maintained indefinitely or pushed beyond a certain point. When it is considered that some States are spending a fourth or a fifth of their national incomes directly or indirectly on "investment" for armament purposes it can be realised how near to the danger limit the world has approached. The economics of war introduce a new phase in world economics and their failure would probably mean the complete collapse of the regimes advocating them. The effects of such a collapse are incalculable, but the knowledge that a collapse cannot be risked must exercise a strong influence upon the minds of those responsible for these regimes and we cannot tell what desperate outlet they might not resort to in order to save themselves.

The economics of war are forcing us to use our prosperity for the wrong ends and to mortgage, if not to jeopardise, our future. Even if there is no choice for the moment, should not we take care to ascertain whether the principles underlying present economic policy are calculated to remove friction in the future? Unfortunately, there is too tardy

an appreciation of the significance of events and overmuch hesitation in following out the implications. The world has too recently suffered the horrors of prolonged deflation to be able to face it again. But if competitive rearmament is allowed to proceed unchecked and economic co-operation is not re-established, there is a danger that inflation will follow, to be followed in turn by another inevitable collapse. But in the meantime, the revival of activity has created conditions which make possible definite moves of a constructive nature. The recent move of the Oslo Powers may be interpreted in this light and even more significant is the growing tendency towards economic co-operation in the Danubian countries. These symptoms indicate a healthy determination by the smaller nations to take an active part in rebuilding the world economy. It remains for the leading Powers to lend their active support, and no nations are more capable of doing this than Great Britain and the United States. We must be prepared to ask ourselves whether Great Britain can again afford to refuse recognition to the desire of the smaller nations for more particular economic co-operation among countries linked by geographical or economic ties. Above all, the need for clear and rapid thinking, and for the accurate perception and formulation of the inter-action of politics and economics is now imperative to the larger nations, but in particular for Great Britain and the United States. Whatever the misunderstandings of the past, similarity of ideals and the exigencies of the present inevitably compel these two countries to draw closer together. If, as seems desirable, peace is to be preserved, the nations bent on war economy must gradually be wooed from their present course, then world prosperity can only be achieved by welding the remainder into an economic whole; and this requires the joint efforts of Great Britain and the United States.

Opportunities of World Economic Co-operation

Within the last few months, there has been a perceptible and refreshing trend of public opinion in this direction. After years of economic nationalism, opinion is hardening in favour of seeking a solution through the renewal of international co-operation. The Currency Agreement of September 1936, the discussions of the Oslo Powers, the activity of the Danubian States, the feelers which have been put out from time to time by France and the United States, and the increasing emphasis which has been placed of late by Dominion Statesmen on the need for a wider outlook—all these are symptomatic of a change of heart.

In the light of these considerations, the mission which is being undertaken by M. Van Zeeland, in his search for constructive opportunities, contains promise of really fruitful results, provided that it is not regarded as a means of postponing decisions and avoiding the facing of facts by those who should do so. At present there is little indication of the methods to be employed or the range of contacts to be made. This may be unfortunate, because if a real revival of economic activity is to be achieved, full consultation and co-operation with those engaged in such activity must be secured at the outset. Evidence is growing that many traders anxious to trade are prepared to examine critically principles and methods are no longer content with pious hopes. One of the outstanding advantages of democratic government is that it can enlist the criticism and co-operation of all the varied elements in a country, and in times like the present, such an advantage should be fully exploited.

I. THE APPROACH TO THE PROBLEM OF TRADE EXPANSION

Summary

(i) Traditional theories concerning international trade were built up to some extent on foundations which never really existed, or which have since disappeared. In particular, it is possible to exaggerate the historical significance of the contribution of free trade principles to the expansion of trade in the nineteenth century.

(ii) The fundamental economic function of international trade is to enable consumers to take full advantage of the existing specialisation of economic activities. The fundamental objective of national commercial policy should be to make use of international trade to maximise national consumption and raise the standard of living of the people. Hence, exporting is not an end in itself, but a means to the end of acquiring a lien on the productive activities of other countries for the greater satisfaction of consumers' demand.

(iii) The degree to which the benefits of international specialisation can be made available to consumers in practice depends upon the modifying influence of overriding factors of a political or social origin. These have increased in importance in recent years.

(iv) The extent of international specialisation itself is dependent at any time upon technical and economic factors which are always changing. Nineteenth century trade expansion was built on an economy of coal and iron and in conditions where the rapid increase of industrial population in Europe required increasing supplies of cheap foodstuffs from overseas. Population changes are now tending to alter the character and balance of consumption and at the same time international specialisation in industry has become less obvious with the greater dispersion of supplies of power, raw materials, and industrial skill.

(v) The United Kingdom's ability to purchase a large volume of imports is dependent not only upon British exports of merchandise, but also upon the invisible exports represented by shipping and financial services. Net invisible exports amounted to £200 millions in 1929, or more than a quarter of the value of merchandise exports. They fell to £105 millions in 1933, and had recovered only to £135 millions in 1936. The income from invisible exports is dependent upon the volume of world trade as a whole since the services provided by London are international in scope.

(vi) If the national objective of commercial policy should be to maximise national consumption with the assistance of import and export trade, due regard must be paid to the quality as well as the quantity of trade. The standard of living can be maximised by achieving the maximum volume of consumption of imported goods

with the minimum expenditure of resources upon the production of export goods in exchange, that is by maintaining the "terms of trade" in a favourable position. The "terms of trade" are widely affected by cyclical movements which are beyond national control, such as the change in the balance between prices of raw commodities (mainly imported) and prices of manufactured articles (mainly exported). But they are capable of being affected by technical changes in the composition of import and export trade. It should be the object of national policy to maintain the "terms of trade" by encouraging a continuous transition in British export industries from the manufacture of low-priced staple lines to the manufacture of higher-priced specialised goods. Hence, it is particularly important to encourage the newer industries to develop export markets before they are forestalled by competitors. Attention to the improvement of the "terms of trade" on the technical side is particularly important at the present time, since the depreciation of sterling in 1931 had some adverse effects. It is improbable that the depreciation of sterling could again be repeated in such favourable circumstances to this country as existed then.

(vii) In the long period, the current items in the balance of payments of a country must be made to balance. It is, however, often held desirable that they should show a surplus in the short period for the purpose of building up investments abroad. But it should be realised that the only economic justification for foreign investment lies in the fact that it represents the building up of reserves of postponed consumption to be utilised at a later date. Unless foreign investment is undertaken with the conscious object of increasing national consumption of imported goods and services at a later date by an amount at least equal to the service on the sum invested, foreign investment will merely lead eventually to a disequilibrium fatal to international commercial and financial stability.

(viii) The rigid adjustment of the balance of payments as between two countries on a bilateral basis must be abhorred. Much of the trade of the world is conducted on a triangular or multilateral basis which depends on the existence of an export surplus of goods and services in one quarter and an import surplus in another. This certainly applies with particular force to the trade of the United Kingdom and of the British Commonwealth as a whole. Hence, attempts to adjust bilateral trade on a strictly reciprocal basis tend to restrict opportunities of multilateral trading, and therefore to reduce the volume of world trade as a whole. And owing to the importance of various invisible exports, the position of the British balance of payments is vitally dependent upon a large and flourishing world trade.

International Trade in the Past

Much has been written by economists and others on the theory of international trade; which it is not the purpose of this report to discuss. We are more concerned here with the practical problem of analysing recent trends with a view to discovering how, under contemporary conditions, a larger volume of international trade can be achieved in the light of modern economic developments. But in seeking this object, we are implicitly accepting the assumption that a large volume, or at any rate a larger volume than at

present, of international trade is beneficial to the world in general and to the United Kingdom in particular. This view is not universally accepted, so that before plunging into the practical aspects of the problem it is advisable to analyse briefly some of the more theoretical conceptions of the significance of international trade in relation to other forms of economic activity and to the national income. It is also of some importance to realise that traditional concepts of international trade were built up on economic foundations which are changing, if they have not already irrevocably changed. For this reason, it is important that fundamental considerations should be distinguished from less fundamental variations on the main theme, which have been added from time to time as the result of ephemeral or imaginary conditions.

There is a general tendency to exaggerate the historical significance of the contribution of free trading to the great expansion of world trade in the nineteenth century, which has left its mark upon the general body of economic theory. In fact, the growth of trade in the nineteenth century was faced at times by obstacles which were not very much smaller or less apparently insuperable than those existing to-day. Yet between 1855 and 1900, British import trade increased in value from £143 millions annually to £523 millions and exports increased from £96 millions to £283 millions. The increase in imports was not due only to an increase in the imports of raw materials and foodstuffs. There was, even at this time, an increasing trade with Europe and the United States in non-competitive manufactures, as is shown by the increase in the value of British imports of partly and wholly manufactured goods from £22 millions in 1855 to £145 millions in 1900.

Export expansion was proportionately greatest in the trade with British possessions, but in quantity the expansion of exports to foreign countries was more important. Exports to British possessions rose in value from £19½ millions in 1850 to £93½ millions in 1900; exports to foreign countries rose from £52 to £189 millions. At the same time, a large proportion of British export trade throughout this period was conducted with countries that could hardly be described as free-trading. In point of fact, 56 per cent of British exports in 1850 went to protectionist countries in Europe, and though this percentage fell fairly steadily, it remained as high as 45 per cent in 1900. The importance of this group may be slightly exaggerated since it is necessary to include in it Belgium and Holland, which were not themselves highly protectionist, but conducted a large transit trade with Germany. These figures have been briefly cited in order to show that the background of British trade expansion was not exactly what it is sometimes supposed to have been. The peak period of free trade was comparatively short-lived, but it has exercised a rather disproportionate influence upon the imaginations of some economic historians. Before deductions can be drawn from past history as a guide for future behaviour, it is necessary that the past should be viewed in the proper perspective, and that fundamental considerations should be disentangled from irrelevant detail.

The Functions of International Trade

The fundamental justification for trade between countries, as for trade between different parts of the same country, is to enable consumers to take full advantage of the specialisation of economic activities, in so far as this is compatible with political, social and other extra-economic factors. The fundamental objective of national commercial policy should be to maximise consumption and to raise

the standard of living of the people to as high a level as possible, taking into account the demands of national defence and the prevention of instability by over-specialisation. There is a widespread fallacy that exporting is an end in itself and not merely a means to an end. The function of export trade, whether of goods or services, is twofold. In the first place, its function is to enable the exporting country to establish claims on the rest of the world whereby imports may be purchased, whether immediately or at a later date, and the standard of living raised by the maximisation and diversification of domestic consumption. In the second place, exporting serves the incidental purpose of increasing the turnover of individual manufacturers and thereby reducing average costs, which again tends to maximise domestic consumption. But, from the national point of view, the fundamental virtue of export trade is that it enables imports to be purchased.

International Specialisation

Prior to 1914, and even prior to 1929, international specialisation was being developed in a high degree, though since about 1890 specialisation between nations has become less obvious in character. That is to say, instead of the broad specialisation between agriculture and industry which was typical of most of the nineteenth century, the later tendency has been towards specialisation among industrial nations as well. The enormous growth of British manufacturing industry in the nineteenth century was facilitated by, and itself facilitated, the rapid growth of specialised agriculture overseas which enabled this country to divert its main energies from the primary occupation of feeding itself to other activities based mainly upon its then exceptional resources of coal and iron. The lengths to which international specialisation can be pushed at any time, with any given distribution of economic resources, depend in practice upon the degree to which it is thought that it can be safely allowed to develop. During most of the nineteenth century the extent to which political expediency interfered with the economic optimum of international specialisation was small; at the present time it is large and probably growing in importance. But at all times it must be remembered that economic factors alone cannot be expected to prevail in determining commercial policy, though they may be more dominant in one period than another. Throughout the greater part of this report, political factors have only been referred to incidentally, but in order that purely economic considerations may be related to national foreign policy, a concluding chapter has been added which attempts to evaluate shortly the present and potential influence of the principal political factors.

While political and social expediency must at any time determine the degree to which national specialisation can be pushed on economic grounds alone, it must be remembered that the economic factors making international specialisation possible are themselves capable of radical change from time to time. And it can hardly be denied that they have changed radically in the last twenty years in the direction of lessening its scope. The growth of British foreign trade in the nineteenth century was associated in part with the development of new territories overseas. These were developed largely with British money and by British initiative and with the aid of British exports of capital goods, such as railway equipment, which contributed directly to the increase in overseas production of foodstuffs and raw materials. These in turn were shipped back to meet the growing demands of a rapidly increasing industrial population, while the development of new and on the whole prosperous countries overseas facilitated the export from the United

Kingdom of simple consumption goods, such as cotton textiles, in which this country had a virtual manufacturing monopoly. There was, of course, at the same time a considerable growth in the interchange of largely non-competitive manufactures with the Continent which continued to form a large part of British trade up to 1931, though it has since been affected seriously by the growth of tariffs both in this country and abroad.

Changes in the World Economic Structure

The international trade of the nineteenth century and of the pre-war era was largely built up on an economy of coal and iron. At the same time, while a rapid increase of the industrial population of Great Britain was creating an ever-increasing demand for foodstuffs, increasing populations overseas were needing all types of manufactured goods. Since the war, underlying conditions have changed. The economic frontiers have ceased to expand at the old rate. The increase in population has slowed down in many countries, and the rise in the standard of living has reached the point where new types of demand have been created. Moreover, with the growth of power production and internal economic development abroad, the essential resources of modern industry are more equally distributed.

These factors have already been important, but they are of so much greater potential importance in the future that it is worth while to examine them in greater detail. In Great Britain and most of Western Europe, the growth of population has slowed down almost to a standstill and the point is even in sight where a decline may be anticipated. One of the factors which led to an automatic growth in demand during the last century—and provided a more or less automatic antidote to periodic slumps—has thus lost much of its force in many parts of the world, with the exceptions of Eastern and Southern Europe, Soviet Russia and the Far East. Among the industrial populations of Western Europe, and certainly in Great Britain, although the existence of widespread malnutrition points to the social necessity for increased consumption of high quality (and usually highly perishable) foodstuffs, improvements in the standard of living are leading less to an increase in the consumption of bulky foodstuffs and more to an increase in the demand for light manufactured goods and luxury articles, and for services. Many of these must, by their nature, often be of domestic origin. Generally speaking, similar tendencies in consumption are to be observed in overseas countries. At the same time, the development of raw material resources in many parts of the world has made possible a much wider international distribution of industries than was possible in the nineteenth century, while the growth of the use of oil fuel and hydro-electric power has lessened the dependence of industry and transport on coal. The growth in the proportionate importance of light industry has in fact tended to lessen generally the dependence of manufacturing industry upon indigenous raw material resources. At the same time the growth of mechanisation in industry has lessened the dependence of industry upon abundant supplies of human skill, and the ease of modern communication has facilitated the spread of higher technical education and ability to assimilate and adopt the latest technical additions to manufacturing processes. These factors represent a logical evolution from the economic conditions of the last century and have come to stay. They have, it is true, been greatly and in some cases excessively stimulated by the demands of what is considered politically expedient, but for all that they are in general based on fundamental economic changes.

It does not necessarily follow from these changes that the total volume of international trade must fall, though it may well be reduced in importance proportionately to the volume of internal trade. But the background of international trade in the future will be very different from the past, and ideas, methods and mechanisms may also need to be altered.

The Dependence of the United Kingdom on World Trade

In view of the approaching stability of the population and the possible decline in the proportionate demand for essentially imported commodities, it might seem less vitally important that the United Kingdom should still seek to provide for a large and increasing volume of imports by a large and increasing volume of exports, or by building up British investments abroad. This is, at best, a half-truth. The transition will, in any case, be slow, and if it were to take place without dislocation it would require a much more rapid re-allocation of resources as between industries producing for export and those producing for home consumption than is at present happening. But it must be realised that this country's interest in a large volume of international trade does not by any means begin and end with the industries which manufacture for export.

As the world's chief purveyor of commercial and financial services, the position of the United Kingdom has never been seriously disputed, though it has, in fact, declined since the War. The financial services which have made London an international centre—merchant banking, insurance, and the mercantile marine—are dependent upon a far wider range of trade than that which merely touches the United Kingdom as an importer or an exporter. The United Kingdom has, therefore, a vital interest in ensuring that the volume of world trade, and not merely the volume of British trade, should be large.

The extent to which invisible exports have contributed and are now contributing to British income from foreign sources is shown by the Board of Trade's annual estimates of some of the current items in the balance of payments:

£ Millions

	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Balance of Merchandise Trade	−392	−463	−387	−352	−381	−386	−408	−287	−263	−294	−260	−347
Balance of Government Transactions .	−11	+4	+1	+15	+24	+19	+14	−24	−2	+7	−2	−2
Net Shipping Income .	+124	+120	+140	+130	+130	+105	+80	+70	+65	+70	+75	+95
Income from Overseas Investment .	+250	+250	+250	+250	+250	+220	+170	+150	+150	+170	+180	+195
Short Term Interest and Commissions .	+60	+60	+63	+65	+65	+55	+30	+25	+30	+30	+30	+30
Other Items .	+15	+15	+15	+15	+15	+15	+10	+15	+10	+10	+10	+10
Balance of Current Items .	+46	−4	+82	+123	+103	+28	−104	−51	—	−7	+33	−19

Shipping services, short-term interest and commissions and "other items" accounted in 1929 for a net income of £210 millions—equivalent to no less than 28.8 per cent of the value of merchandise exports. At its lowest point (in 1933) net income from these invisible items fell to £105 millions—28.5 per cent of merchandise exports—but by 1936 a recovery had taken place to £135 millions, equivalent to 30.6 per cent of the value of visible exports. Although these invisible sources of income did not decline quite so severely as the value of merchandise exports, they did fall at one period to only 50 per cent of the 1929 level, and still only stand at 64 per cent of the level reached in that year.

Improving the Quality of Trade

If the national objective of commercial policy should be to maximise national consumption with the assistance of import and export trade, it is important that due regard should be paid to the quality as well as to the quantity of external trade. In other words, attention should be directed from time to time on movements in the "terms of trade." In the long run, the broad objective of British commercial and industrial development should be the increase of all commercial and industrial skill, not only in the United Kingdom, but in all countries. This is the only sure way of attaining and maintaining a higher standard of living. In the short run, however, it is only possible to test the progress of the United Kingdom in this direction relatively—that is to say, by comparison with that of other countries—and the formula for testing it is that of the "terms of trade." One way of increasing the standard of living inside a country is to achieve the maximum volume of consumption of imported goods with the minimum expenditure of domestic resources upon the production of exports goods. A country which succeeds in doing this is said to be improving its "terms of trade." It is, of course, axiomatic that all countries cannot improve their "terms of trade" simultaneously. This is a somewhat abstract conception, which is virtually incapable of accurate statistical measurement, but it helps to estimate the approximate trend and will serve as a useful measure of progress.

Movements in the "terms of trade" of a country may occur on the one hand as the result of wide, and usually cyclical, fluctuations in the relation of import and export prices without any change in the physical composition of import and export trade. Thus, the effect of a slump, such as that from which the world has recently suffered, in reducing the prices of raw commodities even more severely than the price of manufactured goods, is to improve the "terms of trade" of a country like the United Kingdom which is mainly an exporter of manufactures and an importer of raw commodities, at the expense of the "terms of trade" of countries which are predominantly exporters of raw commodities and importers of manufactures. An improvement in the "terms of trade" arising from cyclical fluctuations of this kind is likely to be only temporary and may be accompanied by serious indirect disadvantages, as has in fact occurred in recent years.

But changes in the "terms of trade" can also be brought about by other more fundamental factors of a technical nature. They can, in other words, be influenced by changes in the composition of import and export trade, irrespective of changes in the relation of import and export prices. Much of the failure of this country to maintain the level of its export trade in manufactured goods is due to the fact that it has leaned too heavily and

too long on industries which were once supreme in export markets and whose supremacy has been undermined by the rise of similar industries in other countries in many ways better placed for the production of these goods. The decline of the Lancashire cotton industry's exports of low-priced cotton textiles is a case in point. Any attempt to maintain markets in these qualities as a permanent feature of the trade must face the competition of countries such as Japan, which enjoy advantages in the manufacture of these types of textiles which Lancashire could not achieve without a catastrophic lowering of the standard of living. National policy demands rather that a transition should be made to newer and more specialised types of goods, in which skill and technical efficiency count for more, and the availability of supplies of labour with a low standard of living, judged by British requirements, counts for less. The same argument applies, in varying degrees, to all British export industries. If the standard of living in the export industries is to be maintained at a level which is generally above that of most other countries, it is essential that the "terms of trade" should be maintained, in the face of the increasing industrial skill of other countries, by a continuous transition in British manufacturing industries away from the staple lines in which our supremacy is threatened to newer and more specialised products. It may be said that this is a matter which national policy is less capable of determining than the inventiveness and initiative of British manufacturers. It is, however, important that the national interest from this point of view should be fully appreciated by industry itself, and in the long period the national interest and the interests of individual industries are not divergent.

The Importance of Cultivating Export Markets

In one respect, however, national policy can be of some assistance. The transition from staple lines to more specialised goods does not take place merely within each industry but within industry as a whole and may lead to the rise in the proportionate importance of one industry and the decline in another. This is a factor in economic development which is apparent to everybody, but which in its relation to national foreign trade policy is less obvious. The new and rising industries generally develop on the basis of home market activity and in their early stages are too busy in seeking increased outlets at home to have any need to look for outlets overseas for the purpose of increasing their profits. From the point of view of the individual manufacturer and of organised labour, this attitude is understandable, though, generally speaking, it is contrary to their own long period interests and to the national interest. If export activity, and therefore ability to import freely, is to be maintained over a long period of years, it is important that the newer industries should be encouraged to take over an increasing share of the responsibility for maintaining the level of export trade which has rested hitherto on the so-called staple export industries. If the newer industries concentrate over much on the home market because the immediate prospects of profit are more favourable there, they may find, when they are eventually compelled to look to export markets to provide them with increased turnover, that they have been forestalled.

In examining the practical aspects of this problem, we have found that the present mechanism of export trade may be largely responsible for this state of affairs, which is dangerous alike to the national interest and to the ultimate prospects of the individual manufacturer. In a later chapter some detailed consideration is given to this question.

Attention to these technical aspects of the "terms of trade" is the more urgently necessary in view of the other factors which have intervened in recent years. Generally speaking, currency depreciation is apt to alter the terms of trade unfavourably to the country which allows the external value of its currency to fall, since it tends to lead to an all-round increase in import prices and a less than proportionate increase in export prices. The unfavourable trend in the "terms of trade" and the unfavourable effect upon the standard of living may, it is true, be compensated from the national point of view by the effects of depreciation in stimulating increased employment. The United Kingdom was fortunate, in 1931, in not suffering appreciably, if at all, from the combination of these consequences of depreciation, owing to the importance of the British market as a buyer to a world plunged in depression. Instead of a rise in British import prices, other countries were, generally speaking, forced either to accept a fall in their export prices of goods shipped to the United Kingdom or to lose a valuable market to competitors who were prepared to do so. It is in the highest degree improbable that the favourable circumstances of September 1931 could be repeated in the event of a further depreciation of sterling and that the United Kingdom could always rely in that event upon the existence of a buyers' rather than a sellers' market for her principal imports. In view of these factors, the reluctance to depreciate their currencies on the part of some other countries, which are highly dependent on imported goods and are at the same time less important consumers of the world's goods than is the United Kingdom, can be more readily appreciated. Even in the United Kingdom the depreciation of sterling in 1931 did tend to affect the "terms of trade" adversely, although the full effects were prevented from appearing by other factors. It seems important, therefore, that particular attention should be paid to the technical aspects of the "terms of trade" at the present time. The recent rising tendency of British import prices consequent upon the rise of commodity prices has made the need for such consideration even more urgent.

The Importance of Multilateral Trade

Something has already been said of the relation of merchandise trade to the total balance of income and outgoings on current account in the balance of payments. In the long period, the current items in the balance of payments must balance. It may be, in the short period, that the current items show a net surplus of visible and invisible exports, and it is often held desirable that some surplus of this sort should be earned in order to provide funds for investment abroad. But it should be remembered that the only value from the national point of view of investing abroad lies in the fact that foreign investment represents the building up of reserves of postponed consumption to be utilised at a later date. Unless investment abroad is made with the conscious object of increasing national consumption of imported goods at a later date by an amount at least equal to the service on the sum loaned, conditions will be created which will lead eventually to a disequilibrium fatal to international, commercial and financial stability and progress. It should be unnecessary to add—though in the light of popular doctrines it is prudent to do so—that while it is desirable that the current items in the balance of payments of the country should show a balance in the long period, there is no necessity that the balance of payments, and still less the balance of merchandise trade, between this country and any one other country should balance either in the long or in the short period. Much of the trade of the world is conducted

on a triangular or multilateral basis, and this certainly applies with particular force to the trade of the British Empire. The fact that the United Kingdom imports more merchandise from, say, Czechoslovakia than she exports to Czechoslovakia does not mean that sterling is being paid out which is not eventually used in the purchase of British goods and services. Some of the surplus payment of sterling to Czech exporters may be used directly in the purchase of British invisible exports which do not appear in the merchandise trade returns. The rest may be sold to importers in other countries which require sterling because they are net importers of British goods and services. Multilateral trade of this kind, of course, is particularly dependent on the existence of free international exchanges. But attempts to bilateralise international trade, whether on the basis of trade in merchandise alone or of trade in both goods and services, also have the unfortunate effect of restricting opportunities of multilateral trade, and therefore of reducing the volume of trade as a whole. It should, therefore, be remembered that bilateral trade agreements which, in themselves, appear to represent satisfactory bargains for the United Kingdom in the first instance, may often have unfortunate indirect repercussions on that part of British merchandise trade which is conducted on a multilateral basis and may react further to the disadvantage of invisible exports, which constitute a very important proportion of total income from abroad, and are dependent upon the volume of trade in general. Owing to these indirect repercussions on ability to trade on a multilateral basis, bilateral agreements which are in the first instance designed to help trade may, therefore, often have the effect of encouraging indirectly those very restrictions which are regarded with such anxiety.

II. RECENT TRENDS IN INTERNATIONAL TRADE

Summary

(i) World trade declined by 25 per cent in volume between 1929 and 1932, and in spite of some recovery stood in 1936 at about 86 per cent of the volume of 1929.

(ii) The decline has been greatest in the case of manufactured goods. Trade in raw materials has been relatively well maintained, as has trade in investment goods compared with trade in consumption goods.

(iii) The decline and the subsequent lack of recovery of world trade have not been due to a parallel tendency in world production. In contrast to the experience of former depressions, world trade has not led the improvement, but has lagged behind the progress of production.

(iv) The factors summarised in (ii) and (iii) above are ascribable to the rise in economic nationalism, or the progress of internal economic development which has been the keynote of the economic history of the last five years. This movement, despite a host of absurdities, arises from fundamental economic and technical changes of an evolutionary kind in factors affecting the international localisation of industry, and is essentially a permanent tendency. It has been hampered and distorted by the inadequacy of internal working capital in the developing countries and the impossibility in the conditions of the last five years of obtaining financial assistance from outside. Hence the restriction of imports and exchange dealings, although aggravated by the more extreme forms of nationalism based on reasons of prestige, arises in part from the necessity of satisfying the prior claims of internal economic development for capital equipment and essential raw materials, and not only from the complications introduced by over-valued currencies and heavy debt burdens contracted before the slump.

(v) The growth of bilateralism in international trade and of economic groups are in part the results of the difficulties outlined in (iv) and represent attempts to secure essential supplies with the minimum outlay in free foreign exchange, and to preserve the power to import freely by forcing or safeguarding outlets for exports.

(vi) "Crisis measures," though originally imposed for definite purposes which may now have passed, have become to a large extent assimilated in the economic structures of the countries imposing them and cannot therefore be easily removed. At the same time, the growth of State control of internal trade has necessitated increased State control of foreign trade. This increased State control of external trade has come to stay, even though it must in course of time be subject to the

rationalisation which it urgently needs in order to perform efficiently the functions for which it is intended.

(vii) This process has been pushed furthest in Germany, though Germany merely represents in an advanced state a condition of affairs which exists widely elsewhere.

(viii) The British Empire must share in the responsibility for increasing the impediments to world trade since 1931. The depreciation of sterling, the British tariff and the Ottawa Agreements were in a large degree an inevitable and successful attempt to correct a balance of forces which had been tilted against the United Kingdom since 1925, but they succeeded rather by diverting existing trade than by finding new trade outlets. Although these policies met the essential need of self-preservation then, they are not necessarily the right policies for the changed conditions of the present time.

(ix) Both the United Kingdom and the British Dominions and Colonies are highly dependent on trade with the outside world. The British Empire is a producer of primary products in excess of her capacity to consume them, and this excess is increased if account is taken also of the countries, such as Argentina and Denmark, which are linked to the Ottawa system by agreements with the United Kingdom. In spite of the unsatisfactory present standards of consumption, the prospect of a large expansion in the future demand of the United Kingdom for Dominion foodstuffs is not very good in view of the tendency towards a stationary or declining population. The white population of the rest of the Empire is small, while the standard of living of its vast coloured population is relatively low, so that the prospects of largely increased consumption by British countries overseas of their own produce or of British manufactures are also not good. In these circumstances, it is to foreign countries, and particularly to the industrialised parts of Continental Europe, that the primary producers of the Empire must look, if they are to increase their production to the extent necessary for the attainment of full prosperity.

(x) This objective can only be reached by a new technique, in view of permanent changes in the economic background of international trade.

(xi) The British Commonwealth, and the United Kingdom in particular, has a vital interest in a large and flourishing world trade; the prosperity of world trade in turn depends upon raising the world standard of living. It will therefore repay British interests to assist the internal development of foreign countries with the resources which are surplus to the requirements of the British Commonwealth.

(xii) Such a policy would also go far towards removing the economic pressure which is one of the most potent contributory factors towards war. In view of the failure, hitherto, of the currency agreement of September 1936 to produce any appreciable loosening of trade restrictions, a constructive lead by the United Kingdom, in conjunction with the other democratic powers, is now urgently necessary.

(xiii) As regards possible difficulties in finding concessions to offer to foreign countries without damaging internal interests, a relaxation of import restrictions is daily

becoming more necessary in order to prevent British internal recovery from getting out of hand and developing into a dangerous boom.

(xiv) The first step, in any case, should be the return to a policy of non-discrimination in the Crown Colonies. Discrimination is contrary to the consuming interests of the low-standard populations of these territories and to their general development, in view of the high dependence of their exports upon foreign markets. It is also contrary to the traditional conception of Imperial Trusteeship and of government essentially in the interests of the colonial peoples, which the United Kingdom has always held, and it lends force to the colonial aspirations of the so-called "Hungry Powers."

The Decline in World Trade

Between 1929 and 1932, the volume or quantum of goods entering into international trade declined by over 25 per cent. There was a small recovery in 1933 and a somewhat larger recovery in the three following years, although in 1936 the volume of world trade still remained 14 to 15 per cent below the level of 1929. At the same time, there was a continuous fall in the average price of goods entering into international trade up to 1933, whether measured in terms of gold currencies or sterling. In view of the depreciation of sterling from the last quarter of 1931, the fall in sterling prices was, it is true, much less severe than the fall in gold prices. Sterling prices began to recover in 1934, but gold prices continued to fall up to the end of 1935, though they increased once more in 1936.

In consequence of these price movements, the value of international trade, whether measured in gold or sterling, continued to fall until 1934. In that year, there was a further fall in the gold value of international trade, but, measured in sterling a sharp recovery set in and has continued ever since. In 1935 even the gold value of trade showed a slight expansion, since the further fall in gold prices was insufficient to offset the rise in quantum. In 1936, when gold prices and quantum moved upwards together, the gold value of trade showed a further substantial increase. The full figures of quantum, value and price movements for world trade in this period are given in the Appendix.*

World Trade in Raw Materials

When the movement in world trade over this period is examined for each of the chief commodity groups, it is apparent that the volume of raw materials and semi-manufactured products entering into international trade has recovered much more readily than the volume of foodstuffs or manufactured articles. The depression hit with the greatest severity the volume of trade in manufactured articles, which had declined by 42 per cent in 1932, as compared with 1929, but has enjoyed an appreciable recovery since 1933. The volume of foodstuffs in international trade continued to decline right down to 1934 and showed only a small recovery in 1935. This decline is, of course, symptomatic of the stimulation of domestic agriculture in almost every industrial country of Europe in recent years.

Since the fall in prices was much more severe in the case of foodstuffs, raw materials and semi-manufactured articles than it was in the case of finished goods, the decline in

* See Appendix I, Table 1.

the proportionate importance to world trade of trade in manufactured articles, is not so readily apparent when the value of trade is examined—and trade statistics are usually made available to the general public expressed in values only. Nevertheless, the proportion of world trade, as measured by gold value, represented by trade in manufactured articles, declined from 39.5 per cent in 1929 to 37.5 per cent in 1935, while the proportionate importance of raw materials and semi-manufactured products has increased from 35.5 per cent to 37.5 per cent, and foodstuffs have, on balance, remained constant.*

World Trade in Capital Goods

Parallel with the growth in the proportionate importance of trade in raw materials, there has, since 1932, been a notable increase in the importance of trade in capital goods in relation to trade in consumption goods. Taking a fairly large sample of world trade, it appears that the value of trade in capital goods (measured in gold) rose by 7.2 per cent between 1932 and 1935, while the value of trade in other goods fell on balance by 18.8 per cent, with the result that trade in capital goods represented 23.9 per cent of the total in 1935 as compared with 19.2 per cent in 1932.† Since cyclical fluctuations in trade activity as a whole are in the main the result of cyclical fluctuations in the demand for capital goods, it is not unreasonable that, in a period of rising trade and activity, trade in capital goods should show a greater expansion than trade in general. But the size of the increase in recent years is obviously not explicable by the factor of postponed replacement demand alone. It is in fact due, as the increase in the proportionate importance of trade in raw materials is due, to the movement in recent years in the direction of economic nationalism. The relative undervaluation of capital goods, arising from a variety of causes, has also played some part.

The Growth of Economic Nationalism

This movement in the direction of economic nationalism, which has affected every country in the world in some degree, is the dominant feature of international economic development since 1931, but it is only one of the new features which have combined to change the economic background against which world trade must be conducted to-day. If constructive suggestions are to be put forward for the conduct of international trade for the future, they should be based on an understanding of the changed economic background of the present. Many of its features appear to represent permanent changes, and for this reason, the bulk of this chapter has been devoted to an analysis of current developments.

The trend of world trade in recent years—a sharp decline followed by a limited recovery—has not been due to any parallel tendency in the course of world production. The outstanding feature of the recent recovery period of world production has been the lack of a parallel recovery in world trade—a phenomenon entirely different from previous periods of recovery from depression, in which world trade generally led the way. The present tendency is due to the fundamental fact that nations are consciously building up their economic structures and therefore concentrating on the development of their internal resources. The relative increase in the international trade in capital goods and

* See Appendix I, Table 2. † For complete figures for 1932, 1934 and 1935 see Appendix I, Table 3.

raw materials is symptomatic of this development. Although this tendency has been greatly exaggerated by other factors making for the restriction of foreign trade, in the shape of political instability and currency difficulties, the trend in the direction of internal economic development must be accepted as dominant, not only for the present, but at least in the near future as well, and the future technique of international trade must take account of it.

The pace and the success of this movement have been increased by the increased ingenuity of governments in devising methods of controlling trade. Up to the last decade, tariffs played the major part in protectionist policy. It is probably no exaggeration to say that at the present time they constitute one of the least effective and significant of the many impediments to international trade. It is true that tariffs have been increased and that they have appeared in many areas, such as the United Kingdom, where they were formerly of comparatively little importance. But they have played a minor part compared with the growth of quotas and exchange restrictions in curtailing the volume of international trade.

The Effects of the Depression on Internal Economic Development

The growth of trade and currency restrictions after 1930 was rapid and insidious. The chief milestones in the progress of the world depression and the breakdown of international trade are now well known, but it may be convenient to mention them shortly. The depression had already begun before 1930 with the general decline in agricultural and primary product prices—in some cases as early as 1927. The cause was in many cases technical—particularly the increased productivity of agriculture—and the effect was to throw into disequilibrium the balance of payments of a large number of predominantly primary producing countries. The disequilibrium was temporarily alleviated and partially concealed by international borrowing, but this was only a palliative in that the borrowing was not self-liquidating, since it was not accompanied by larger movements of goods from the borrower to the lender, and could therefore only continue to be effective as long as the lending continued, from year to year, on an increasing scale. At the same time, the fundamental economic position was cumulatively worsened, since the usual reaction of primary producers to falling prices—to ship more produce in an effort to maintain gross returns—was resisted by European importing countries in an effort to protect their own domestic producers, the fall in prices being thereby accelerated. When in 1929 American investors—the principal international lenders of the period—withdrew their support, the day of reckoning could no longer be postponed and retribution for years of inflationary financing compelled the imposition of increased restrictions on current trade, in order that the cost of maintaining a rigid debt structure incurred at a high rate of interest should not undermine irretrievably the basis of currencies. The strain imposed and the deterioration of confidence from a number of causes, however, set in motion the withdrawal of short-term funds which culminated in the fall of the pound in the autumn of 1931. In other countries, the attempt to defend exchange parities, which had ceased to be related to the real economic position of the currencies concerned, required, for purposes of self-protection, the imposition of currency and trade restrictions which were cumulative in effect. The stimulation of home agriculture, which was in origin older than the

depression and was founded on political and emotional, as well as economic factors, gathered strength with the increase of unemployment and the cessation of emigration. The result was the excessive development of a high-cost production both in industry and agriculture, which had no export outlets and only aggravated internal poverty.

In these circumstances, the effort to build up internal resources and internal industries which had already been an important factor, was intensified, but in surroundings particularly unsuited to programmes of capital construction of this sort in countries which had little or no savings. Great difficulties have been experienced, in the absence of free access to credit, such as existed before 1930, in obtaining from abroad the raw materials and capital equipment necessary to carry through these plans. In the countries which attempted to maintain the gold parities of their currencies, it is now a matter of history that the deflation of the internal cost structure which was the theoretical solution of their difficulties could not be put into practice and export trade in consequence continued to diminish. This factor combined with the public works policies which many countries adopted to mitigate unemployment, and the increased production of armaments in face of growing political uncertainty, added to the exchange stringency caused by the pressure of internal economic development. Accordingly, a fresh series of measures has, in course of time, come to be superimposed upon the previous restrictions to foreign trade, with a view either to stimulating exports or to obtaining imports of essential materials and equipment without having to call upon foreign exchange resources. Germany has been foremost in undertaking such developments and in elaborating the mechanism of control, but she stands by no means alone, except perhaps in the matter of degree. Many other countries have developed to some extent the same system of concealed or flexible currency depreciation, combined with the organisation of export subsidies and the canalisation of trade in bilateral channels by clearing agreements or other methods, with a view to economising free foreign exchange.

The Extension of Government Control

The internal developments which are outlined above, and the administration of the measures calculated to further them, have led to the building up of bureaucracy and increasing encroachment of government control over foreign trade. The volume and direction of foreign commercial transactions are coming increasingly to be guided by what is conceived as national policy rather than by consumers' tastes, as interpreted by individual importers and exporters, taking advantage of the existence of international specialisation in production and manufacture. Moreover, the extension of government control has not affected merchandise trade alone. It is inevitable when government control of imports is accompanied by, or implemented through, control in the allocation of foreign exchange, that the latter should in course of time extend to other transactions as well, since the provision of exchange to finance import trade is conditioned by the existence of other claims on the available foreign exchange and the degree of priority which is given to them. In this connection there has been a notable tendency towards the extension of compensation and clearing agreements, and other arrangements of a bilateral nature, into payments agreements which cover all the mutual financial transactions of the parties concerned.

This development has, incidentally, increased the tendency towards the bilateralisation of all transactions at the expense of multilateral trade and has affected world trade in essential services.

It should be emphasised that the extension of bureaucratic control over foreign trade does not appear to be merely the result of the multiplication of measures introduced mainly to combat the effects of depression. It is symptomatic of the much more fundamental movement towards planned internal development. In practice, it will usually be found that the institution of a wide measure of public (or any unified) control over various forms of internal economic activity will at some point, if it is to remain effective, require to be supplemented by control over the external relations of the economic groups concerned. This has been noticeable in the United Kingdom, for instance, in connection with the Agricultural Marketing Acts and the reorganisation of the steel industry.

It must, moreover, be realised that government control over foreign trade has, in many countries, been introduced not merely as an expedient in the face of widespread depression, but as a matter of permanent policy. Soviet Russia is not the only country which has adopted state trading, or some form of it, as a matter of principle. Newly developed countries, such as Turkey and Iran, have instituted an advanced form of state control over foreign trade. Even within the British Empire, New Zealand is now embarking upon a scheme of planned foreign trade through the medium of the government's control of foreign exchange, which, though it owes something to developments external to New Zealand cannot be described merely as an expedient designed to meet temporary conditions of depression.

The Background of Economic Nationalism

It is fashionable in the United Kingdom to decry economic nationalism in general as an evil and malignant growth, although it is practised here as well as elsewhere, if only on a different scale. At times, however, this general condemnation approximates merely to a desire to stop the clock at the point which it has now reached. The United Kingdom has in the past encouraged a high degree of international specialisation, which has ensured a supply of cheap food and raw materials and permitted the intensive use in industry of resources which would otherwise have been less economically employed for other purposes. This arrangement had, in the past, proved highly beneficial to the United Kingdom, and probably to the world as a whole in a somewhat smaller degree, though it has resulted in some primary producing countries becoming too highly specialised for their own stability in the production of one or two commodities. It would be somewhat naive to assume that we could stop progress at this point or prevent other countries from seeking a higher standard of living by the road that British methods have shown them. Much of the popular argument against increasing industrialisation abroad, which is characterised as economic nationalism, turns out on analysis to be not so much an argument for international specialisation in itself as for maintaining international specialisation at the stage which it has at present reached. The continuance of the process demands not so much that the present balance should be maintained as that the advanced manufacturing countries of the world should take advantage of the growth in skill of the less advanced countries, by progressively turning over to them more and more of the simpler manufacturing

processes and devoting their own resources to the newer and more intricate developments to which their own high standard of skill is particularly suited. It is our failure adequately to amortise industries which are in the course of time requiring less and less specialised knowledge that has made the growth of "economic nationalism" abroad such a disadvantage to us. At the same time, it is hardly legitimate to characterise the repetition abroad of a process which has already occurred in the United Kingdom as less economically sound merely because it is now happening elsewhere.

The growth of manufacturing industry in a great number of countries of the world is due to fundamental changes in the relative value of industrial resources. British industrial supremacy in the nineteenth century was built up largely on the basis of an advantageous position in respect of supplies of coal and iron and skilled labour. Under modern conditions, the development and diffusion of power resources have lessened the rigid localisation of industry on the basis of coal supplies. At the same time, mechanisation has widened the scope of industry based on cheap, rather than skilled labour. And the growing importance of light industry, due to changes in the balance of consumer demand, coupled with the cheapening of transport services, has lessened the importance of localisation on the basis of raw material supplies. In short, the spread of manufacturing industry in the last twenty years owes much to the fact that proximity to markets is becoming an increasingly strong factor in the location of industry, whether nationally or internationally.

It is not denied that the efforts of foreign countries to build up their internal economies have led to an extraordinary growth of abnormalities. That, however, is, at least in some part, due to the difficulties which such aspirations encounter in the vitally practical matter of acquiring the essential capital goods and raw materials in the present state of international economic relations. In order to obtain these supplies, exports have to be forced, or other imports curtailed. Working capital is lacking, and in the absence of financial help from outside the process of evolution is slow and painful. Nevertheless, surprising progress has been made, even if it has been lop-sided, and it would be more rapid given an increase in the international mobility of capital and goods. Current economic developments, while proving beneficial in general, may, however, increase the difficulties of certain groups of countries. The rise in the level of commodity prices in the last twelve months has, generally speaking, restored the equilibrium of the primary producing countries which bore the brunt of the depression. But this rise which is putting these countries on their feet, must increase the difficulties of those others which already find it hard to obtain adequate supplies of raw materials, in the absence of outside financial assistance. Ultimately, the progress of internal industrial development, in so far as it tends to lead to a rising standard of living, can hardly fail to benefit world trade as a whole, even though it may reduce permanently the *proportionate* importance of international to internal trade.

World Trade and Currency Stabilisation in Relation to Economic Nationalism

Since September 1936, the financial background of international trade has changed radically for the first time since 1931. As the greater part of the trading world has now overhauled its currency parities, and substituted policies of credit expansion for policies of deflation, it should be possible, in theory, to look forward to a greater degree of

exchange stability in future. This, again in theory, should make possible the demolition of those trade barriers which were erected purely for purposes of currency defence. In practice, it is more than doubtful how far this expectation will be realised in the light of changes in national economic policies since 1931. The restrictions on international trade which were introduced in the early years of the depression were introduced piecemeal and generally for a definite immediate object. But the connection between each individual measure and its original object has long since been forgotten. The series of expedients which were adopted then have grown into a system which is being used in support of national economic policies. It is impracticable to believe that any real distinction between "crisis measures" and more permanent measures is any longer possible and it would, therefore, be unrealistic to hold out much hope for a general sweeping away of trade barriers as a political possibility, even against the changed monetary background of the autumn of 1936. It is, of course, possible that the present chaotic mixture of expedients will in the course of time be subject to rationalisation. Too much stress can hardly be laid on the necessity for the unification of national economic policies, in order to replace the present attempts to deal with individual problems piecemeal by more coherent and comprehensive programmes. If only the various governments could be induced to regard their economic policies as a whole and to judge their previous piecemeal measures by reference to a comprehensive plan, existing measures of trade control could soon be made much more efficient for the purposes for which they are intended and less indiscriminately injurious. But for any general liberation of trade it will be necessary to look for a new or improved technique, suited to the changed background of the times.

World Economic Developments, 1931-36

Between September 1931 and September 1936 it was possible to distinguish three main groups of countries: (*a*) the gold bloc, which endeavoured to adhere to its former currency parities and to adjust by deflation its internal cost structure to the fall in prices in the outside world; (*b*) the restrictionist countries, nominally remaining attached to gold, but actually dependent upon rigid control of the exchanges and in some cases involving a concealed or discriminatory currency depreciation; and (*c*) the managed currency group including the United States, the United Kingdom, the British Dominions and Colonies, the Scandinavian countries, Portugal, China and Japan. Though the countries of the third group, which comprises more than half the trading world, have by no means abstained from quantitative regulation of trade and from increasing protection by means of tariffs, they have for the most part maintained free currencies and endeavoured to base their commercial policies on traditional methods of international trade organisation. They have, it is true, worked by means of bilateral treaties which have tended to be exclusive, although the United Kingdom and the Scandinavian countries have endeavoured to preserve the effectiveness of the most favoured nation clause, while the United States has, in the past two years, concluded a number of bilateral treaties under which concessions have been extended by the use of this clause to other countries. But owing to their adoption of expansionist monetary policies, they were not to any great extent driven to resort to trade restrictions by the pressure of currency difficulties.

The Growth of Bilateralism

It is in the first two of these groups that restrictionist forces have been seen most clearly at work, and the tendency towards the bilateralisation of trade has been greatest, although the former gold bloc, as has already been noticed, is now theoretically in the position of being able to abandon such measures as were adopted purely in defence of currencies. The tendency towards the bilateralisation of trade has not, however, been confined to the "restrictionist" group, though it has tended to arise from that source. Fundamentally, bilateralism has been due to the same factor which has lent additional strength to the movement in the direction of economic nationalism—the stress of self-protection in the face of shrinking trade and high debt burdens. Where supplies of free foreign exchange are limited, there is a natural desire to economise them as far as possible by arranging as much trade as possible on a basis which does not require net payments to be made in foreign currency. The increase of rigid bilateralism has, however, certainly contributed to the decline in the total volume of trade as it takes place at the expense of multilateral transactions which formerly made up a large proportion of the world's trade. The extent of this encroachment is not statistically measurable as a whole, but the qualitative evidence shows it to have been considerable.*

*The relation of trade that is financed bilaterally to trade that is financed multilaterally is sometimes calculated in the following manner. From the total value of world trade (imports plus exports) first subtract the aggregate of the import or export surpluses of all countries. These represent in each case an excess of receipts or payments for goods, which is met not by merchandise transactions but by payments or receipts on account of various invisible items of the balance of payments, such as interest, etc. Out of the remainder, the total amount of merchandise trade that is transacted on a bilateral basis may be arrived at by adding up for all countries together those parts of the export and import trade of each country with each other country which balance out. The residue of the total of world trade, since there is no obvious offsetting item, may be assumed to represent trade which is conducted on a multilateral basis.

To take a simple case of a single country only, suppose that country "X" trades only with countries "A" and "B" and in the following way:

	Exports	Imports	Total
Country "A" . .	£150 mns.	£300 mns.	£450 mns.
Country "B" . .	150	100	250
	300	400	700

With country "A," £300 millions of trade out of £450 millions is conducted on a bilateral basis, since £150 millions out of the £300 millions of imports from "A" are met by exports. In the case of trade with country "B," the amount which balances out is £200 millions, making a total amount of £500 millions conducted by bilateral means. The surplus of total imports, amounting to £100 millions, is presumably covered by receipts of interest and other invisible exports. The remainder of the total trade (£700 millions minus £500 millions minus £100 millions) must be financed on a multilateral basis, since there is no item offsetting it directly.

On this basis, the League of Nations Economic Intelligence Service has calculated that the importance of bilateral trade, taking a sample of twenty-two countries, covering 71 per cent of the world's trade in 1935, has increased as follows:

	1929	1931	1933	1934	1935
	%	%	%	%	%
Bilateral Merchandise Trade . . .	71.7	68.1	71.3	71.9	74.2
Balance of Total Merchandise Trade . .	9.9	16.4	14.4	13.0	12.0
Triangular or Multilateral Merchandise Trade	18.4	15.5	14.3	15.1	13.8
TOTAL	100	100	100	100	100

This calculation has a number of limitations which are discussed in the League of Nations World Economic Survey for 1935/36. It is likely to underestimate the relative importance of multilateral trade.

The Formation of Economic Groups

The tendency towards the bilateralisation of trade has been increased by the formation of economic groups with the object of increasing as far as possible their mutual trade at the inevitable expense of their trade with the outside world. The depression has had the effect of increasing the exclusiveness of the arrangements in force within the various imperial groups—the British, French, Dutch and Portuguese Empires—of which the most notable example has been the increase in the internal trade of the British Empire. The implications of this are discussed in greater detail at the end of this chapter, but it may be indicated here that the proportion of world trade which is accounted for by the trade of the British Empire as importer or exporter, after declining from 27.9 per cent in 1929 to 27.5 per cent in 1932, rose to 29.2 per cent in 1934 and 30 per cent in 1935. The experience of the other two great colonial empires—the French and the Dutch—has been different: they increased their share of world trade between 1929 and 1932, but lost ground afterwards, largely no doubt owing to stagnation caused by currency difficulties. The trade of the three Empires together, however, covered 40.6 per cent of world trade in 1929, 42.8 per cent in 1932 and 43.4 per cent in 1935.* The increase is not large, but it must be remembered that during this period the proportion of the internal trade of these empires which is subject to preferential treatment has increased. France has traditionally pursued a policy of complete assimilation towards her colonies. The protection of trade within the British Empire has increased materially since 1932, while even in the Dutch Colonial Empire, where the open door policy has been most strongly upheld, some discrimination against foreign countries has been introduced in recent years. The increase in the share of world trade of the principal empires is sometimes cited as evidence of the advantage of the possession of "colonies" (often disregarding the fact that the British Empire is made up for the most part of self-governing units), but it should be remembered that the mutual trade of the British and Dutch Empires at any rate is not protected over more than a proportion of the total, while the dependence on trade with foreign countries in the case of most of their members is equal to or greater than their dependence on imperial trade. According to official calculations, intra-imperial trade represented 25.7 per cent of the total trade of the British Empire in 1929 and 1931, though it had risen to 30.4 per cent by 1935. The British Empire as a whole is, therefore, on the evidence of these figures, far more dependent on its trade with the outside world than on its mutual trade. In so far as the Empire is unable to produce all the goods that it requires to consume, or to consume all the goods that it is able to produce, there is obviously a limit to the extent to which the system of imperial preference can be pushed with advantage. This factor must be borne in mind in considering any attempt to extend the Ottawa system of imperial preference.

The tendency towards the formation and tightening of economic groups in recent years, through the instrument of exclusive bilateral treaties or similar measures, is by no means confined to the principal imperial groups which are in the position of being able to make use of political and racial ties for the purpose of preventing their foreign trade from feeling the full effects of trade depression. The last few years have seen the development of other groupings, which, although in most cases partial, have tended to be exclusive

* See also Appendix I, Table 6.

to countries outside the group. Great Britain has tended to draw within her economic sphere of influence the Scandinavian and Baltic countries as well as Argentina; Japan has practically assimilated Manchukuo and has extended her economic influence over North China in general; within the last two years Germany has sought to expand her trade with a number of countries in South-Eastern Europe, although this policy now seems to be suffering a reverse.

Other factors, arising primarily from internal problems, have exerted a major influence on world trade. In the first place, the United States, a creditor nation, has failed to behave economically as a creditor nation should, and still refuses to choose between the alternatives of surrendering part of her agricultural exports or permitting a greater freedom of imports in order to allow her debtors to transfer their obligations. America's high tariff policy which prevented debtors from paying in goods and services, was a major factor in bringing on the depression, since it rendered the position of America's debtors untenable. The subsequent devaluation of the dollar and the refusal to stabilise it (in which the responsibility was not only America's) was a major factor in the inactivity of world trade in 1932 to 1934. In addition, America must bear a grave share of the responsibility for the difficulties of China which were aggravated by the highly eccentric policy pursued by the United States towards silver. At the present time, the United States is exercising a much happier influence on world trade through the implementation of Mr. Cordell Hull's trade agreement policy.

Soviet Russia seems capable of playing an increasingly large part in world trade. The fact that foreign trade is largely a monopoly enables bulk contracts to be made and the direction of trade changed rapidly for political or semi-political reasons, which in turn gives Russia considerable power to impose terms and dictate prices. During the period of intense capital construction, Russia was a huge importer of capital equipment, and some raw materials, financed for the most part by short-term credits. As these fell due, it became necessary to force exports on world markets, even though they may have been urgently required at home, in order to provide means of payment. The dumping of large volumes of primary products, regardless of price, by Russia, increased the dislocation of markets. This influence has been removed as the capital construction programme has advanced and development has been turned more in the direction of internal trade. Russia's external trade to-day presents a much more balanced appearance; by raising the quality of her exports and, if necessary, restricting the volume, Russia can now sell at higher prices and can afford to choose the markets where she wishes to sell. In other words, she has exercised a less disturbing influence on world trade. Whether this is likely to continue is another matter; when the programme of internal development is more advanced, export markets may again receive greater attention. Already Russia is the only trading power that matters in Central Asian markets, she has formed close trading relations with Turkey, and is resuming the influence which Imperial Russia exercised in the Near East before 1914. In the meantime, Russia already probably has a positive balance of payments, and if increasing gold production is taken into account, may eventually become a creditor nation, although foreign short-term credit is still being used, some of which continues to come from Germany.

In the last five years, Japan has made her presence increasingly felt in world markets,

using a cleverly managed depreciation of her currency to assist export trade and establish a hold on foreign markets on the basis of a highly organised system of distribution. At the same time, the export drive has been accompanied by inflationary financing at home and intensive military preparations which are progressively weakening an already difficult budgetary situation. It may be that with her large dependence on imported raw materials, Japan will be less successful in export markets in a time of high commodity prices than she was in the depression and will be less able to make her lower labour costs felt. Exchange restrictions have, in any case, been tightened as from the beginning of 1937, admittedly as a temporary measure, according to official sources, although the reasons advanced are not completely convincing.

Japan's external commercial policy reflects the main factors of Japanese internal development. The rapid growth of population and the demands of rearmament and national development have called for a rising volume of imports. But the expansion of the export trade in order to provide the foreign exchange with which increased imports may be purchased, itself involves a large increase in imports owing to the dependence of Japan on outside sources of raw material supplies. This factor, combined with the low-price policy of Japanese export trade, has made it very difficult for Japan to secure the requisite volume of imports, over and above those required by the export trade, and the forcing of exports at low prices has consequently tended to defeat its own ends. Resistance on the part of other countries to the increasing influx of Japanese goods has forced Japan in many cases into a policy of strict reciprocity. Otherwise Japan has endeavoured to obtain closed markets for her goods—as in Manchuria and, with less success, in China. It would seem that Japan is beginning to learn by experience that the policy of intensive exporting at low prices has its disadvantages.

The South American countries have been among the worst hit by the fall in commodity prices though their equilibrium has now been restored for the most part by the rise in the price level of the last twelve months. Many of them have been particularly dependent on one or two commodities, such as Brazil on coffee, Bolivia on tin, Venezuela on oil, and Chile on copper and nitrate. The reaction from the consequences of this is stimulating efforts to achieve a greater diversification of activity and to build up secondary industries as far as circumstances will permit. As domestic capital has been inadequate, progress has necessarily been slow. Moreover, the South American republics are among the worst sufferers from excessive and unwise borrowing prior to 1930, and the existence since of a large burden of external debt contracted at high rates, combined with the fall in export prices, has necessitated drastic control of imports and of exchange allocations. Even so, it has not been possible to transfer more than a part of the interest due on past debts, though with the rise in the prices of some commodities the process of liquidation and reconstruction has begun and the South American countries are slowly putting themselves into a more creditworthy position.

The mutual trade of the South American republics is small, since at the present stage of development their economies are not in any large degree complementary, although special arrangements for fostering mutual trade do exist. There has been a greater tendency for certain South American countries to fall under the influence of other economic groups. Argentina has maintained a close contact with the sterling group

through the Roca-Runciman agreement with the United Kingdom, while Brazil and Chile, among others, have both been associated in clearing or barter agreements with Germany.

Moreover, the recent visit of President Roosevelt to South America marks a definite move towards the development of the Pan-American concept in the economic sphere, a development which is helped by its political aspects.

South America is commonly regarded as the foremost example of recent economic development, but, in fact, recent progress has probably been relatively more rapid in the Near East with the influx of capital into Palestine, the growth of national development and a national self-consciousness in Iraq, the increasing industrialisation of Turkey and Iran and the progress of industrialism and economic development in Egypt. But most Near-Eastern countries have not been so fortunate as Palestine in the matter of capital imports.

Central and Eastern European countries have also been affected mainly by the withdrawal of outside financial support in the absence of adequate working capital from internal sources, which has led to the setting up of currency control and strict control of imports. Capital development has in most cases been intensive and internal activity high, but it has taken place at the expense of the standard of living of the population since a large proportion of the national income has to be devoted to capital purposes. In so far as Eastern European countries are dependent upon exports of primary products, they should be assisted by recent price trends. Italy has suffered from much the same combination of tendencies as Central Europe, to which must be added the financial cost of Fascist Imperialism, and trade and exchange dealings are even more rigidly controlled. The formation of local economic groups has gone to some lengths on paper in Central and Eastern Europe, in the shape of the Italian-Austro-Hungarian agreement, the Little Entente bloc, and the Balkan bloc, although such arrangements have not hitherto often amounted to much in practice. Of late, however, there have been signs of a more real economic co-operation.

But probably the most radical change in economic policy and outlook has occurred in Germany. Since the control of internal and external trade and financial transactions has reached its most highly developed state there—though, as has been seen, it has not been insignificant elsewhere—it may be appropriate to enter upon a short analysis of the nature and effects of modern German economic policy as an illustration of what is happening on a smaller and less complete scale in many countries.

The Re-orientation of German Trade

At the beginning of the depression, the government of Dr. Brüning attempted a deflationary policy in order to produce the favourable balance of trade necessary to meet all Germany's external debt obligations. That attempt failed, and the failure was followed by the accession of other governments and finally of the present regime which brought with them an expansionist internal policy.

The Nazi Government has been working towards three main aims in the economic field—the reduction of unemployment, rearmament and economic self-sufficiency for the

needs of eventual war. It is interesting to see to what drastic extremes their logical prosecution has led, although it would be both unjust and misleading to forget either that the protection of the home producer, especially the agricultural producer, was in 1933 already an important feature in the German economy, or that exchange restrictions and an expansionist internal policy were introduced prior to the Nazi regime.

The methods employed to reduce unemployment other than the constitution of the Labour Corps and the exclusion of women from industry, were, and still are, public works and a vast armaments programme. It is well known also that both the operations of the Labour Corps and the public works schemes usually have a wide, if indirect, military importance. This programme was, and still is, based mainly on concealed internal borrowing, though tax revenue is rising with increased internal activity.

The Reichsmark, which it was already extremely difficult to maintain at gold parity, was soon in an even more precarious position on account of the rise in internal prices occasioned by inflationary expenditure and it became increasingly difficult to pay for all the imports necessary for social, industrial and—most important of all—military progress. Steps have therefore been taken by the regulation of internal prices, to prevent a further rise in the price structure. At the same time, an official devaluation of the mark, although likely to stimulate exports, would have had serious repercussions, first in the sphere of prestige, and also in increasing the cost, in marks, of imports. Efforts to economise in the supplies of foreign exchange led to the strict rationing of the "devisen" available among different classes of imports. Export trade, by which the "devisen" are obtained, is conducted as well as the circumstances permit. If orders cannot be obtained in open competition, mark subsidies are often available for the purpose of lowering the export price in foreign currencies. But this system has not, in itself, been sufficient to meet the difficulties of the situation owing to the continued shortage of foreign exchange. Germany therefore embarked on an attempt to buy only where she sold, in an effort to economise in the outlay of free "devisen." The development of this policy falls into two sections—one mainly in Europe, the other overseas.

In Europe, Germany already had a number of clearing agreements with Balkan countries, concluded in the first instance because of the arrears of commercial debts due to German nationals which had accumulated through the faulty working of the exchange controls of these countries. At a later stage, German purchases of raw materials began to be diverted to these countries when the operation of a clearing account made it possible to obtain goods without payment in foreign exchange, merely by the deposit of marks to the credit of the selling country in the clearing account. These funds could only be realised by purchases in Germany. In the clearing account, the mark was valued at gold parity, and this, combined with the difficulty of obtaining raw materials in free markets, led to the offer by Germany of prices which, calculated in Balkan currencies, were attractively high. An increasing proportion of Balkan exports was thereby diverted to Germany, which soon owed considerable sums on clearing account to Yugoslavia, Bulgaria, Roumania, Greece and Turkey. These countries in turn could only liquidate the sums standing to their credit by increased purchases from Germany. Germany has clearing agreements at gold parity with most European countries, but it is in the economically weak Balkan countries that it has been possible to push this policy furthest. The policy amounts in effect to the

acquisition of raw materials from these countries as a forced loan. For this reason, and in view of their growing ability, with economic recovery, to place their produce in free markets, Germany's partners in these agreements are becoming increasingly restless regarding their results.

Their resentment has, in fact, tended to increase since, when liquidating the balances to their credit, they have often been unable to choose the goods which they require, but are forced to take those goods which Germany wishes to offer them. And the prices at which they are offered, even though they are purchased from blocked balances, are often considerably higher than those prevailing elsewhere.

The agreement with the United Kingdom is in a special category since in this case the only exchange control is at the German end. The German authorities are under an obligation to provide for specified purposes exchange to the value of specified percentages of the exports to the United Kingdom. Both sides seem to be satisfied with the results of this agreement, which has resulted in the repayment of arrears of debt due to British creditors, in the payment in full of interest to British holders of Dawes and Young Loans, and in a steady British export trade to Germany. The agreement also leaves a certain surplus of sterling at the disposal of Germany which is, in practice, used to purchase in London raw materials of British or British Empire origin.

Outside Europe, German trade agreements have tended to be based rather on a system of barter or private compensation. Through banks, under official supervision, private firms arrange for the transaction of their trade by setting off deals one against the other. Given the official over-valuation of the mark, these deals have, of course, only been possible with the use of a mark quoted at a special discount. The types of mark and the rates of discount vary considerably for trade with different countries and in different commodities (Aski-marks, Verrechnungsmarks, etc.), and even between different deals. But generally, the percentage of discount seems to have varied between 20 per cent and 35 per cent, though exact figures are not available. Some of the most striking instances of the success of this policy have been in South America, China and in South Africa. In certain countries, such as Brazil, the result of these compensation deals has been to transfer an increasing share of the trade of the foreign country in question to Germany. In Palestine, where this system has led to a marked increase of German exports, political influences have been important since this was the only method open to Jewish refugees of realising their German capital.

Other methods used with the help of the German exchange control to finance exports to all countries have been the utilisation of the mark profit to be made on the purchase of German bonds held by foreigners and the use of a direct subsidy administered in close co-operation with the exchange control. In the former instance, the difference between the foreign and the German price of German bonds was, and still is, used to subsidise exports, the subsidy being realised through the sale, at a discount, of "special" marks. In the latter case, a turnover tax of 2 per cent or 3 per cent was imposed in 1935 and continued in 1936 on all industrial transactions, and the proceeds—variously estimated at 700 to 800 million marks, no official information being available—were devoted to the direct subsidisation of export trade.

It is clear that attempts to import at one rate of exchange and to export at another have only been attempts at the impossible. Buying at above world prices on clearing account and in barter deals, and a levy on internal industries have all been implicit admissions of the fall in the external value of the Reichsmark and of an increased cost of living in Germany. On the other hand, the realisation at a discount of blocked accounts in Germany of a financial origin by foreigners has been an implicit admission by creditors of a bad debt; and to that extent Germany has undoubtedly had some benefit in the short period.

The diversion of German trade caused by the developments mentioned above is startling. Prior to the depression, Germany was, generally speaking, a net exporter to European countries and a net importer from overseas. In both directions, Germany's balance of trade has moved towards equality as a result of recent policy. Imports from countries in Europe with which there are complete clearing agreements (i.e. excluding the United Kingdom) have increased from 40.8 per cent of total imports in the period 1927-29 to 49.6 per cent of total imports in 1935. Imports from all the countries with which there are no clearing agreements have fallen from 42.5 per cent of the total in 1927-29 to 31.9 per cent of the total in 1935. The results of this redistribution of trade have been:

(*a*) To reduce Germany's *favourable* balance of trade with European countries with which she has complete clearing agreements from an average of Rm. 1,450 millions in 1927-29 and Rm. 1,394 millions in 1932 to Rm. 399 millions in 1935.

(*b*) To reduce the *unfavourable* balance with overseas countries with which she has no clearing accounts from an average of Rm. 2,830 millions in 1927-29 and Rm. 849 millions in 1932 to Rm. 308 millions in 1935.

(*c*) To reduce the *unfavourable* balance (mainly through increased exports) with the limited group of overseas countries where trade is on a clearing or compensation basis from Rm. 664 millions in 1927-29 and Rm. 193 millions in 1932 to Rm. 161 millions in 1935.

Full figures for these years, and for the years 1932 to 1935, are given in an Appendix.*

Although German policy has been remarkably successful hitherto in meeting the exceptional requirements of the situation, it may be doubted whether it provides the foundation for a permanent system. It is significant that the discount on the various categories of blocked marks shows a continuous tendency to widen, which is indicative of a slow deterioration in the financial situation. The effort that is now being made to increase the domestic output of raw materials and substitutes, in so far as it is not entirely based on a war mentality, provides some evidence that this is appreciated. Nor have the various expedients adopted to secure an expansion in export trade met with very much greater success than the more orthodox methods of other countries. The methods by which Germany has acquired raw materials from Eastern Europe under clearing agreements and the quality and price of the goods which are sold in exchange, can hardly increase the willingness of her partners in these agreements to continue the present system. In fact, as world commodity prices and the demand in free markets improve, the pressure on the

* See Appendix I, Tables 4 and 5.

hitherto hard-pressed producers of Eastern Europe to sell wherever they can, and on whatever terms, is being diminished and they are able to adopt a more critical attitude towards Germany's advances. Moreover, the system of compensation or barter trading on a depreciated currency basis with countries outside Europe seems to be subject to increasing restriction by the German authorities, though the reason for this is not yet very clear.

The rise in prices can hardly fail to increase Germany's difficulties. At the same time it cannot be denied that Germany's difficulties in paying for all the raw materials required by German industry are, at any rate in part, of her own making. The volume of raw materials which Germany is at present importing is not, on the whole, very much less than the volume of German raw material imports in the last boom. The difference is that a large proportion of the present imports is earmarked for manufacture purely for rearmament purposes—and that the export industries which must, in the last resort, pay for the imports have been starved of supplies, though they have been better treated than industries manufacturing for ordinary home consumption. This diversion of activity into unproductive expenditure and capital development in excess of the current saving capacity of the nation can only take place at the cost of a lowering of the average standard of living.

British Commercial Policy

We have so far only referred in passing to the changes in the background of world trade which have been attributable to changes in British and British Imperial policy. It is customary in this country, particularly, perhaps, in political circles, to lay the major responsibility for the introduction of measures restricting world trade upon foreign countries, and to assume that the United Kingdom has been free from blame in this respect. An examination of British commercial policy since 1931 will soon reveal that the United Kingdom has not been guiltless, although the conditions of the time do provide extenuating circumstances.

In 1931 Great Britain was virtually the last, and infinitely the most important, free market in the world. Owing to the overvaluation of sterling, due to stabilisation at too high a level in 1925, and the gradual contraction of other markets, the United Kingdom virtually became the dumping ground of foreign exporters. In the autumn of 1931 the pressure on sterling was relieved by allowing the pound to depreciate, which in itself gave an indiscriminate encouragement to British exports and an indiscriminate discouragement to imports. These effects of the depreciation of sterling were reinforced by a general tariff whose subsequent progress has tended to be upwards rather than downwards. In 1932, a series of exclusive agreements was concluded at Ottawa between the members of the British Commonwealth which considerably enlarged the scope of the preferential tariffs applying to their mutual trade. Although it was stated that in principle increased preference was to be granted by lowering the preferential tariff rather than by increasing the general tariff, this principle was not always applied in practice. At the same time, the development of British agriculture under the Agricultural Marketing Acts of 1931 and 1932 has necessitated the limitation by volume of a number of agricultural imports into the United Kingdom.

The Background of Ottawa and the British Tariff

This combination of measures represented in a large degree an attempt to restore a balance of economic forces which had been tilted against the United Kingdom ever since the post-war stabilisation of sterling at too high a parity. The United Kingdom's share of the trade boom of 1929 was not very considerable, and the subsequent depression affected her among the first. In the light of these circumstances, the imposition of the British tariff in addition to the depreciation of sterling, and the conclusion of a series of exclusive agreements with the Dominions at Ottawa, may be said to have been inevitable at that time. These measures represented a drastic attempt to correct a drastic situation. But the question still remains: can these measures and the principles underlying them be regarded as the foundation of a permanent system calculated to serve the best interests of the United Kingdom and the other members of the British Commonwealth in all circumstances? This question is one which requires a reasoned answer.

The Ottawa agreements were, in essence, an attempt to safeguard at any rate part of the mutual trade of Great Britain and the Dominions from the disastrous effects of the general depression. Already the depreciation of sterling and the action of a group of countries which included not only the British Commonwealth, but also the Scandinavian countries, and some others as well in following the lead of the United Kingdom in monetary policy, had probably tended to increase the mutual trade of this group at the expense of their trade with the outside world. The Ottawa agreements and the bilateral agreements with foreign members of the sterling area which Great Britain afterwards concluded may be said to have consolidated this development and to have pushed it a stage further. The British tariff and the Ottawa agreements have not been the only factors stimulating a diversion of the trade of the sterling area, but their influence has been of considerable significance. This was bound to be so, if only because the British market is of such great importance in relation to international trade that any policy designed to favour some suppliers of it at the expense of others must have world-wide repercussions. The Ottawa agreements did in fact constitute a large-scale measure of discrimination, and the full consequences of this action must be faced.

The Effects of Ottawa on British and World Trade

Prior to 1931 the United Kingdom had given economic advantages to the Dominions and Colonies by, for example, allowing them access to the London capital market on especially favourable terms, as the Colonial Stocks Acts show, besides bearing the principal cost of Imperial Defence. Under the temporary stress of 1931 the full measure of such assistance had to cease, and the export of capital came almost to a standstill. When the United Kingdom introduced tariffs the Dominions were given a privileged status. Now for some years previously the Dominions had given substantial preferences to British goods. Preferences on tea, sugar and tobacco (on which there was a duty for revenue purposes) and the financing of the Empire Marketing Board to push Empire products were until 1931 all that the United Kingdom could do in this direction in return until the erection of a tariff system in 1931 and 1932 made it possible to grant concessions to the Dominions. This was done at Ottawa on a scale rather in excess of the concessions granted at Ottawa by the Dominions to Great Britain. This was only proper and repre-

sented a belated return by the United Kingdom for the benefits which had long been enjoyed by British goods in Dominion markets.

The Dominions were put in a preferential position in the British market. Some Dominion products, for instance lead and zinc, were admitted on the understanding that they were to be supplied at "world" prices. In these cases the tariff on foreign supplies was intended to benefit the Dominion producer by giving him a monopoly—or at least the first pick—of the British market, but at the same time to prevent him from using this monopoly to exploit the consumer. As a piece of administrative machinery, this system has proved unworkable, and has had to be revised through the adoption of a specific duty payable by the importer instead of by the purchaser, subject to a rebate for Empire supplies.

At the same time, general attempts were made to put Dominion products in the place of foreign ones, wherever Great Britain habitually imported the latter and there was some prospect of the Dominions being able to provide an equivalent. But too little attention was paid to technical factors. From the point of view of industry, certain raw materials coming from Empire sources were not satisfactory substitutes for those they replaced, while certain Dominion foodstuffs were not always of the same quality as those which they were meant to supersede. Linseed oil, chilled beef, and timber are examples, although in the last cases some improvement has been made. Even then, by forcing duplication within the Empire of equipment already adequately provided elsewhere, Ottawa was a source of economic waste. No amount of improvement, moreover, can yield equivalent supplies in the case of seasonal foodstuffs which are not available when they are needed. In general, little consideration appears to have been given to the requirements and preferences of the British consumer. One of the effects of Ottawa was, therefore, to change for the worse the position of the British consumer by restricting his range of choice. In addition, certain provisions appear to have had a disturbing effect on world prices.

In return, the Dominions made some concessions to British manufactured goods, but the right of the Dominions to possess manufacturing industries of their own was not disputed by Great Britain. Recommendations concerning import duties were left, in the majority of the Dominions, in the hands of Tariff Boards, which were instructed to hear applications for reduced or increased duties from British and Dominion manufacturers. The boards were expected to examine relative costs in the two countries, and to fix tariffs so as to afford opportunities for fair and reasonable competition. This was the so-called "scientific tariff," which is intended to equate national advantages in industrial costs. Were this taken to its logical extreme it would destroy international trade, since there would be no special advantage in producing anything in one place as against another.

One of the developments arising out of Ottawa was the extent to which India endeavoured, by means of specific tariff concessions, to extend her trade with the rest of the Empire, and, in particular, to secure a share of the British market. The Crown Colonies were represented at Ottawa, and some agreements affecting them were concluded, but it was not until twelve months later that preferential tariffs, or a quota system for textiles, were widely introduced throughout the Colonial Empire.

On the financial side, the United Kingdom and the Dominions agreed to pursue a common currency and credit policy, and the intention was expressed of working for a rise

in the level of commodity prices, but in the falling market which then existed, this was little more than a pious hope.

One of the most important aspects of the Ottawa Agreements is the constitutional precedent that they introduced. Since the Statute of Westminster, it has been considered highly undesirable that any two sovereign units of the Empire should make *inter se* agreements to the exclusion of other sovereign units. This principle would preclude the development of Empire bilateral agreements. It was the great triumph of Ottawa that it was able to retain the spirit and letter of this principle and at the same time to find a flexible method of developing economic agreements appropriate to the several parts of the Empire. Once the main Conference in which all parts of the Empire, including the Crown Colonies, were represented, had assembled, it was possible for them, outside the main Conference Chamber, to make among themselves bilateral trading agreements appropriate to their particular circumstances. As soon as the Conference learned that this task of separate agreement was completed, the main Conference was reconvoked, and all the bilateral agreements were jointly and severally laid before the main Conference which, without either approving or disapproving of them, took cognisance of them all. By this method, the unity of the Empire as a whole was retained, the independent sovereignty of its separate parts was fortified, and the obstacles to separate trade agreements were removed. But the establishment of this constitutional procedure means that the future development of the economic empire by sectional agreements will probably only be achieved by a repetition from time to time of the Ottawa procedure.

The economic aspects are, however, less reassuring. There has, it is true, been a growing willingness to think in broad terms of United Kingdom supplies as a whole, and of the best ways of securing them, rather than of the effects upon individual interests. It cannot, however, be said that sacrifices imposed on individual consumers or groups since Ottawa have always been for the general benefit. Even—at their best—on paper, the agreements were calculated to have more effect in diverting streams of visible trade in the direction of Great Britain and the Dominions than increasing the volume of world trade as a whole by opening up new sources of demand. A mere diversion of trade can at most only take the British Empire a fraction of the way back to complete recovery. Between 1929 and 1932, the volume of world trade fell by some 25 per cent and by 46 per cent in sterling value; in the period 1924 to 1929, foreign countries took 59.1 per cent by value of all exports from Great Britain, 63 per cent from India, 59.2 per cent from Canada, 49.1 per cent from Australia, 13.6 per cent from New Zealand, and 36.2 per cent from South Africa. Given such a position, little could be expected from a re-arrangement of the currents of trade alone.

The Diversion of Empire Trade

The diversion has been almost entirely one of British imports away from foreign sources, and in favour of the Dominions. Between 1931 and 1936, the share of the British Dominions in the United Kingdom's import trade rose from 28.7 per cent to 39.2 per cent. The proportion of imports supplied by European countries fell from 42.7 per cent to 34.2 per cent, and by foreign countries overseas from 28.6 per cent to 26.6 per cent. Between 1929 and 1936, the value of British import trade has fallen on balance by 30.6 per

cent. But imports from British countries have fallen on balance by only 7 per cent, compared with 38 per cent in the case of imports from European countries, and 43 per cent in the case of imports from foreign countries overseas. Clearly the most significant feature has been the benefit derived by Empire producers from a diversion of trade away from foreign overseas producers of foodstuffs and raw materials, such as Argentina. The association of industrial production with the European Continent and primary production with foreign countries overseas, which is implied by these figures, is not, of course, entirely valid, since the former group includes such countries as Denmark and the Netherlands, which supply the United Kingdom with a large volume of foodstuffs, while the latter group includes industrial countries like Japan and the United States. In addition, the influence of the British tariff in curtailing industrial imports in general, and of the formation of the sterling area in discouraging trade with other parts of the world must be fully allowed for in any attempt to assess the direct responsibility of Ottawa for these changes.*

There has been much less change in the distribution of British export trade. Exports to Empire countries rose from 43.7 per cent of the total value in 1931 to 49.2 per cent in 1936. Exports to European countries fell from 34.2 per cent to 31.2 per cent of the total, and exports to foreign countries overseas from 22.1 per cent to 19.6 per cent of the total. Compared with a net decline since 1929 of 39.5 per cent in the total value of British export trade, exports to the Empire fell on balance by 31 per cent, to European countries by 41 per cent, and to foreign countries overseas by 49.8 per cent.*

It will be seen from these figures that the European Continent is hardly less important than the Empire as a market for British goods. In the second place, the figures suggest that if the United Kingdom is determined to exclude supplies of foodstuffs and raw materials from foreign countries overseas in the interests of British and Dominion primary producers, there is likely to be a check to the growth of British exports to foreign markets. There is, of course, the qualifying factor that the purchasing power of primary producers was seriously affected by the heavy fall in prices of their principal products, although this factor had been almost completely removed by the end of 1936 with the recovery in commodity prices. It needs to be remembered, however, that the price factor affected British Empire producers hardly less severely than primary producers in foreign countries.

The diversion of trade in the case of primary products is very clearly marked. The index of the total volume of British food imports† (1927-29=100) rose to 117 in 1931 and after falling steadily to 103 in 1935, recovered to 105 in 1936. Food imports from the Empire countries also rose, on the same basis, to 117 in 1931, but had increased further by 1936 to 152. Food imports from foreign countries, however, after rising to 116 in 1931, fell continuously to a figure of 75 in 1936. Some very striking changes have occurred in the case of individual products. In terms of the 1927-29 average, total meat imports, which increased by 17 per cent up to 1931, had fallen on balance by 8 per cent in 1936, but imports of Empire meat had risen by 38 per cent, while imports of foreign meat fell by 30 per cent. In the case of dairy produce, of which total imports in 1936 were 39 per cent above the average of 1927-29, Empire imports showed a jump of 63 per cent, compared

* Full figures for each group are given in Appendix I, Table 8.

† According to the index of food imports prepared by the Oxford University Agricultural Economics Research Institute. For full figures, see Appendix I, Table 9.

with an increase of 16 per cent in foreign imports. In wheat and flour, and in fruit, the diversion has also been striking.

The same tendency towards the diversion of supplies to the British market can be observed in the Dominion export statistics. The following table shows in a condensed form, the proportions of the principal raw commodity exports of the British Dominions and British India which were consigned to the United Kingdom in 1929/30 and the latest available year.*

PROPORTION OF CERTAIN DOMINION EXPORTS CONSIGNED TO THE UNITED KINGDOM

	1929 or 1929/30	1935 or 1935/36
CANADA:†		
(i) Wheat and Other Agricultural and Vegetable Products	49	64
(ii) Livestock, Fishing and Dairy Produce	31	54
(iii) Pulp and Paper	7	16
(iv) Non-ferrous Metal	10	46
(v) Iron and Steel Products	9	21
INDIA:‡		
(i) Rice	2	5
(ii) Oilseeds, etc.	17	20
(iii) Tea	85	89
(iv) Raw Cotton	7	13
(v) Raw Jute	25	22
(vi) Jute Manufactures	6	9
(vii) Hides and Skins	46	62
NEW ZEALAND:§		
(i) Butter	76	97
(ii) Cheese	100	100
(iii) Meat	89	99
(iv) Wool	70	69

	1929 or 1929/30	1935 or 1935/36
SOUTH AFRICA:§		
(i) Sheep's Wool	41	25
(ii) Sheepskins	27	23
(iii) Uncut Diamonds	75	69
(iv) Foodstuffs	73	70
(v) Wattlebark and Extract	27	30
(vi) Hides and Skins	56	23
AUSTRALIA:‡		
(i) Butter	85	91
(ii) Wheat	54	49
(iii) Flour	18	21
(iv) Beef	50	85
(v) Mutton and Lamb	88	98
(vi) Fruit	73	74¶
(vii) Wool	35	36
(viii) Sheepskins	27	16¶
(ix) Non-ferrous Metals	52	84¶

The increase in British imports of Dominion foodstuffs and raw materials has, in fact, been very striking and of substantial assistance to the Dominions during the depression. But by reason of the very magnitude of this increase and of the coming stabilisation and perhaps decline of the population of Great Britain, some anxiety is being felt in the Dominions as to the ability of the British market to absorb indefinitely further potential increases in their production of foodstuffs and raw materials. Fantastic as it may seem in view of Sir John Orr's estimates that some 22½ million people in this country need to increase their consumption of milk, fruit, butter, etc., by percentages varying from 12 to 25 per cent if they are to obtain a satisfactory nutritional standard, British agricultural

* See also Appendix I, Tables 15-19. † Years ending March 31st. ‡ Years ending June 30th.
§ Calendar years. ¶ 1934/35.

policy tends to stabilise things as they are, and appears to be retarding the switch over of British agriculture from the types of product which should economically be imported from the Dominions and elsewhere to the production of those foodstuffs which are needed to raise the standard of living at home. This is no necessary part of Ottawa and is a substantial obstacle to the maintenance and development of Empire economic co-operation. It represents a fundamental contradiction of policy which is discussed in greater detail later in this report along with other political factors.

Thus, in spite of the enlarged share which the Dominions have won in the British market, they are still seeking outlets for the further output which they can, and indeed must, produce and dispose of if they are to maintain their populations in a condition of reasonable prosperity and to continue to meet their external obligations. In this search for outlets, they have encountered two formidable obstacles. The first consists of the comprehensiveness of the tariff concessions made to British manufacturers before and at Ottawa. There are several countries, for example Germany and Japan, which are only too anxious to take raw materials from the Dominions, provided that they are allowed to pay in goods. The Dominions, having conceded preferential rates of duty to British manufacturers on a long list of manufactured goods, find it extremely difficult to make such concessions to foreign countries as would enable them to ship goods on competitive terms and take Dominion raw materials in exchange.

Canada has, it is true, succeeded in negotiating a new trade treaty with the United States, which has had the result of expanding the Canadian market for timber, livestock, dairy produce, animal fodder and fish in return for reductions on 767 tariff terms covering imports from the United States which were valued at $400 millions in 1930.

Australia, also, has lately reorganised her trading relationships with Japan, and has extended intermediate tariff treatment on certain goods in return for purchases of Australian wool. New Zealand has made it clear that if a market cannot be found within the Empire for an increasing output of dairy produce, her Government will not hesitate to seek outlets elsewhere on a reciprocal basis.

The second and less obvious obstacle which has confronted the Dominions in their search for markets is presented indirectly by the British tariff itself. Prior to 1932 much of the trade of the Dominions with Europe was conducted on a multilateral basis. A hypothetical example may be used to illustrate this. Australia may have sent wool to Czechoslovakia. Czechoslovakia sent nothing directly in return, but exported glass to Great Britain. The sterling proceeds of the sales of glass to Great Britain were remitted by the Czechs to Australia in payment for the wool, and Australia might use the sterling funds thus acquired in purchasing goods from Britain or paying interest on external obligations, or in employing British shipping, insurance, or other services. But the circle is broken if Czechoslovakia is prevented from exporting glass to Britain. Since the erection of the British tariff, such multilateral transactions have been severely handicapped. Australia has been unable to expand her wool-growing industry to the extent that would have been possible had foreign markets been more readily available; and British invisible exports have been heavily curtailed.

The Importance of Foreign Markets

The importance of foreign markets, as opposed to markets within the British Empire, to both Dominion primary producers and British industrialists, can hardly be overestimated. As stated earlier, in the period 1924-29 foreign countries took 59.1 per cent of all exports from Great Britain, 63 per cent from India, 59.2 per cent from Canada, 49.1 per cent from Australia, 36.2 per cent from South Africa, and 13.2 per cent from New Zealand. The proportionate dependence of the Crown Colonies is in most cases even greater. In the same period, the group comprising the African colonies, Malta, Cyprus, Ceylon and the West Indies sent 46 per cent of its exports to foreign countries. For British Malaya the proportion of exports taken by foreign countries was as high as 74.5 per cent.

The relative importance of trade with various countries of the British Commonwealth in the total trade of a number of foreign countries is shown in some detail in the Appendix.* The proportionate importance of the trade of these countries with the British Commonwealth as a whole is shown below:

PROPORTIONATE IMPORTANCE OF THE TRADE OF VARIOUS FOREIGN COUNTRIES WITH THE BRITISH EMPIRE

Percentage of Total Imports Consigned from British Countries:	1913	1927-1931 (Avge.)	1932	1933	1934	1935	1936
U.S.A.	30.6	31.0	26.0	29.7	32.8	33.6	36.5
Japan	38.2	30.5	28.4	31.7	31.5	31.3	31.7
Germany	19.3	19.2	17.3	18.6	16.7	14.9	—
France	21.8	21.2	16.5	16.1	15.9†	16.3†	14.9†
Percentage of Total Exports Consigned to British Countries:							
U.S.A.	45.1	41.5	38.9	36.9	39.7	41.6	42.3
Japan	16.5	21.5	26.8	25.7	27.6	26.7	26.6
Germany	19.4	14.9	12.1	13.0	15.1	15.2	—
France	22.0	19.6	13.3	11.6	10.6†	12.0†	20.6†

The contrast between the progress of British and foreign consumption of the primary products of the overseas Empire is even more striking, if the examples of certain commodities are taken singly. Details of world production and trade in wool, wheat, butter and cheese in each of which more than one Dominion is interested, are given at some length in the Appendix.‡ Australia, for instance, has increased her exports of greasy wool between 1929 and 1936 from 720 million lbs. to 764 million lbs. Of this total, the United Kingdom took 216 million lbs. in 1929 and 286 million lbs. in 1936. Japan took 123 million lbs. in 1936 (considerably less than the average of the previous five years) against 89 million lbs. in 1929. The purchases of other countries had fallen from 415 million lbs. in 1929 to 254 million lbs. in 1936. Since, in particular, Japan's purchases of Australian wool were unduly restricted in 1936, there is clearly more room for an expansion of the market for Australian wool in foreign countries than in the United Kingdom at the present stage.

* Appendix I, Tables 11-14. † Incomplete. ‡ See Appendix I, Tables 20-23

Similarly, exports of New Zealand butter to the United Kingdom increased from 70,225 tons in 1929/30 to 125,360 tons in 1934/35. Total exports increased only from 92,387 tons to 129,704 tons in the same period. Australian exports of butter to the United Kingdom rose from 41,079 tons in 1929/30 to 87,917 tons in 1935/36, but total exports increased only from 48,091 tons to 94,800 tons.

Fundamental Factors in British Economic Policy

In the light of recent developments in world trade and world economic policy, and of the dependence of the trade of the British Commonwealth in the long run upon world trade, of which some evidence has been given above, there would seem to be ground for a serious reconsideration of the commercial policy pursued by the United Kingdom and the Dominions since 1931, taking into account their fundamental interests in the long period. The view has already been expressed that the setting up of the British tariff and of the system of preferences introduced at Ottawa represented an essential measure of self-preservation under the pressure of extreme economic circumstances and a balance of forces which had been weighted against the British economy for a considerable period of years. It was a time when the question of immediate economic survival was of more importance than long-term policy so that, from the practical point of view, measures which promised to safeguard British economic and commercial interests in the short run had to be regarded as immediately justifiable, whatever the damage done to world trade, and therefore, in the long run, to British interests themselves. It is necessary to recognise that the advantages secured for trade within the Empire *were* secured in a large degree by the diversion of trade, and therefore to the detriment of foreign interests. Now that the immediate crisis has passed, the time has come to consider whether, in view of the vital dependence of the British Commonwealth on world trade, the actions taken then were not as inimical to British interests in the long run as they were beneficial in the short run.

The British Empire is, and is likely to remain, on balance, a producer of raw materials and foodstuffs far in excess of its own consuming capacity. In fact, if even the existing productive resources of the Empire are to be fully employed and the legitimate aspirations of overseas producers for the achievement of a higher standard of living are to be met, the excess of Empire primary production over Empire consumption will be considerably greater than it is at present. Great Britain itself is the only large consuming market for raw materials and foodstuffs within the British Empire. The possibilities of the expansion of consumption in the United Kingdom are not indefinite, in view of the tendency of British population to become stationary or even to decline. Great efforts have been made since 1932, within the limitations imposed by British agricultural policy, to increase British consumption of Dominion foodstuffs and raw materials. But even if these limitations were removed, and if the problem of malnutrition were adequately tackled, there is a limit to the increase in British consumption of bulk foodstuffs and raw materials, owing to the trend of population and owing to the fact that further increases in the standard of living are likely to give rise to an increased demand for perishable foodstuffs, services, and durable consumption goods rather than to an increase in bulk consumption.

The white population of the whole of the rest of the Empire is little over half that of the United Kingdom, and in respect of the consumption of foodstuffs is already living

at a higher standard, on the average, than the population of the Mother Country. The coloured population of the Empire is large, but its standard of living is low and must probably remain so for some time to come. The extent to which the overseas Empire can be expected to increase its consumption of its own produce is therefore small in relation to its potential productive capacity.

For the same reasons, it is doubtful whether the overseas Empire can, for some time to come, absorb directly more than a certain proportion of total British exports of manufactured goods.

The conclusion of bilateral trade agreements by the United Kingdom with foreign members of the sterling bloc has done something to increase the trade in manufactured goods of the United Kingdom, but the agreements have, if anything, increased the surplus of raw commodity production over consumption within the Ottawa system and the related sterling area by the inclusion of such countries as Argentina and Denmark which are net exporters of primary foodstuffs on a substantial scale. It must, in fact, be recognised from the outset that the primary producing interests of the overseas Empire and the manufacturing interests of Great Britain are both far wider than the market which the Empire itself, or even the sterling group, can supply. If the measures of self-preservation which the British countries took in 1931 and 1932 have, on balance, made it more difficult for foreign countries to acquire, either directly or indirectly, the goods which the Empire urgently desires to sell them, the time has surely come to consider whether modifications of those measures are not now desirable purely from motives of self-interest. Merely to retrace the steps which were taken in 1931 and 1932 is not necessarily the most practicable or even the theoretically correct solution to the problem. The barriers which were created then did cause dislocations, but they have in the course of time been built into a system. To attempt to sweep them away indiscriminately would cause so much greater dislocation that it is hardly practical to make the attempt in these terms. What is wanted, rather, is a vigorous overhaul of the present system, accompanied, if necessary, by amendment in detail, in the light of a constructive long-term policy of trade development. If the common interest is consulted, as it should be in a long-term policy, it is probably inevitable that sectional interests will be injured or will believe themselves to be injured in the short period. Hitherto, however, sectional interests have been too often consulted exclusively, and the present impasse is partly due to that factor.

More hangs upon this problem than merely the economic development of the Empire. While it is certain that the overseas Empire must look increasingly to industrial Europe to provide an expanding outlet for its own expanding production of raw commodities, the pressure of Continental Europe's need of raw commodities is increasing to the point where violent measures may soon be taken to satisfy it. Although economic pressure may not often be the sole cause of war, few would deny that it can be a powerful contributory factor. In this sense, the economic appeasement of Europe is essential to its political appeasement. Many countries are struggling to build up their economies, and to acquire the essential resources with which to do so, although their internal wealth has been inadequate and the outlets for their exports too restricted to allow them to achieve their object without serious dislocations of their external trade, and in fact of their whole social structures.

This must be a matter of immediate concern to the United Kingdom and to the British Commonwealth as a whole. For since the sterling group is a net exporter of raw materials and commodities, and since the United Kingdom is a net exporter of many classes of manufactures, capital goods and services in excess of the capacity of the Empire to consume them, British economic interests are closely dependent upon the encouragement of a rising world standard of living and political tranquillity. Hence, it must repay these interests, at this stage, actively to assist in the development of the backward areas of the world.

The British tariff constitutes one of the more important impediments to world trade which have been created since 1931. It is, on the whole, low compared with the tariffs of many other countries. But in estimating the restrictive effect of any tariff on world trade, it is necessary to take into account not only the absolute height of the barrier to be surmounted, but also the capacity of the market which it surrounds. On this criterion, the effects of the British tariff in contracting world trade must be acknowledged as more formidable than the effects of much higher tariff walls in much less important importing countries.

The events of the autumn of 1936 and the spring of 1937 have shown a strong unanimity of opinion among leading economists regarding the desirability of the relaxation of British import restrictions, even at the expense of causing a temporary disequilibrium of the British balance of payments. This step has been advocated for reasons of primarily internal economic policy as a means of conteracting the rising tendency of costs and prices which threatens the stability of internal industrial recovery. It is widely regarded as preferable to, and, to some extent, an insurance against, a rise in the rate of interest. Industrial recovery in the home market has proceeded far enough to be able to stand upon its own feet. British economic activity no longer needs an indiscriminate stimulus, but a specialised stimulus directed towards the solution of certain special problems. Most important among these is the problem of the depressed areas—areas which are particularly dependent upon export trade. The grant of greater freedom of access to the British market to potential customers of the British export trades would provide just such a special stimulus as is needed to solve one aspect of the depressed area problem.

From considerations of internal policy alone, therefore, the reduction of the British tariff already appears to be overdue. When, in addition, the factors preventing the expansion of the external trade of the British Commonwealth are such as have been shown earlier, the case for tariff reduction becomes doubly strong.

At the present time, the psychological effect of even the smallest concession in a market of such importance as the United Kingdom would be wide and beneficial. H.M. Government has, however, given no official lead in this direction. In fact, the statement made at Geneva in the autumn of 1936 was too negative to be of any encouragement to such other powers as may have held liberal views on the subject of international trade. If the United Kingdom is prepared to do no more than refrain from further currency depreciation and from increasing tariffs, the British contribution towards the expansion of world trade would not amount to much. A later statement, made by the Prime Minister in answer to a deputation, at the end of March 1937, somewhat amplifies the

Government's earlier views. The importance of cultivating a freer exchange of goods and services was appreciated, particularly as a contribution towards the promotion of world peace. In the view of H.M. Government, the main obstacle to the development of international trade was the existence of the present systems of quota restrictions on industrial goods and exchange controls. But it was clear that action in these matters had to be taken by other governments, since there were no exchange controls in the United Kingdom and the only quota restriction on industrial goods was the flexible duty-quota control of imports of iron and steel, which was part of an international cartel agreement. As regards tariffs, those which existed had been imposed to prevent the increase of unemployment and to protect the standard of living of the country. They had not prevented the development of trade. In fact, although when they were first introduced it was essential to rectify the balance of payments by a substantial reduction of imports, since 1933 imports into the United Kingdom had considerably increased.

On the evidence of this statement, H.M. Government clearly seems reluctant to reverse its tariff policy of 1931 and 1932. The world's verdict will, however, depend upon the extent to which this reluctance is accompanied by a genuine and vigorous drive to enlarge world trade through some alternative technique more suited to the present situation. It is because the background of international trade has changed in the manner described in this chapter that the reluctance of H.M. Government is in part justified and that a new alternative technique must be found. An attempt in this direction has been made by the signatories of the Oslo Convention. But their efforts to secure an expansion of trade by tariff reductions on a limited regional basis may not receive much encouragement from the British Government in view of a later passage in the same statement by Mr. Baldwin, in which was stressed the danger of low tariff groups in promoting discrimination and leading to retaliation and tariff wars. The British Government has, however, gone so far as to collaborate with the French Government in inviting M. Van Zeeland to undertake preliminary informal investigations in various countries as to the possibility of securing a general relaxation of quotas and other obstacles to international trade. But it is vital that constructive action should not be unduly delayed.

Discrimination in Colonial Markets

Before proceeding to a detailed discussion of the practical aspects of this problem of evolving a new technique to fit the changed economic background of international trade, it is necessary to give prominence to one aspect of recent Imperial policy which appears to be fraught with dangerous economic and political consequences. In most discussions of the principle of imperial preference and of imperial economic development, the position of the Crown Colonies is left very much in the background. In practice, the Crown Colonies have also been treated with almost equally scanty consideration.

Towards the end of 1933, the system of Imperial preference was extended to the Colonies generally through tariff alterations and the imposition of quotas on the import of textiles. These developments had far-reaching effects, even though already before this date some Colonies had given limited preferences, while at all times the Crown Agent system gave a substantial advantage to the British manufacturer. The immediate occasion for the change was the rapid growth of Japanese competition, especially in textiles.

Those who imposed the restrictions seem, however, to have paid no attention to the position of the colonial consumer, or to the effect of such measures upon other markets and upon the volume of world trade in general. Cheap Japanese textiles and the more expensive Lancashire goods are interchangeable only to a limited extent. The effect of the introduction of the quota system has been to hold down the standard of living in the Colonies, and to prevent the tapping of an entirely unexplored level of demand which no Western country has yet succeeded in satisfying.

The extent to which this forms an obstacle to the natural development of Colonial markets may be appreciated by a comparison of the textile imports during the last three years of Kenya and Uganda on the one hand, and Malaya and Ceylon on the other. In Kenya and Uganda, the Open Door is maintained of necessity under the terms of the Congo Basin Treaties. Imports of cotton textiles increased from 52½ million yards in 1934 to 60½ million yards in 1936. Imports from Japan increased from 44.9 million yards in 1934 to 54 million yards in 1936; imports from the United Kingdom fell from nearly 5 million yards in 1934 to 3¾ million yards in 1936. In Ceylon, the quota system for textiles is in force. Ceylon's cotton textile imports fell from 78 million yards in 1934 to 66 million yards in 1936; Japan's share fell from 33 million yards in 1934 to 10 millions in 1936—a reduction of 23 million yards; but imports from Lancashire increased only by 20 million yards—from 11.7 millions in 1934 to 31.5 millions in 1936; and imports from all sources other than Japan fell by 8 million yards. Similarly, in Malaya, where quotas are also in force, cotton textile imports fell from 146 million yards in 1933 and 144 million yards in 1934 to 104 millions in 1935. Between 1933 and 1935, imports from Japan fell by 45½ million yards (from 99½ millions to 54 millions), but imports from the United Kingdom increased only by 7½ million yards (from 26 millions to 33½ millions), and imports from all sources other than Japan by 3½ million yards.*

Apart from the economic and social consequences for the native populations of the colonial territories, the introduction of discrimination within the last few years in colonial markets marks a grave departure from traditional colonial policy in the political sphere. It has always been the boast of Great Britain that she has acted in the position of a trustee for the best interests of the colonial populations under her care, and has governed the Colonial Empire essentially in the interests of the colonial peoples. Non-discrimination in the import trade was an essential part of this policy, and for this reason the introduction of discriminatory quotas and tariffs since 1932 may be said to have shaken the foundations of the concept of Imperial Trusteeship. Moreover, as long as the power of foreign countries to purchase from the colonies is restricted by discrimination against their exports to the colonies, it is hardly correct to assert that access to raw materials in British colonial territories is completely free to all. This recent development of British colonial policy has not only lent force to the colonial aspirations of other powers and the misguided economic arguments on which they are based, but it has thwarted the true economic interests of the colonies themselves. As has been indicated earlier in this chapter, the colonial territories have at least as great an interest in trade with the outside world as in trade within the Empire. In the immediate economic interests of the colonial populations themselves, and in the interest of preserving the best concepts of colonial government, it seems vital that

* See also Appendix I, Table 10.

when the question of admittance on a larger scale of foreign goods to Empire markets comes up for consideration, the reversal of the policy of discrimination in the Crown Colonies should be considered as the first means of achieving this object.

Unfortunately, H.M. Government appears to have overlooked the existence of these factors. In his statement of March 22, 1937, the Prime Minister indicated that a return to the Open Door policy had been considered by the British Government and had been found open to objection. It was considered that full and immediate imposition of an Open Door would impair the authority of colonial legislatures and impede their progress towards self-government by limiting their authority in fiscal matters. Further, it would seriously weaken the right of the Colonial Empire to claim preference in the United Kingdom and other Empire countries, which, in the absence of equivalent opportunities in other metropolitan markets, was essential to its economic well-being. Conversely, it would prevent the Colonial Empire from taking action in its own economic defence against discrimination by other countries; and, finally, it would, in present circumstances, tend to favour the trade of countries with an exceptionally low standard of labour costs, to the disadvantage of the trade of other countries with higher labour standards. The question of economic policy in colonial areas could not be divorced from the question of economic policy between metropolitan countries, and, in the present circumstances, H.M. Government saw no justification for reversing the policy of Imperial preference which had contributed greatly to the prosperity of the Colonial Empire.

Some of the reasons advanced would have appeared convincing in the mouths of the colonial legislatures themselves, but they do not carry a great deal of weight against the other social and political considerations which enter into the question. Although the Prime Minister's statement rejects the restoration of the complete Open Door by a unilateral gesture, there is nothing in it which would preclude the reduction of colonial import restrictions on a bilateral basis, in return for specific concessions to colonial or other British goods elsewhere. Since emphasis has been laid on the necessity for regarding colonial economic policy, only in conjunction with economic policy as between metropolitan countries, and since the principal colonial exports, being for the most part raw materials, are not dutiable in most countries, concessions in the colonial market could, in fact, be made one of the principal features of a bargaining policy by the United Kingdom. This would, indeed, be in accordance with the avowed intention of H.M. Government to pursue bilateral methods of trade development. How far it is in the interests of the colonial populations to be used as bargaining weapons, how far it is politically advisable at the present time to brandish so openly the weapon of political control of colonial territories as a factor in world economics, and how far such a policy would lead to greater freedom of trade, is, to say the least, open to doubt.

III. THE ROLE OF GOVERNMENT COMMERCIAL POLICY

Summary

(i) The functions of government in relation to trade in general may be defined as, first, the regulation of the workings of economic processes in the light of political and social factors, and, second, the improvement of the working of the economic process by economic measures of its own. In the sphere of international trade, the government has to reconcile external commercial policy with internal economic and social policy and external politics. The government is the ultimate and only arbiter in matters of policy, and changes in policy can only be brought about by government action or government goodwill. In this connection the government has the particular responsibility of watching the interests of consumers, who are not represented in any other way. Different governments have placed very different interpretations on these duties, especially in the relation between the formulation or control of policy and the execution of policy. Some governments have monopolised both, while others exercise a very direct control over the execution of policy. In the United Kingdom the government takes no part in the execution of policy, and in these circumstances there is a danger that policy will not always be very precisely formulated. The ideal system probably involves clear definition of policy on the part of the government, while at the same time avoiding interference with the ordinary freedom of commercial operation.

(ii) The realignment of currencies and the abandonment of deflation over the greater part of Western Europe in September 1936 presented the world with a great opportunity to secure a greater volume of international trade. But it would be a mistake—and events are proving it a mistake—to expect that there can in practice be much easy sweeping away of trade barriers. Constructive action by governments and industries is necessary, and the present network of trade restrictions must be attacked at definite points. Great Britain has so far failed to give a definite lead in this direction, but the initiative is being taken by the Scandinavian countries, Holland and Belgium—who were the signatories of the Oslo Convention —and by the United States and France. More recently, the British and French Governments have co-operated in setting on foot a preliminary enquiry into the possibility of breaking down restrictions to trade, which will be conducted by M. Van Zeeland, the Belgian Prime Minister. The British Government, however, according to a recent statement by Mr. Baldwin, appears to be reluctant to reduce any of its own import restrictions, and clings to the use of the unconditional most-favoured-nation clause in its most rigid form, which would seem to preclude the lowering of trade barriers on a limited regional basis.

(iii) International commercial treaties, and particularly British treaties, have been traditionally based on the use of the most-favoured-nation clause, usually in its unconditional form. While the unconditional M-F-N clause probably served a useful purpose, particularly to Great Britain, in assisting the establishment of free trade in the middle nineteenth century, its benevolent influence has become less and less effective in recent years. Generally, the use of the M-F-N clause in its unconditional form probably discourages the lowering of tariffs, because any concession made must be broadcast. Alternatively, increased skill in commercial bargaining and Customs administration has had the effect that many of the concessions so broadcast by the automatic operation of unconditional M-F-N are of little or no value except to the original recipient. The chief influences undermining the utility of unconditional M-F-N, however, have been: (*a*) the increasing use of quantitative measures of import control, which the existence of M-F-N obligations has, in the event, failed to prevent from being employed for discriminatory purposes, and (*b*) the formation of economic groups involving preferential arrangements which are, either legally or effectively, outside the scope of the clause—the British Empire being an important example.

(iv) Attempts to widen the area of relatively free trade on a limited basis by the formation of "low tariff clubs," encounter the difficulty that the existence of such "clubs"—which of course involve discriminatory treatment of imports—contravenes existing M-F-N obligations, except where the countries concerned form a group which has come to be regarded as a legitimate exception. The attempt, for instance, of Holland and Belgium to reduce mutual trade barriers under the Ouchy Convention of 1932, was defeated by the opposition of the British Government on these grounds. If "low tariff clubs" are to be made possible—and they represent one of the more favourable opportunities of liberating trade, although only on a limited scale—a less rigid insistence upon the strict interpretation of legal rights under present M-F-N arrangements will have to be encouraged.

(v) The dropping of any form of M-F-N clause from commercial treaties would be a grave step, since the clause safeguards important rights other than the promise of non-discrimination in the import of goods. Substitution of the conditional for the unconditional form would make possible a three-line tariff and therefore a "low tariff club." This could only be undertaken with full realisation of the administrative difficulties which the conditional form has caused in the past. The most promising immediate solution seems to be to secure a much more liberal interpretation of the potential exceptions to M-F-N, which would in effect still further restrict its scope, while retaining the present framework intact.

(vi) The argument in favour of proceeding by means of "low tariff clubs"—which mean multilateral agreements, although on a small scale at first—is strengthened by the limits which exist to the progress which can be made by further bilateral agreements at this stage. Great Britain was particularly favourably placed to make advantageous bilateral agreements after 1931 and 1932, but even these had some unexpected indirect effects of a harmful nature to be set against the advantages secured. In the present circumstances, the indirect disadvantages inherent in

bilateral negotiations—which depend largely on the diversion of trade from competitors—often appear to offset the potential concessions to be obtained. If trade in any one market is obtained at the expense of foreign competitors by political agreements, the foreign competition is often merely intensified in other "free" markets.

(vii) This consequence may be avoided or minimised, if supplementary and parallel negotiations between industrialists or producers are encouraged alongside government agreements, subject to proper government supervision. The lack of organisation in many British industries at present reduces the efficiency of official negotiators, even in bilateral talks between governments, owing to the inadequate or unequal representation of industrial opinion. Better organisation would improve the position in this respect, and would also facilitate wider industrial negotiations for the purpose of regulating the shift and incidence of international competition.

The Functions of Government in Relation to Trade

Before plunging into the legal intricacies of international commercial relationships, it may be convenient to analyse briefly the position of governments in general in relation to trade in general. The functions of a government in relation to trade are twofold—first, to restrain or regulate economic processes in the light of overriding requirements of political or social policy; second, to take such economic measures as will improve the working of the economic process itself. It has, therefore, two functions which are very often contradictory in effect. In relation to foreign trade, one of the primary functions of government is to smooth out difficulties and to secure a reasonable adjustment as between internal and external commercial policy. Governments are the ultimate arbiters of all commercial policy, that is to say, they have the powers to do whatever they wish to secure a particular end, if they are prepared to use them, and, in the last resort, the government's power is paramount in the planning and execution although authoritarian governments can act far more ruthlessly than democratic governments. Major changes in the trend of commercial policy can only be brought about through government action of some kind—even if action takes a passive form, such as the government goodwill which enables industrial groups to co-operate. In practice, therefore, since they are the sole arbiters of policy, it is essential that governments should possess a policy themselves so that even if they are unwilling to initiate the implementation of policy, they are possessed of a set of standards against which the desirability of specific projects can be judged. In formulating policy, governments must, or should, be guided to a large extent by the existence of their responsibility for watching the interests of consumers. Consumers, who represent the whole body of the nation, are otherwise unorganised and their interests can, in fact, only be efficiently represented through the government.

Different governments have different ideas on the ways in which these functions should be interpreted in practice. These differences are not so great in the matter of the control and administration of policy through the actual mechanism of government, as in the relation between administration and operation. In some countries—for instance, Russia, and, in a less advanced degree, Turkey and Iran—governments have added to

their responsibility for the administration of commercial policy, direct participation in commercial operations. In other countries, such as Germany and Italy, the government's administrative functions have been organised so that a very direct and effective control is exercised over the actual operation of business. In the democratic countries, such as the United Kingdom, even policy is often very vaguely defined, and, although governments have been forced to take an increasing interest in the administration of policy, they have done so with reluctance, and have not as a rule entered at all into commercial operations which are left entirely in private hands. Although policy is the responsibility of the government, there is a danger in conditions where the execution of policy is left mainly to other and unofficial bodies, that this responsibility will be neglected. In the ideal situation, the government would take pains to lay down a definite policy based on the widest national considerations, but while retaining sufficient administrative control to secure proper co-ordination would avoid all interference with the ordinary freedom of commercial operation. It is with a view to achieving this end that the suggestions put forward in this and the next chapter are made.

Foreign Commercial Policy in Relation to Domestic Policy

The previous chapter has been concerned with a brief analysis of the background of recent developments in commercial history, and of the fundamental requirements of the economic foreign policy of the British Commonwealth. It is now widely recognised that the expansion of British visible and invisible exports has become an urgent necessity in order to preserve a reasonable balance of internal economic activity, and that a progressive reduction of the various barriers to international trade is essential to that end. The realignment of currencies and the abandonment of deflationary policies by the countries of the former "Gold Bloc" in September 1936 have been commonly regarded as making the reduction of trade barriers easier and even automatic. In theory, the abandonment of untenable currency parities and the substitution of more rational exchange rates might be expected to facilitate the removal of those restrictions which were originally imposed purely for the protection of currencies. Moreover, the substitution of expansionist monetary policies for the deflation necessary to sustain the former parities, should, in theory, stimulate a rise in industrial activity requiring importation on a freer scale. In Great Britain, at any rate, the pressure of rising prices upon consumption and the cost of living and the existence already of widespread malnutrition due to insufficient consumption of certain foodstuffs, has stimulated a rising tide of popular protest against the restriction of imports. Now, the demands of a large rearmament programme have been superimposed upon an already large volume of industrial orders, so that growing anxiety is being expressed concerning the inflationary consequences of a rising spiral of prices and costs, unless import restrictions are relaxed. These conditions are not, by any means, confined to Great Britain, since there is a danger that many European governments in their revulsion from the social disasters of deflation experienced in the past five years, may fail to recognise the equally disastrous effects of inflation. There is a danger also that the weight of consumer protest will not gain sufficient impetus until inflationary conditions have developed too far to be corrected.

The easiest and safest means of counteracting these undesirable tendencies lies in increased imports and a general expansion of international trade, which would bring the

forces of international specialisation into play as a check to the rise in internal prices. The extension of trade opportunities and a general rise in the standard of living would also be powerful forces making for political appeasement. Sufficient time has now elapsed, however, since the currency changes of September 1936 to show that the hopes, based on theoretical considerations, of a general sweeping away of trade barriers are likely to be disappointed.

Existing trade barriers—whether tariffs, quotas, import licences or exchange restrictions—are of two types, the first due to long-term economic policies, and the second imposed as emergency measures since 1930. Now that basic alterations in currency parities have been made, it should, in theory, be possible to eliminate the second type. But in practice, the emergency has lasted so long that it is usually impossible now to distinguish between the two types and to deal with them separately. In many countries, pseudo-economic theories have been evolved as justification, after the event, for measures of trade restriction which were introduced in the first place as somewhat hastily improvised expedients to meet a temporary difficulty. The emergency measures of 1930 to 1932 have in fact become assimilated in the economic structures of many countries, and will for that reason be more difficult to eliminate than they were to introduce. Added to this is the fact, which has already been examined in some detail, that the growth of economic nationalism represents, at any rate in part, a permanent development based on evolutionary factors. Hence those restrictions on trade which are part of a permanent policy.

It would be optimistic to expect much unilateral reduction of trade barriers by governments, in their present temper. Insistence upon reciprocity is at present strong, and governments may for some time be reluctant to initiate the reduction in trade agreements unless they can obtain a *quid pro quo*.

But the pressure which a rapid rise in prices exerts upon consumers has already caused unilateral reductions of trade barriers in some countries, and is probably growing in intensity. In France particularly, consumer protests carry weight with the present government, and throughout the former gold bloc, governments are generally anxious to avoid that increase in the cost of living which popular opinion has come so widely to dread as one of the consequences of currency devaluation.

The United Kingdom, at any rate, is not disposed to make the first move, judging from the statement made by the British representative at Geneva in the autumn of 1936, and the subsequent behaviour of the British Government. According to the Geneva statement, which was made shortly after the tripartite currency agreement, the contribution of the British Government towards increased international trade was, for the moment, to stop short at abstinence from further depreciation of sterling or from increases in the British tariff in response to the devaluation of other currencies.

The British Government has subsequently lived up to this statement in refusing to take a lead in breaching the defences of restriction, although it is in many ways best placed—and likely to gain most—from giving that lead. Fresh light was thrown on the government's attitude by a statement made by Mr. Baldwin in March 1937. While subscribing to the view that the cause of world peace would be promoted by the freer

exchange of goods and services, the government holds that the main obstacle to its achievement in practice is the existence of the present system of quota restrictions on *industrial* goods and exchange controls. Action in these matters, must, in the opinion of the British Government, clearly be left to other governments, since there are no exchange controls in the United Kingdom, and the only quota restriction on industrial goods is the "flexible duty-quota control" of imports of iron and steel, which form part of an industrial agreement with the chief supplying countries. The British Government can take every opportunity to urge action upon other governments, but does not regard the initiative as resting with the United Kingdom. As regards the British tariffs, those which exist were imposed to prevent the increase of unemployment and to protect the standard of living. In fact, they have not, in the opinion of the government, prevented the development of trade. Although, when they were first introduced, it was essential to rectify the balance of payments by a substantial reduction of imports, since 1933 imports into the United Kingdom have considerably increased, and this will undoubtedly provide a stimulus to international trade generally.

It is in accordance with this narrow interpretation of its responsibilities that the British Government has left the initiative to others, who may, however, find it difficult to appreciate the economic basis for the distinction which the British Government draws between quotas on industrial goods and other quotas, particularly the agricultural quotas which this country has imposed. It is difficult to see how the effects of the two sorts of quotas in restricting trade can differ materially. The distinction drawn by the British Government on this occasion is reminiscent of an earlier (though different) distinction which was made at the World Economic Conference in 1933, with the same comforting result of labelling quotas imposed by the British Government as meritorious and all others as injurious.

In the event, the initiative towards the development of a greater freedom of trade has been taken by France and the United States, and by the smaller states of North-Western Europe. Since the early part of 1937, the statesmen of the Scandinavian countries and of Holland and Belgium have been devoting their attention to discovering means of increasing international trade. They have turned to the possibility of stimulating increased trade on a limited regional basis by mutual reductions of trade barriers within their own group. A similar effort was made by the same group of countries at an early date by means of the Oslo Convention of 1930 and the Ouchy Convention of 1932, though these efforts were defeated by the economic circumstances of the times and by the insistence of the United Kingdom on the rigid interpretation of M-F-N rights. It would seem that the attitude of the British Government has not changed in this respect. At any rate, Mr. Baldwin's statement, to which reference has already been made, rejects the proposal for the creation of a low-tariff group, to which the British Government sees two fundamental objections. In the first place, it is held that the creation of a low-tariff group would involve discrimination against non-participating countries and might lead to retaliation and tariff wars; it would involve the disappearance of the general application of M-F-N treatment, to which the British Government attaches special importance; the political friction which would be created by reprisals and tariff wars was obvious. In the second place, experience showed that practical results were not likely to be achieved except by

bilateral negotiations, although the government did not reject the idea of multilateral negotiations, if it could be shown that the time was opportune.

The maintenance of this attitude on the part of the British Government would seem seriously to prejudice the chances of the Oslo group from reaching a regional solution to their trade difficulties. The British Government has, however, combined with the French Government to invite M. Van Zeeland, the Belgian Premier, to undertake "preliminary informal investigations in various countries as to the possibility of securing a general relaxation of quotas and other obstacles to international trade." It is to be hoped that these investigations will not be so preliminary and informal as to act merely as a reason for further delay in grasping the problem directly.

The idea of a "low-tariff club" which the British Government at present rejects, has often been advocated as a means of starting a revival of trade. It has been suggested that, in view of the poor prospects of any general or voluntary lowering of trade barriers, the British Government should take the initiative in endeavouring to enlarge on a limited basis the area of free trade to which the British Empire belongs, by securing the adherence of other countries to a "low-tariff club." This would then include a bloc of countries who would have agreed to reduce trade restrictions *inter se*, while retaining the former level of restrictions against other countries which refused to participate on a reciprocal basis. This suggestion is worthy of intensive examination in view of its obvious attractions. There is no denying that it would cause dislocations in the present mechanism by which international commercial intercourse is regulated, and for this reason the idea has been rejected by the British Government. But before passing judgment on its practical value, it is necessary to examine all the pros and cons. Some examination must, therefore, be made of the efficacy of the present system, and of the amount of dislocation which would be caused by the creation of a "low-tariff club"—or even whether it could be applied at all in the light of existing commercial arrangements.

The Use of Most-Favoured-Nation Clauses in Commercial Treaties

International commercial relationships, and particularly British commercial relationships with foreign countries, have been built up around the use of the M-F-N clause in commercial treaties. The various uses of the M-F-N clause, its qualifications, drawbacks and advantages, and its practical influence upon international trade have formed the subject of a mass of study which is, to the layman, highly intricate and obscure. The use of the M-F-N clause is, nevertheless, of such great practical importance in connection with any attempt to modify or redirect British commercial policy that it is necessary to enter upon a fairly detailed examination of its significance before proceeding further. The difficulties in doing so are increased by the fact that in spite of the familiarity with which the clause is freely spoken of by its initials and its enormous importance in determining past economic developments, no detailed interpretation of the British Government's official attitude towards it ever appears to have been made public.

The M-F-N clause, in essence, amounts to a promise which is included in commercial treaties, that discrimination shall not be practised in the dealings of one country with another, although in practice it has taken the form of a pledge of equality of treatment

with the "most-favoured nation" and derives its name from this fact. The clause is applied in respect of a variety of matters in different treaties, and commonly covers such important fields as the rights of persons and companies operating outside their own country, and the treatment of shipping, as well as regulations concerning the import of goods, with which we are principally concerned here. The former aspect is, however, by no means of negligible importance and must not be forgotten in any discussion of the question whether M-F-N should be abandoned or modified. A typical M-F-N clause covering the trade in goods reads as follows: "Articles produced or manufactured in the territories of one of the two contracting parties imported into the territories of the other, from whatever place arriving, shall not be subjected to other or higher duties or charges than those paid on the like articles produced in any other foreign country."

In its pure form, and as almost always applied in British treaties, the pledge of M-F-N treatment is unconditional—in that it guarantees that a concession made to one country will be automatically extended to all other countries enjoying M-F-N rights—and unlimited in that it applies to all categories of goods. Other countries, such as the United States and France, have at times adopted a conditional form, whereby the obligation to extend any concession made to a third party to all other countries to whom M-F-N treatment is pledged, is made conditional upon the production by such other countries of "an equivalent counter-concession." In effect, the conditional form, therefore, represents the negation of the true spirit of M-F-N, which is by nature unconditional. It represents rather an attempt to rationalise and assist bilateral bargaining by guaranteeing that no State that is prepared to pay the price shall be deprived of the opportunity to strike a bargain.

Under the unconditional form, any tariff reduction must automatically be broadcast over the whole range of countries with which the grantor has concluded M-F-N agreements. But although the area of free trade is thus automatically widened by the generalisation of any concession, the knowledge that any concession *must* immediately be granted to countries which make no immediate return, is likely to prove in some degree a deterrent to any grant of concessions at all. On the other hand, if the conditional form is used, it is practically impossible to decide to the satisfaction of all parties on each and every occasion what constitutes an "equivalent counter-concession"—hence the use of the conditional form has, historically, proved a fertile cause of ill-feeling and tariff disputes.

Under either type of clause, it is clear that in bilateral negotiations a country will always attempt to grant concessions chiefly in respect of commodities of which its opposite number is the principal supplier. In this event, the generalisation of the concession is of small or even negligible practical importance, and to the extent that negotiators are successful in achieving this, the practical influence of M-F-N in widening the area of free trade is minimised. A careful and minute sub-division of Customs classifications helps materially towards this end. There was an instance of successful evasion of the spirit of M-F-N by minute discrimination when on an occasion before the war Germany, wishing to exclude imports of Swiss milk, invented a special Customs item for milk produced at a certain altitude above sea level and imposed a heavy duty. This had the desired effect

of excluding Swiss milk while not interfering with imports from less mountainous countries. Neither form of M-F-N, of course, makes any promise which limits in itself the absolute height of tariffs.

Countries adopting a free trade policy or possessing a single line tariff for revenue purposes and not wishing to pursue a tariff bargaining policy will obviously benefit by securing the insertion of the unconditional form of M-F-N Clause in all their treaties. For in this way the maximum of concessions will be gained with the minimum of concessions in return. Great Britain was in this position in the nineteenth century, and was well able to insist upon the use of unconditional M-F-N owing to her virtual monopoly of international trade.

A country which wishes to pursue an active bargaining policy, on the other hand, will probably require, sooner or later, to set up a double or triple line tariff, in order to be able to discriminate among various suppliers according to the tariff treatment extended by them in return. This will commonly require either the sparing grant of M-F-N rights to other countries, in order to permit discrimination, or the employment of the conditional form of clause so that any concession made will only be generalised in so far as equivalent counter-concessions are forthcoming. Under the conditional form of M-F-N it is quite possible to set up a double or triple line tariff and to use it for bargaining purposes. Consequently, countries wishing to have a double or triple tariff will usually have to adopt the conditional form.

Under the dominating influence of Great Britain, the great extension of the use of the M-F-N clause occurred in the middle of the nineteenth century—though the clause itself is of considerably greater antiquity. It has always been used in British treaties, with the rarest exceptions, in the unconditional form. In the circumstances of the age, with greatly expanding international trade and the downward revision of tariffs, unconditional M-F-N presented few difficulties and many advantages, especially to Great Britain. After the decade 1860-70, the era of the Cobden treaty with France, the tide turned and with the growth of manufacturing industries in France, Germany and elsewhere, protective tariffs began to be employed as distinct from revenue tariffs, and the conditional form began to be adopted. But Great Britain was still employing a free trade policy, and unconditional M-F-N was still its best medium. A country with no tariffs cannot bargain with them.

In the post-war epoch, unconditional M-F-N clauses have, once again, been widely included in commercial treaties—the United Kingdom taking a strong line in their defence. But since the introduction of a wide import tariff system and of a policy of reciprocal bargaining in bilateral trade agreements, some misgivings have been expressed regarding the continued utility of the unconditional form and the use of conditional M-F-N in conjunction with an intermediate tariff has been advocated as a more advantageous basis for a bargaining policy. At the same time, a number of formidable obstacles have arisen to the free and automatic working of the clause which have largely stultified its general usefulness in preventing discrimination. These consist principally of the formation of economic blocs of one kind or another, and the spread of quantitative regulation of trade by quotas, import licence systems, and exchange controls.

Legal Exceptions to Most-Favoured-Nation Obligations

The exception of concessions to specified countries from the scope of M-F-N treaties, which is one factor leading to the formation of economic blocs, is by no means a new feature and certain standard cases have always been recognised as legitimate exceptions to general M-F-N obligations. Complete *Customs Unions*, such as that existing between Belgium and Luxemburg, fall into this class. In addition, *Regional Agreements* involving the grant of special preferences as between countries bound by special ties of a historical, geographical or ethnical nature have been excepted in a number of cases, though they require special recognition in each case. Great Britain has, for instance, admitted in various treaties the possibility of preferential treatment as between various countries, but on other occasions such recognition has been refused.* A recent instance of the refusal of recognition occurred in the case of the proposed Ouchy Convention in 1932 between Belgium, Luxemburg and Holland which would have provided for a progressive reduction of their mutual tariffs. The convention was, moreover, to be open to accession by all countries on the same conditions and accessions were in fact invited. H.M. Government never appears to have made a full statement of its attitude towards Ouchy, but from various answers given in the House of Commons it would seem that the government held itself unable to grant any concessions to the Ouchy group which would discriminate against other countries with which the United Kingdom had M-F-N agreements and, moreover, refused to tolerate any regime which permitted more favourable treatment of the goods of any country in the Dutch and Belgium markets than was extended to the United Kingdom. This decision was, of course, perfectly in accordance with the existing legal rights and obligations of Great Britain, but it destroyed a promising effort to secure increased freedom of trade within an important area. And since the attitude of H.M. Government appears to remain unchanged, it is to be feared that the efforts of the Scandinavian, Dutch and Belgian Governments to revive this movement at the present time will be thwarted by similar considerations. Although the British Government does not apparently consider that it has any direct responsibility for initiating a movement in favour of less restricted trade, every time that it blocks the efforts of other countries in this direction, it lays upon itself the moral responsibility of suggesting an alternative solution.

Imperial Preference regimes as between a mother country and her dominions and/or colonies are also held not to infringe the letter of M-F-N. This occurs since the M-F-N obligation, as expressed in most commercial treaties, takes the form of a pledge to extend the same treatment to the contracting party as that accorded to any other "foreign country." Since the British Dominions and colonies are not held by the United Kingdom to be "foreign" countries, non-British countries are excluded from the benefits of the lower preferential rates within the British Commonwealth. In modern British commercial agreements this is being made clear in the text. In view of the degree of autonomy enjoyed by the British Dominions, and of the large economic importance of the British Commonwealth, and of the fact that the British Dominions are able to contract their own treaties with foreign countries, this interpretation has caused dissatisfaction abroad.

* The United Kingdom has, at various times, admitted the possibility of preferential treatment as between the following countries: U.S.A. and Cuba; Spain and Portugal; Portugal and Brazil; Denmark and Sweden; Turkey's former Asiatic possessions, now mandated; Soviet Russia and the three Baltic States.

Certainly, it gives ground for the argument that the possession of "colonies" is a valuable economic advantage. Before Ottawa, the question hardly arose, but if so large a group of countries as that which constitutes the British Empire is to be treated by the world as a legitimate exception to M-F-N, other countries have certainly a case for suggesting that a more tolerant attitude on the part of H.M. Government towards other potential exceptions, in the shape of regional agreements, would be not inappropriate. Logically, it would seem to be difficult to combat this argument.

There are also a number of more or less routine exceptions to M-F-N for administrative purposes, which are not however of substantial importance.

Most-Favoured-Nation and the Quantitative Regulation of Trade

There is no doubt that the principle of economic blocs, including large systems of Imperial preference, is diametrically opposed to the spirit of M-F-N. The case for regional blocs has also been strengthened and the case for M-F-N weakened by the extension of import licence systems, and it is possible to consider from a technical point of view the denunciation of all existing unconditional M-F-N treaties in order to permit the formation of a "low tariff club" as has often been advocated. Most commercial treaties are made for a limited term of years, five or ten, and are then subject to denunciation after notice of anything up to twelve months—though in times of instability such as the present many agreements are concluded for shorter periods. Denunciation would, therefore, be feasible in default of a special agreement to permit the formation of a "low tariff club." But it would be a drastic step, and likely to lead to a period of anarchy greater than that existing at present. It must also be remembered that a country cannot, except with difficulty, belong to two clubs, so that for practical purposes any club to which Great Britain belonged would have to include the Empire. And any country entering the club would need not only to renounce its own M-F-N treaties, but also the benevolence of countries who would not benefit from club membership and who see themselves losing a valuable market. Germany, for instance, might regard the participation of, say, Denmark in a "low tariff club" to which she herself did not belong in the same light as H.M. Government regarded Ouchy.

It is possible to argue that the M-F-N clause is valuable chiefly as a means of avoiding quarrels and preventing tariff discrimination even if it is not, in present circumstances, conducive to the reduction of tariffs. But a much more formidable argument against it than failure to reduce tariffs has been provided by the declining significance of tariffs as a barrier to trade and the growth in importance of licence systems and exchange controls, both as a means of controling trade and as a means of exercising discrimination.

Recent M-F-N treaties have often contained clauses attempting to secure a promise to avoid discrimination in the imposition of import restrictions. But here the difficulty arises of deciding what distribution of licences can be regarded as a fair interpretation of M-F-N rights. The German Government has at times argued that each supplying country has a right to an equal quota; the United Kingdom that licences should be allocated to suppliers in proportion to their imports in a given basic year. The French and others have issued licences on the principle of reciprocity, while Switzerland has argued that quotas are not within the scope of M-F-N at all.

The first of these arguments—for one equal quota for all—is specious and likely to prove unworkable. The second must soon become so or make new business impossible, although H.M. Government has generally adopted a rational attitude in permitting amendments. The third—for the issue of licences on a strict reciprocal basis—must lead to a rigidly bilateral canalisation of trade. In the event, the third appears to be winning and to be making nonsense of M-F-N, in spite of efforts by H.M. Government to uphold the second. Perhaps a frank recognition that import licences and M-F-N are incompatible, which is, in effect, the Swiss view, is the most helpful course. In any event import licences tend to be used to favour the import of essential commodities and therefore to cause a broad discrimination between countries. And, generally speaking, no country is averse to the use of quotas to evade M-F-N obligations where it is considered in the national interest to do so. Even where quotas are allotted on the basis of the distribution of supplies in a given year, some scope for discrimination exists according to which year is chosen as the base. As against this, it must be mentioned that the United States, in the series of reciprocal trade agreements concluded since June 1934 which are based on the use of the M-F-N clause in its unconditional form, has made a determined effort to apply the principle of non-discrimination to a wide range of commercial dealings, including allocations under exchange regulations and the quantitative regulations of imports. It remains to be seen how far this policy will prove effective in practice.

The Future of the Most-Favoured-Nation Clause

Historically, it would seem that the unconditional M-F-N clause has been more a symbol than a cause of free trade in times when the trend in favour of free trade was in any case strong and that, in so far as quantitative regulations are now the deciding factor, it has ceased to be effective even in preventing discrimination. If a general attempt were to be made to return to free trade on the nineteenth century model, it would, of course, be a mistake to drop unconditional M-F-N, as it would automatically contribute to an end that could otherwise be obtained only at the price of duplicating negotiations. If, on the other hand, the most promising policy appears to lie in arriving at freer trade by slower stages and within definite geographical limits, the general and unconditional form of M-F-N would either have to be jettisoned to permit the formation of economic blocs, or it would have to be amended, or much less rigidly interpreted in order to serve the same end. In the present circumstances, unconditional M-F-N has the advantages of continuing to secure non-discriminatory treatment in matters other than imports, and it is highly and perhaps increasingly important that its influence in this connection should be perpetuated. In the second place, some form of M-F-N guarantee would probably be necessary within any economic bloc in the same way as it is tacitly, though not expressly, maintained within the British Commonwealth. Against this must be set the fact that for many years the retention of unconditional M-F-N has probably acted as much as a deterrent as an assistance to the generalisation of tariff concessions, while the growth of economic blocs and of the use of quantitative systems of trade regulations have very severely impaired the efficiency of unconditional M-F-N as a preventive of discrimination. The advantages of retaining unconditional M-F-N in its present form, in which must be included the dislocation involved in any transition, certainly appear to be outweighed by the disadvantages. No one can put very high the prospects of a world-wide revulsion from a strict control of

trade, in which the retention of unconditional M-F-N would be useful. It seems probable that more could be achieved by a gradual extension of the area of relatively free trade through the expedient of the formation of economic blocs. Arguments have been produced in an earlier chapter to show that an extension of the Ottawa bloc in this way is, in fact, a growing economic necessity for the British Commonwealth.

In the present circumstances, the continued existence of a network of unconditional M-F-N agreements makes it difficult to form economic blocs, as the Ouchy example shows, except where a legal loophole exists, as in the case of the preferential regime within the British Empire, or where M-F-N can be defeated by the use of quantitative measures of control which fall outside its effectual scope. Developments on the latter lines are not, however, by any means satisfactory or altogether capable of achieving their objective. In theory, the difficulty can be overcome (*a*) by adopting the conditional form of M-F-N clause, (*b*) by seeking to secure the extension of the recognised exceptions to M-F-N such as would permit the formation of blocs within a still existing, though further impaired, M-F-N structure, or (*c*) by dropping the M-F-N clause from commercial treaties altogether. In practice, the first step could only be taken with hesitation in view of the chequered history of this type of instrument in the past, which, in addition, makes official opinion extremely adverse to it. The practical difficulties of administering the conditional form without running into serious tariff disputes are very great, as past experience shows. In a sense, the development and extension of a tariff bargaining policy may be said to be making the adoption of conditional M-F-N inevitable in the long run. But the existence of practical difficulties deserves to receive adequate attention whenever the possibility of adopting conditional M-F-N is under discussion as a logical development out of the present situation.

To the extent that quantitative methods of trade regulation would make nonsense of either type of M-F-N, there is a case in favour of complete abolition. But complete abolition would endanger valuable M-F-N rights in fields other than import trade. Moreover, it is difficult to see how, under any system, discrimination in the allocation of import licences can be prevented if the government of the importing country has made up its mind to discriminate.

The solution of attempting to secure further agreed exceptions is, on balance, the most attractive, but it would require a considerable measure of international agreement before it could be implemented. It would seem on the face of it somewhat absurd to recognise special arrangements between Spain and Portugal, on the one hand, and of Portugal and Brazil, on the other, as potential exceptions to existing M-F-N obligations, and to refuse similar recognition to a proposed arrangement between Belgium and Holland. Yet this is the position which H.M. Government appears to adopt. It would, in fact, be possible to find other economic groups which have as much claim to be regarded as bound by historical, geographical and ethnical ties as those which are already recognised as legitimate exceptions to M-F-N. Apart from this, there is the fact that the British Commonwealth has, by means of what many may be forgiven for regarding as a legal loophole, created a special regime covering a very substantial proportion of the world's trade.

It should not be impossible to encourage a more liberal view among governments regarding preferential arrangements between contiguous or closely associated countries, provided that such arrangements were achieved by the lowering of trade barriers within the group and not by an increase in barriers against the outside world. An effort in this direction has been made by the United States acting through the Pan-American Union. In July 1934 the draft of an agreement "to refrain from invoking the obligations of the M-F-N clause in respect of certain multilateral conventions" was deposited with the Pan-American Union for the accession by signature of any State. Any signatory to this agreement binds himself not to invoke obligations under the M-F-N clause in the event of trade concessions being made under multilateral conventions which are "of general applicability, which include trade areas of substantial size, which have as their objective the liberalisation and promotion of international trade or other international economic intercourse, and which are open to adoption by all countries." The text of the agreement is given in full in an appendix.* Signatories to this agreement would in effect bind themselves to overlook their M-F-N rights in the case of conventions such as the proposed Ouchy agreement. The American Government has, therefore, given an admirable lead to the attempt to find a method of liberalising trade by stages without entirely destroying the existing framework of commercial treaties. The British Government should seriously consider the advisability of following this lead. Apart from the United States and certain other members of the Pan-American Union (Panama, Cuba, Nicaragua, Guatemala and Colombia), Belgium and Greece have adhered to this agreement.

The Economic Shortcomings of Bilateral Trade Pacts

As far as British policy is concerned, it may, at any rate, be doubted whether much progress remains to be made by a policy of hard bargaining with foreign governments in bilateral negotiations. Such a policy has been followed during the past five years, and at the outset, this country held a strong hand of cards in the shape of the new British tariff, an unfavourable balance of payments, the depreciation of sterling, and the desirable amenities of the London financial market. In an appendix, a short account is given of the trend of British trade with the chief countries with which agreements have been concluded since 1933. Owing to the peculiar strength of Great Britain in view of the circumstances mentioned above, H.M. Government was in the position virtually to insist on certain concessions. Most of the cards held then, however, have been played by now, and it is difficult to see how much further progress can be made on behalf of British exports through bilateral negotiations unless we are prepared to apply the principle of reciprocity to the point of making substantial concessions in the import market. Moreover, the openings obtained for export trade in any one country through bilateral negotiations may on some occasions represent an advantage which is mainly illusory if it is based on the exclusion of a former supplier. In such an event, the displaced foreign competitor may rapidly re-emerge in other "free" markets, where he is not susceptible to control. The progress of the British export trade in coal in recent years is a case in point. The market for British coal in the Scandinavian countries was considerably enlarged by the agreements concluded in 1933 and 1934 which involved the cutting down by those countries of coal imports

* See Appendix II.

from other leading coal exporters, notably Germany and Poland. At first sight this appeared to be a substantial gain for the British coal export trade, and the export collieries of Scotland and the North-East coast have continued to benefit. It was hardly a coincidence, however, that Polish and German competition was immediately much intensified in the Mediterranean and other markets, where it was subject to no control by trade agreements and the gains of Scotland and the North-East coast have proved in course of time to be largely the losses of South Wales, which is more intimately connected with the newly-invaded markets.

A somewhat similar situation seems to be arising as a result of the decision of the British Government to raise a levy on imports of meat from foreign countries. The levy, although primarily for the purpose of assisting the British farmer, is intended to benefit Dominion producers at the expense of foreign producers in the British market. It is, in fact, having that effect, but at the same time it is driving Argentine producers to compete more intensively in Continental markets in an attempt to offset their losses in the British markets, so that the consequences for Dominion producers are not wholly beneficial.

The Necessity for Supplementary and Parallel Negotiations by Industry

Such dangers lurk in the path of negotiators of any trade agreement and are often difficult to avoid, but much can be done in this direction if official negotiations between governments are reinforced by unofficial negotiations between the industries concerned and if government-made trade agreements are concluded in harmony with international agreements between industries. In the case of coal, the formation of an International Coal Cartel has often been advocated, and there is no doubt that if one had existed at the time of the conclusion of the Scandinavian trade agreements, and had seen the danger, it could have done much to prevent the diversion of competition which actually occurred. A small step towards this objective was actually made with the conclusion of an arrangement with Poland towards the end of 1934, when it was agreed in principle to relate Polish and British coal exports on a pre-determined basis. The agreement has not, however, in the absence of German co-operation, proved capable of helping the situation in the international market materially.

The same tale might be repeated, with variations, in the case of other commodities. The danger will always be present to some extent, but there is good reason to believe that it could be reduced by improvements in the technical procedure of commercial bargaining. Before entering into negotiations for a new trade agreement, it is the normal practice of H.M. Government to make a formal request to industry to submit its views on the concessions which should be asked for. The nature of the replies received from each branch depends largely on the degree of organisation within the industries concerned. Highly-organised industries are in a position to insist not only on being consulted, but also on having their observations at least to some extent put into practice. But since, in bilateral bargaining, there is usually a limit to the number of concessions that can be obtained, they will usually be insufficient to "go round." In these circumstances it is not unnatural that those industries which are able to exert most political pressure should on most occasions bear off the richest prizes. For the purpose of improving the efficiency of the government in trade negotiations, so that it can obtain the concessions that are really wanted, it is

essential that the average degree of organisation of industries should be improved with a view to improving their ability to produce a reasonable and coherent case.

The first aim of better industrial organisation should then be to secure better representation of industrial views to the government as a preliminary to trade negotiations and, more generally, to improve the means of contact between the government and individual industries. At this stage it would then become possible, subject to government control and in accordance only with general lines of policy laid down by the government, to encourage international negotiations between industries. There are already a number of cartels and similar agreements in operation, but though their existence is often known, the full details are not usually revealed. In some cases, the government is forced to turn a blind eye to certain features of these agreements, particularly if they would look awkward on paper in a trade pact. In other cases, the government has allowed supplementary and parallel negotiations between industries, partly because they assist government negotiations, particularly in securing trade concessions by the alteration of quotas, and partly because they cannot always be prevented. Supplementary and parallel negotiations between industries were largely made use of in concluding the Ottawa agreements. In some of the bilateral negotiations with foreign countries also, the government has encouraged the conclusion of purchase agreements between groups of British exporters and groups of foreign consumers. These seldom appear on paper in the trade agreement itself and do not always require any special arrangements to enable them to be carried out. For the most part, they have merely represented attempts to divert additional trade to the United Kingdom by informal methods. Such agreements must be distinguished from more ambitious arrangements for the allocation of markets among competing producers.

In the present circumstances, the relation of government negotiations to private industrial negotiations is unsatisfactory. There is no doubt that the latter are growing in importance, in spite of inadequate organisation in industry, and in many cases represent a better means of regulating trade than government negotiations alone. On the other hand, there are grave dangers in encouraging industrial negotiations indiscriminately and without proper safeguards for public interests. Hence they must be brought under the control of government and co-ordinated with the larger requirements of national policy. But as this is a large subject, it has been left for detailed discussion to a separate chapter.

IV. INTERNATIONAL INDUSTRIAL AGREEMENTS

Summary

(i) In many countries, and particularly the United Kingdom, there is an instinctive public dislike of cartels, arising from the belief that they are necessarily predatory and injurious to consumer interests. This belief has been in a large degree justified in the past, and is largely responsible for the secrecy with which cartel agreements are habitually surrounded.

(ii) There is evidence, however, that the technique of industrial control is evolving slowly in such a way as to exercise a modifying and beneficial influence upon cartel policy. Comparison, for instance, of early schemes of restriction for rubber and copper with recent schemes reveals a better appreciation of the fundamental laws of supply and demand on the part of producers. Moreover, certain schemes of restriction of raw material production have received the goodwill and concrete support by legislation of governments.

(iii) There are two main types of cartel. The first sets out to maximise the earnings of producers by the adjustment of output to demand, the second to maximise the earnings of producers by the division of markets at a given price level. The two types are not conflicting and are often combined. The first type often originates in times of slump when prices are low and depressed by large stocks, but becomes vulnerable in times of boom to the disruptive pressure of increasing outside production. The second type often originates in times of boom and is subject to internal disruptive pressure in times of slump when individual participants are tempted to maintain their turnover by lowering prices below those agreed upon.

(iv) Experience of the drastic consequences in the past of defying the laws of economics, and of the commercial success of firms which have respected them by pursuing a moderate price policy, is exercising a moderating influence upon cartel policy. Producers are realising, from the aspect of enlightened self-interest, that it pays to maintain the goodwill of consumers at all times. In so far as most cartels nowadays make provision for research and development activities with a view to increasing the consumption of their product on technical grounds, the importance of maintaining a moderate price policy, in order to reinforce technical suitability by an appeal to consumers on economic grounds, is gaining headway. Progress in this direction might be more rapid, if increased publicity could be secured for cartel activities in order that the consumer's point of view may be presented more forcefully and frequently. Increased enlightenment in cartel policy should, at any rate, tend to ensure a longer life for cartel agreements, since the avoidance of excessive booms and slumps will remove the causes of the disruptive forces mentioned above.

(v) The technique of cartel management is also improving with increased skill in devising a binding constitutional framework and increased flexibility in operation. The latter development is signified by the growth in popularity of export control as opposed to production control. Export control has certain dangers for consumers in markets where there is no indigenous producer, but by reserving home markets for home producers removes one of the disruptive forces latent in any scheme of rigid production control.

(vi) The technique of trade control by cartels, if based upon a proper understanding of economic laws, can contribute to the orderly expansion of trade and perhaps help to eliminate excessive fluctuations in economic activity. It should be the function of governments to help the development of this process on sound economic lines. Governments should already be exercising their authority in this direction in fulfilment of their function of protecting consumers, though they have not always done so. But apart from their undoubted constitutional right to intervene, governments can offer to producers a substantial inducement to co-operate with them. Provided that industrial agreements are conducted and concluded with the approval of governments and exposed to the critical light of public opinion, there is a reasonable case for giving them statutory force by means of government action in the distribution of import quotas and the adjustment of tariffs. The beginnings of a system of this kind are observable in the appointment of the Import Duties Advisory Committee in the United Kingdom and the Tariff Boards in the Dominions, while a precedent has been created for government action in this country by the assistance given to the British iron and steel industry in negotiating with the International Steel Cartel. Official bodies cannot, however, initiate a development in this direction. The initiative must come from industry, and to that end the internal organisation of industry needs to be improved.

(vii) The growth in the importance of international industrial agreements as a factor influencing the development and direction of trade may soon, in fact, compel government intervention. The growth of cartels is the logical result of evolutionary changes in the structure of industry itself, and incentives acting in the direction of the formation of cartels are growing. Intervention is necessary if only to preserve the efficacy of official trade negotiations and trade agreements between governments. These cannot always, in the present circumstances, take notice of the existence of cartel agreements, with the result that the provisions of official and industrial agreements often conflict, to the detriment of one or the other and at the cost of infinitely increasing the frictional forces present in the mechanism of trade. But, above all, government intervention is necessary in the interests of consumers, and in any attempt to increase the scope of industrial agreements in international trade, the possible dangers of producer control must be frankly acknowledged and met by provision for effective public supervision.

(viii) The cartel machinery is particularly suitable for the development of markets on a limited local basis, subject to control by the government of the consuming country. It would be especially useful in securing the orderly development of new and

secondary industries overseas in a manner which would minimise the dislocations caused to existing producers.

(ix) Summary details have been given of the character, scope and operations of the more important international cartels at present in existence. From these the great current importance of international industrial agreements in relation to world trade is evident.

Public Opinion and Cartel Agreements

There is, at any rate in the United Kingdom, an instinctive dislike of international cartel agreements. This appears to arise from a belief that cartels are necessarily predatory by nature, injurious to consumer interests, and contrary to that practical appreciation of the merits of free competition which exists in some degree, although unconsciously, in the minds of even the most vigorous opponents of free trade in principle. In fact, competition has probably always been less perfect than current opinion has held, even when *laissez-faire* was more complete than to-day, and its imperfections have been growing visibly in recent years. As a consequence of this general public attitude, cartel agreements have, in the past, usually been arranged and maintained in conditions of strict secrecy. Such secrecy is inevitable where the agreement is designed definitely to evade legislation of the "anti-trust" type, but is due in other cases merely to fear of an unfavourable public reception. In the latter case, secrecy concerning details merely encourages the general public to imagine the worst.

The Change in Producers' Outlook

It must be admitted that certain international cartels and restriction agreements in the past have in a large degree justified the verdict of public opinion. The Stevenson scheme of rubber restriction and Copper Exporters Incorporated, both of which incurred opprobrium on an international scale during their lifetime, eventually broke down on their demerits. Moreover, some of the agreements at present in existence would probably be unable to survive an ordeal by publicity, which they have so far been successful in escaping. There is, however, reason to believe on general grounds that the technique of industrial control is slowly evolving in a way which is exercising a modifying and beneficial influence upon the policy of cartels. The present scheme of rubber restriction shows, for instance, a degree of moderation and enlightened self-interest which is attributable to the failure of the greedy policy pursued in the earlier scheme

The copper producers also, who were, early in 1937, in a position to squeeze the market in the manner of their predecessors, chose the wiser course of suspending the restriction of output altogether and are understood to be far from entirely satisfied with the recent high prices of the metal and the probable effects on consumption in some of its more competitive uses. The liberalisation of the restriction scheme for tin within the last twelve months also indicates a better appreciation among producers that policies of pure depredation are as injurious to producing interests in the long period as they are to consumers in the first instance. It is also significant that a number of recent agreements for the control of raw material production—for instance, the schemes for rubber, tin and (as far as it went) wheat—are not only recognised by the governments concerned, but are

actually enforced, or supposed to be enforced, by legislation. Moreover, in the recent example of the accession of the British iron and steel industry to the International Steel Cartel, H.M. Government actually put strong pressure on the industry to induce it to come to an agreement. Although, in this instance, the policy pursued in the actual negotiations was not as imaginative as the best interests of the industry or of the public demanded in the long run, an important precedent was created for tariff manipulation by the Government in support of private negotiations, as well as for a wider, though still insufficient, degree of publicity and public control for such agreements. In this particular case, the British steel industry quite properly sought to maximise its market, but did so by concentrating upon the home trade rather than by taking a larger share in the Cartel export trade and permitting a larger import to this country of cheap semi-manufactured steel products. These latter cannot in all cases be produced by the British industry on terms of equal competition with Continental producers, but are essential to the successful working of a large body of British steel consumers (such as sheet and tinplate manufacturers and the motor industry) who, in their turn, are in some cases highly dependent upon the export trade. Moreover, the virtual closing of the British market to foreign semis has tended to encourage foreign manufacturers of semis to undertake fabrication into finished products, which they did not do on so large a scale before, in order to find a new outlet for their production. This new output has tended to compete with British exports of certain finished steel products. The argument here is one of degree, since it is fully admitted that the prosperity of the heavy section of the steel industry is essential to the industry as a whole.

Cartels in Boom and Slump

It is possible to distinguish two main types of cartel agreement. The first type is, or should be, mainly concerned with the maximisation of the earnings of producers over the long period by the regulation of output to demand. The second type sets out to maximise the earnings of producers by the division of markets at a given price level. The first, therefore, which is generally applied to commodity production, while affecting the total volume of goods coming on to the market, does not affect the freedom of the producer to sell where he chooses. The second type may make no provisions for regulating total output and therefore total consumption, but may determine broadly where each of the participating producers is allowed to sell. The two types are not, of course, conflicting; they can easily be, and sometimes are, combined in a single scheme.

Many cartel agreements, particularly of the production-control type affecting commodity production, originate in times of slump when prices are low, competition is intense and the recovery of prices to a level remunerative to producers is prevented by the pressure of an output in excess of current demand. Many cartel agreements in the past, having assisted the industry concerned to weather a slump, have broken down under the stress of temptations in the subsequent boom. Having gained control of the market, and used it to restore a remunerative level of prices, producers have been unable to resist the temptation to go further and help themselves at the expense of consumers. In so doing they have usually hastened their own downfall. Increasing prices have encountered the resistance of consumers and stifled the natural expansion of consumption. Producers outside the agreement, or new sources of production, have been encouraged by the

prospect of high prices and have eventually, through increasing output, broken the control of the cartel over the market. In other words, cartels which set out to control the market through control of production, have been vulnerable in times of boom to outside pressure.

On the other hand, cartels which set out to divide markets on the basis of a given price level, would seem to have been more vulnerable in times of slump, and are more vulnerable to inside pressure—that is to say, bad faith on the part of members. As the slump begins to affect turnover, cartel members may be tempted surreptitiously to undercut the official price in order to maintain their own sales; this internal pressure frequently causes disruption sooner or later.

Cartel Policy

But, as has been mentioned already, not only is the technique of cartel administration tending to improve, but the mentality of many producers is changing rapidly for the better. Many producers to-day have a far better appreciation of the fundamental economic factors affecting supply and demand in the long period and their reactions upon producer interests. The authorities controlling a cartel, in so far as it is in the nature of a monopoly, have two courses open to them—either to sell a comparatively small quantity at high prices and a high rate of profit or to sell at the lowest prices possible and attain the maximum consumption. There is no doubt that it is the latter policy which is in the best interests of all concerned.

This growing enlightenment is largely the result of experience—both of the drastic consequences in the past of defying the laws of economics and of the commercial success of those firms and industries which have respected them. The mentality of producers would probably develop further in this direction if cartel agreements were habitually the subject of wider and more detailed publicity than is accorded to them to-day. An increasing number of cartels nowadays, however, are already making successful provision for research and development activities with a view to increasing consumption in the long period by technical advances in the application of materials. Progress by this means can only be sustained if research and development are accompanied by a moderate price policy, in order that technical suitability for new applications may be accompanied by an appeal to consumers on economic grounds. The success achieved by such firms as International Nickel and Courtaulds, by instituting expansionist price policies in the industries which they dominate, is doing much to enhance the wisdom from the point of view of pure self-interest, of respecting the fundamental laws of economics, and of pursuing a price policy which tends to maximise consumption in the long run.

This outlook, if it could be generalised—and, indeed, it is spreading fast—would go some way towards removing the destructive pressure from outside upon certain types of cartel in times of boom. For if a sufficiently broad view is taken by cartel administrators of consumption possibilities in regulating output, an extravagant boom will never be allowed to develop, and the destructive pressure from outside will not grow so readily. Furthermore, if extravagant booms can be avoided by the exercise of foresight, within the limits of human fallibility, it should also be possible to avoid at any rate the worst extremities of the subsequent slumps.

Cartel Administration

On the administrative side, also, the technique of cartel management is undoubtedly improving. It has always been difficult to devise a constitutional framework for cartels which is legally binding on its members in practice, or to enforce at law the penalties that may be prescribed for evasions of the rules. Certain recent agreements appear to have gone some way towards getting over these difficulties. Moreover, if an industrial agreement can be shown to be in the public interest, or not injurious to it, the promoters have a good case for asking the Government to assist them in giving legal force to it. This a government can easily do, since it has all the necessary resources, and the British Government has already co-operated in this way, as has been seen.

In the second place, there has been a notable tendency in recent years to eliminate the rigidity in operation of some of the earlier schemes, and therefore to remove the incentive to members to break them, whatever their legal ability to do so. One manifestation of this is the trend in favour of export control as opposed to production control. Production control involved interference with the activities of an industry in its home market, and many schemes have broken down in the past because manufacturers have been compelled to share an unforeseen expansion in their home market with foreign competitors. The modern tendency appears to be increasingly to leave the home market to home industry, and to extend control only to the international export market. Control of exports can be less restrictive by nature and less injurious to consumption than control of production. In most cases, export control tends to consist merely of arrangements for the allocation of export markets, geographically or qualitatively, or the fixing of the percentage shares in the total "free market" of the cartel members. This system gives rise to certain dangers, first, of exploitation of consumers in the closed home markets, and, second, of exploitation of free markets which have no domestic source of production. This point needs the attention of governments in the interests of consumers, and will be returned to later. The aim, in the first instance, of such arrangements is the maintenance of selling prices and the delimitation of spheres of competition. Ultimately the effect may be to facilitate the lowering of production and selling costs and the expansion of markets by reduced selling prices, made possible by the concentration of efforts.

The Extension of International Industrial Agreements Under Government Control

We believe, therefore, that the technique of trade control by cartels, if based upon a proper understanding of economic laws, can contribute to the orderly expansion of trade and perhaps to the elimination of excessive fluctuations in economic activity. The tide of progress is already setting strongly in the direction of the formulation of schemes of international industrial control on sound economic lines. But it cannot be sufficiently emphasised that progress in this direction can only be ensured by the active intervention of governments in order to secure that agreements should not take a form detrimental to consumers. Governments are already in a position to insist on this point, since one of the major responsibilities of government to the community in the economic sphere is the protection of consumer interests from exploitation by producer groups, although this function is not now fulfilled as actively as might be desired. Apart from the undoubted

constitutional right to intervene; however, governments can offer a substantial inducement to producers to co-operate with them when making agreements. Provided that agreements are conducted and concluded with the approval of governments, and exposed to the light of public opinion, there is then a reasonable case for giving them statutory force by means of government agreements in the distribution of quotas and the level of tariffs for so long as they continue to fulfil the conditions essential for safeguarding consumer interests. The beginnings of a system of this kind are already observable in the setting up of Tariff Boards in the Dominions and the Import Duties Advisory Committee in the United Kingdom, while the conduct of negotiations between the British steel industry and the International Steel Cartel has, as noted earlier, introduced a precedent for the intervention of the Government, both to support manufacturers in negotiation and to watch the interests of consumers.

Official bodies, however, have no power to initiate negotiations, and, in the absence of pressure, such as the British Government put upon the iron and steel industry, the initiative has not yet been very readily forthcoming from industry itself. In fact, the few occasions on which British industrialists have shown any willingness to co-operate effectively have usually been for the purpose of making applications to the Import Duties Advisory Committee for increases in the British tariff. The relative ease with which they have been able to compose their differences for this purpose, strengthens the belief that if the long-term requirements of British and Dominion export trade, and the somewhat intangible, but nevertheless important equity which both enjoy in a much increased volume of international trade in general, were more readily appreciated, co-operation in a more constructive cause would not be difficult to achieve.

Growing Importance of Cartels

Apart from the case for increased government intervention in the conduct of international industrial agreements for broad economic reasons, the growth in the importance of international cartels as an influence on world trade may soon compel governments to intervene increasingly, if only to preserve the efficacy of their own commercial agreements. Cartel agreements have increased very much in importance in recent years and have come to cover a significant proportion of the world's production and trade. This will be evident from the summary account of the scope and nature of the activities of some of the principal cartel agreements now in existence which appears later in this chapter.

The growth of this development is due for the most part to the evolution of the industrial structure itself. The growth in the size of individual businesses and the increased internationalisation of industry has made the physical task of conducting cartel negotiations easier, even if the difficulties of reaching an agreement have not been appreciably diminished. In some cases, difficulties of technical research have made the conclusion of cartel agreements almost essential in the interests of progress. The international patent position in certain new processes, such as the hydrogenation of coal, on which companies in a number of countries may be working simultaneously on not dissimilar lines, often compels at some point the pooling of resources if the major efforts of the organisations concerned are not to be diverted from their legitimate function of pure research to expensive

patent litigation and a search for means of evading blocking patents elsewhere. Where, in addition, manufacturers are associated with each other to some extent by financial participation or joint subsidiary interests, as is increasingly happening, the incentive towards collaboration is still further strengthened. On this account alone, the growth of cartel agreements would appear to be an inevitable development arising out of wide changes in industrial structure, and one which is likely to increase in importance.

Increased intervention by governments in the business side of export trade may also encourage the conclusion of international industrial agreements. Export industries in many countries to-day are deliberately subsidised, whether directly or indirectly, by their governments. Export industries in countries where government assistance is not forthcoming can seldom hope to stand up indefinitely to competition of this sort—since the pockets of governments are deeper than the pockets of private firms. When subsidies begin to exercise a decisive influence in the international trade in any commodity, therefore, there must be a strong incentive to unassisted producers to endeavour to preserve the *status quo* by coming to an agreement with their subsidised competitor. In the United Kingdom, the coal and shipping industries illustrate this tendency, though neither has yet been successful in reaching an agreement with competitors on a large scale. The shipping industry has, however, succeeded in stabilising freight rates on certain routes, and rates in the North Atlantic passenger traffic are subject to international control. The British coal industry also concluded an agreement with Polish coal exporters, fixing the relationship of their respective export shipments on a percentage basis, although this agreement did not prove the success which had been hoped.

Interference with Government Commercial Agreements

The growing importance of international industrial agreements as affecting the volume and direction of trade in certain goods has already begun to conflict increasingly with the efficacy of existing commercial agreements between governments. It is not always possible for existing cartel agreements to be taken into account in the conclusion of official trade agreements, since, officially, they sometimes do not exist. It is not, therefore, surprising that when there is no co-ordination, the provisions of official agreements should sometimes conflict with the provisions of industrial agreements. In such cases, traders will adhere to whichever agreement profits them most. If this happens to be a cartel agreement, elaborate, and sometimes ludicrous, devices are employed in order to circumvent official provisions. In some cases, arrangements made between governments conflict with arrangements already in existence between industrialists, or their future intentions. In other cases, the concessions won by governments in hard bilateral bargaining may prove to be worthless owing to the inability of the industries concerned to take full advantage of them, owing to previous private arrangements. It is to nobody's advantage that this should continue. Governments should in the first instance interest themselves actively in any industrial agreements that are made. They should, in the second place, take note of them in any negotiations of their own. And, in the third place, government trade agreements should be negotiated simultaneously with, and co-ordinated with, parallel negotiations betwen industries. The responsibility of governments in this connexion is threefold—to fulfil their function of preventing the exploitation of consumers

by monopolistic practices, to secure the improved working of the productive and distributive machinery of industry, and to preserve the efficacy of their own external commercial arrangements. This technique is particularly worthy of consideration at the present time, in view of the difficulties surrounding the application of traditional commercial policy to-day, and the changed economic background against which international trade must now be conducted. These factors have been fully examined in previous chapters. The technique is not entirely new, since negotiations between industrialists and the conclusion of unofficial purchase agreements accompanied both the Ottawa Agreements and the subsequent series of bilateral agreements between the United Kingdom and various foreign countries. But it needs to be more fully developed.

Government Safeguards to the Consumer

It remains to be seen what changes would be involved in practice in the development of this method of commercial negotiation, and to what additional uses it could be put. Profound modifications would be required in the aims, character and scope of international industrial agreements as compared with certain examples in the past. There is inevitably the danger in encouraging industrialists to arrange their own affairs that producers should be tempted to use the control which cartel agreements would give them for the purpose of exploiting consumers. As has already been mentioned, there is reason to believe that many producers are already taking a more enlightened view of their responsibilities and of their own self interest. But the temptations are still present, and past history shows that they are not easily resisted. Adequate government control and wide publicity should, however, prove capable of removing this danger, while, as has already been seen, governments are well able to insist that their wishes are respected, if only because of the legislative assistance which they can lend to industrial negotiations. If the government's power is used, together with the additional protection of full publicity, to safeguard consumer interests from the exploitation which they undoubtedly suffer through some of the secret agreements in force to-day, it is believed that the practical advantages to be achieved through the regulation of international trade by these means would go some way towards outweighing the traditional suspicion with which cartel agreements are regarded. As regards the protection of consumers in markets where local production is negligible or non-existent, special care would have to be taken since such countries will be understandably suspicious of cartel agreements. Hence not only is it necessary that an expansionist cartel policy be pursued and that the government of the consuming country be particularly watchful of consumer interests, but the governments of the producing countries will also have to be unusually vigilant and will have to convince the governments of consuming countries, probably by taking them into their confidence, they they are mindful of the common interest.

Cartels in Overseas Markets

One of the principal hindrances to a greater volume of international trade, and in particular to a greater volume of British manufactured exports, arises from the vexed question of secondary industries. This question arises particularly in Dominion markets. The proportions in which such markets may reasonably be supplied with any particular

line of goods by Dominion industries, British export industries and foreign export industries, respectively, is a question which the three parties concerned should be encouraged to decide in detail for themselves, subject to general government control. The final approval of the Dominion government concerned would only be accorded after taking fully into consideration the interests of its consumers. And provided that the government was satisfied, there would be no obstacle to the enforcement of such an agreement through ordinary measures of tariff, quota and exchange policy.

Such cartel agreements could be applied in any country, and not necessarily only those which possess secondary industries. It should be emphasised that they need not be complete in order to be effective and useful. That is to say, they can be made to apply to any one market or group of markets, without in any way affecting the freedom of competition of the parties concerned elsewhere. It is, however, probable that local agreements, if successful, would lead to the setting up of some more general system of control. But in dealing with any country—and this applies particularly to those consuming countries which possess no indigenous manufacturers of the product concerned—it is vital that the goodwill of the government should be cultivated and its approval secured for the terms of any agreement.

The Scope of Existing Cartel Agreements

In order to emphasise the extent to which the existence of international industrial agreements is already affecting the development and direction of trade, the following pages have been devoted to a summary description of the scope and activities of some of the more important cartels now or recently in operation. The details given are believed to be accurate as far as they go, but considerations of space prevent as full treatment as would be desirable of the repercussions of these agreements on market conditions. Moreover, the details of many agreements are closely guarded and have never become publicly known. This arises particularly in the case of cartels with which producers in the United States are co-operating. Owing to the existence of anti-trust legislation, United States firms are usually unable to adhere formally to cartel agreements, although they are nominally in a position to do so as far as exports are concerned. Their co-operation is therefore often secured through the informal machinery of "gentlemen's agreements," the details of which are necessarily vague and usually private. For these special reasons, little statistical data on the allocation of quotas, etc., is usually available.

Aluminium

The Alliance Aluminium Compagnie of Basle, which includes Germany, France, United Kingdom, Canada and Switzerland, was formed mainly for the purpose of controlling the price and stock position. With this end in view, the company took over the stocks of the individual producers, and during 1935 the increased demand enabled stocks to be reduced from 140,000 metric tons at the end of 1934 to about 100,000 metric tons at the end of 1935. Since then the stock position has not, of course, given any difficulty. The company regulates production in the adhering countries by means of production quotas, and also fixes the price from time to time. Considerable difficulties have, however,

been encountered, mainly owing to demands by Germany for permission to increase output capacity (permission for an increase to 55,000 metric tons was given in September 1934, but further increases have taken place since then and actual production in 1936 is estimated to have been 95,000 metric tons, a figure only slightly below that of the United States and far higher than any other country). The heavy subsidies paid by the German Government to enable sales to be made at RM. 1,000—1,200 per metric ton against a production cost of about RM. 1,400 and a previous selling price of RM. 1,600 have also been an important factor. An unsuccessful attempt was made in 1934 to form an agreement regarding the production of semi-products between rolling mills in Germany, Great Britain and Switzerland.

The price policy pursued by the cartel has, on the whole, been an enlightened one, and in contrast to the steep rises which have occurred in the prices of most non-ferrous metals in recent months, the price of aluminium ingots has been maintained since the end of 1932 right up to the present at £100 per ton.

The ramifications of the Alliance company are very interesting in relation to the general question of the scope of cartels, as it controls, through its British subsidary Alliance Aluminium Holdings, two producing companies, International Aluminium Co., Ltd., and Aluminium Corpn., Ltd.

Coal

At the end of 1934 an agreement was concluded between the Mining Association of Great Britain and the Polska Konwencja Weglowa for the regulation of British and Polish coal exports. Though full details of the agreement have not been published, this is believed to have established the ratio of 79 to 21 between British and Polish exports, and is understood to operate nominally until the end of 1937. It has not, however, been a success and already in the first half of 1936 the Polish were strongly undercutting the British exporters, e.g. on the Egyptian market. It was hoped that this agreement might form the basis of an international coal cartel comprising in addition to Great Britain and Poland, Germany, Belgium, France, Holland and Czechoslovakia. So far, however, although informal talks were in progress in the latter part of 1936, nothing has transpired. The question is complicated considerably by the extent to which other countries, particularly Germany and Poland, have increased their share in world markets recently by subsidies. Roughly speaking, the proportions in the total export trade held by the chief exporting countries in 1936 were Great Britain 50 per cent, Germany 33 per cent, Poland 9 per cent, Belgium 5 per cent, and Holland 3 per cent. It is emphasised in British circles, however, that any agreement which stabilised quotas on the basis of present sales would be very unfavourably regarded, and this is one of the reasons why a government export subsidy, combined with negotiations for an international cartel, and to be used only as a bargaining weapon against other countries subsidising their exports, is being urged in responsible quarters. The international coke agreement which involves much the same countries may assist matters.

Coke

Attempts to organise the international coke market may be said to have started in October 1933 with a visit by British coke producers and exporters to Scandinavia with the

object of achieving closer co-operation and enlarging British coke sales. In March 1934 a meeting was held in London, attended by representatives of Great Britain, Germany, Belgium and Holland, to discuss the possibility of regulating markets and fixing export prices. Various difficulties were, however, encountered, such as that of arranging for the liquidation of German stocks, and only a vague "gentlemen's agreement" between Great Britain and Germany regarding prices on the Scandinavian market resulted. The whole question was reopened in the first part of 1936, when conditions were more favourable, and in July 1936 the International Coke Association was provisionally formed by coke exporters in Germany, Great Britain, Holland, Poland and Belgium. Export quotas were allotted as follows: Germany 52.3 per cent, Great Britain 21 per cent, Holland 17 per cent, Belgium 7 per cent, and Poland 2.7 per cent. Fines were imposed for exports in excess of these quotas, but these were comparatively light for small excesses, increasing rapidly as the difference rose. A minimum export price of 19s. 6d. per ton f.o.b. was fixed for all countries except Belgian and Dutch producers, for whom the prescribed minimum was 19s. Various difficulties, however, arose with this scheme—e.g. not all the Belgian cokeries were members of the Belgian Coke Producers' Association—and it was not till March 1937 that the cartel was finally formed with somewhat revised export quotas allocated as follows:

	Per cent of Export Market
Germany	48.43
Great Britain	20.88
Holland	17.83
Belgium	9.66
Poland	3.20
	100.00

Importing countries have been classified into four groups, and a percentage of the total trade allotted to each group. As far as the United Kingdom is concerned, a British Coke Export Sales Association was formed to administer the scheme. The United Kingdom has been divided by the Association into administrative districts for quotas, minimum prices and other matters. It is understood that the international agreement had not been formally signed by April 1937 although the chief features were already in operation, and it is interesting to note that steps are being taken to ensure its operation not only under favourable market conditions but also under possibly less favourable conditions in the future.

Copper

In March 1935 a restriction agreement was signed between copper producers in the Belgian Congo, Chile and Northern Rhodesia, controlling about 75 per cent of the output outside America. This agreement envisaged a curtailment of production by 240,000 tons, as from June 1, 1935. It also set up a statistical organisation, tried to ensure that adequate but not excessive stocks should be maintained at any time, and stipulated that the co-operation of non-participating producers should be secured.

The formal agreement which allotted standard tonnages to the three participating countries and fixed current production at 70 per cent of this standard was not signed by

the American producers, but was accompanied by a "gentlemen's agreement" with them. Under this agreement, the United States producers agreed not to sell from stock for export until the European price exceeded the equivalent of 9c. per lb. (over £40 per ton) and to limit exports of primary copper to about 4,600 short tons per month as long as non-American production remained restricted by 30 per cent. An allowance of about 3,800 short tons per months was made for exports by Customs smelters, bringing the total United States export to 8,400 short tons per month. The United States producers were given the right to withdraw from the agreement in the event of a breakdown of the N.R.A. Copper Code, but although this occurred shortly afterwards, they continued to fulfil the agreement to the best of their ability, although exports were in fact higher than the quotas.

The Canadian producers agreed to co-operate as far as possible, but the Canadian output is mainly a by-product of nickel and gold production, and has therefore been increasing rapidly as a result of the rising output of these two metals.

In spite of the loose nature of this agreement, it was fairly effective in adjusting supply to demand. No attempt was made to force up the price of copper, and as stocks diminished, the production quotas were increased to 75 per cent as from August 1, 1936, to 80 per cent as from October 1, to 85 per cent as from October 15, to 95 per cent as from November 1, and to 105 per cent as from November 5, while finally, on January 14, 1937, restriction was abandoned.

In the latter part of 1936, and in the early months of 1937, prices began to run away, partly as a result of exceptionally strong demand, but more particularly due to speculation which appears to have been based on three market impressions, none of which was very well founded, namely, that refinery capacity was insufficient to meet current requirements (which was demonstrably erroneous), that the British rearmament programme would require very large tonnages, and that the United States might import substantial quantities. There was, however, a time lag between the earlier increases in permitted quotas and the arrival of the extra supplies on the market. There is reason to believe that the cartel—in marked contrast to the old Copper Exporters Inc., who tried with such marked lack of success and injury to the industry to peg the price at 18c per lb. in 1929—were not a little perturbed by the extent of the rise in prices which they would have liked to avoid. With the abandonment of restriction in January 1937, however (which was probably announced mainly for market consumption, but had little effect in that direction), they played their last card as far as exercising a damping effect on speculative optimism was concerned, and it remained for natural economic forces—including the prospect of reopening of old and opening of new mines on a very considerable scale—to carry out their intentions. It is highly probable, however, that when conditions are further from the crest of the boom the cartel will be reformed, and it is possible to imagine that its general framework has, in fact, been preserved.

An interesting practical example of the importance of a rational cartel policy lies in the copper tube position. The consumption of copper tubes in the United Kingdom has more than doubled in the last few years, mainly owing to the great demands for domestic water services. With copper around £30 per ton, taking life into account, a very good case can be made out for the use of copper tubes. With prices nearer double that figure

there is little doubt that most of the increased consumption will be lost to other materials which have not risen so steeply in price. Hence, the desire of the copper producers to maintain a moderate level of prices is based on a sound understanding of the economic requirements of the markets.

Dyes

The international dyestuffs agreement was concluded in 1927 between producers in Germany, France and Switzerland. The agreement covered the whole German output, but some of the smaller French and Swiss manufacturers did not participate. In March 1932 an agreement was made between the cartel and the principal British producers, providing principally for territorial division of markets outside the United States. Certain Polish and Italian producers have also joined the cartel, while in the United States the General Aniline Works and the Cincinnati Chemical Company, the former having a financial connection with I.G. Farbenindustrie, and the latter with the Swiss Sales Consortium, are also members. The cartel is concerned with the regulation of export prices and conditions of sale. A "gentlemen's agreement" covering certain individual markets has also been concluded with other United States producers.

During 1935 an agreement was concluded between the German group and Japan regarding sales of indigo in the Chinese market. The international cartel has frequently been strongly criticised by British consumers on the grounds that not only are imports into this country controlled by a licensing system but that the cartel maintains prices at an unjustifiably high level. The 10 per cent British import duty on foreign dyes which was, however, removed in 1935, gave the British consumers an additionally strong cause for complaint, but even now it is doubtful whether the position can be regarded as entirely satisfactory.

Electric Lamp Bulbs

The International Lamp Cartel (Phoebus) was formed on January 1, 1925, in order to put an end to the fierce competition resulting from the enormous increase in output capacity during the war years. The cartel controls a high proportion of the output in all countries with the exception of the United States and Canada. In order to terminate competition, prices were stabilised and quotas were allotted to individual members for sales in the various markets. Arrangements were also made whereby quotas could be exchanged or disposed of to other firms for a cash payment. It was, however, found impossible to fix uniform prices for the whole world. The system finally adopted was that the price for each market should be fixed only by those members operating within it.

Apart from the price-fixing function there is an arrangement for interchange of patents between members, and each manufacturer is required to keep his products up to a certain standard. It is estimated that the cartel controls about 95 per cent of the output excluding Canada and the United States, the principal outsiders being in Japan and Great Britain. German outsiders were recently compelled by law to join the cartel.

From the disparity in the prices of cartel members and outsiders and the considerable success of the latter, e.g. Crompton Parkinson, it is clear that the cartel makes considerable

use of its powerful position for maintaining a high level of prices. Recently, however, on account of the growth of outside production in Great Britain the Electric Lamp Manufacturers' Association (a branch of the Cartel) introduced a range of cheaper lamps without altering the price of the standard types, while still more recently the chief outside firm, Crompton Parkinson, joined the Association, whose price policy may perhaps be somewhat modified thereby in spite of the great increase in strength which must result.

Ferro Silicon

The International Ferro Silicon Syndicate of Vienna controls the sales of ferro-silicon containing over 25 per cent silicon in Denmark, Germany, Yugoslavia, Norway, Austria, Hungary, Czechoslovakia, Sweden and Switzerland. In addition, agreements exist with producers in France and Great Britain with the result that the syndicate is in the fortunate position that there are no outsiders.

In May 1935, as a result of dissatisfaction on the part of German consumers at the high prices charged by the syndicate, the Vereinigte Stahlwerke and the Deutsche Edelstahlwerke co-operated in the formation of the Ferrolegierung G.m.b.H. with the object of producing ferro-silicon. Some anxiety was then expressed regarding the future of the syndicate, but an amicable settlement appears to have been made. In November 1936 the agreement was renewed until June 30, 1937, it being considered that conditions on the ferro-silicon market were too uncertain to enable a longer view to be taken.

Glass

On April 16, 1934, an agreement was signed between the Kartell der Deutschen Hohlglasindustrie (Germany) and the Omnia Gesellschaft zur Leitung und Revision Industrieller Organisationen G.m.b.H. (Czechoslovakia) for the regulation of price and volume of exports of oil and gas lamp fittings to Belgium, Holland and Italy. Export quotas were allotted to the two participants on the basis of actual exports during the three years April 1, 1931, to March 31, 1934. The range of products covered in this case is, of course, not very important. In July 1936, after long negotiations, this agreement was extended to cover Germany, Austria, Hungary, Italy and Czechoslovakia, while the adherence of Poland was under discussion. The cartel covers prices and quotas.

In addition, makers of various other classes of glass, such as plate and sheet, are in fairly close contact internationally through company organisation, for instance through the ramifications of the Libby-Owens concern.

Granite

In June 1934 an agreement was concluded between the Sveriges Granitindustrie Export Forening U.P.A. and the Granitexportorenes Forening for the regulation of granite exports from Sweden and Norway. It was arranged that of the total exports from the two countries Sweden should supply 46.5 per cent in the case of facing stone, and 80 per cent in the case of paving stones, the remaining 53.5 per cent and 20 per cent respectively being supplied by Norway.

Hemp

In August 1936 a cartel agreement was concluded between French and German importers of hemp from Yugoslavia. This provided that Germany should take 80 per cent of the Yugoslavian supply available for export, payment being made through the German-Yugoslav clearing. The French importers then agreed to take their supplies from Germany in return for foreign exchange. The adherence of the French importers was presumably secured by offering lower prices than those ruling for direct export from Yugoslavia. In other words, Germany was resorting to a form of dumping in order to safeguard the foreign exchange position. This agreement since appears to have broken down, and might well have been resented both by Yugoslav exporters and by consumers in general.

Iron and Steel

The International Steel Cartel (Internationale Rohstahl Export-Gemeinschaft, or IREG), came into existence on June 1, 1933, after a previous cartel, the Entente Cordiale de l'Acier, formed in 1926, had broken down. The Entente Cordiale controlled initially the iron and steel industries of Germany, France, Belgium and Luxembourg, and was joined in 1927 by those of Austria, Czechoslovakia, Hungary and Yugoslavia. The Entente Cordiale broke down primarily because the control exercised was too rigid.

Production in the first quarter of 1926 was taken as a base, and production quotas were allotted to each participating country. A fine of $4 gold per metric ton was imposed for production in excess of the quota. Difficulties were soon experienced, however, owing to the fact that an increase in the market of one of the participating countries benefited the steel producers in other countries to an even greater extent than the domestic industry, and comparatively early in the history of the cartel Germany was demanding an increased quota on the grounds of a greatly expanded domestic demand.

On the formation of the present cartel, therefore, control was confined to exports, the domestic market of each of the participating countries being reserved to the national industry except where subsidiary agreements provided for a fixed tonnage of imports. As with the first cartel, the initial members of the IREG were Germany, France, Belgium and Luxembourg. Negotiations between the Cartel and the British steel industry were started as early as June 1933, but it was not until June 1935, after the British tariff had been increased to 50 per cent *ad valorem*, that terms satisfactory to the British producers were put forward by the Cartel and an agreement in principle was reached. This agreement came into force on August 8, 1935, and provided that the British share of export markets should be the same as in 1934, while imports into Great Britain from the Continent were restricted to 670,000 tons in the year ending August 7, 1936, and to 525,000 tons in each of the subsequent years. The agreement was for five years, with provision for a break after three years. The tonnage actually imported into the United Kingdom in the first year of operation of the agreement was 454,000 tons of semis and 421,000 tons of finished products. During the current year 1936/37, however, it is possible that the cartel countries will not ship up to the allotted quota.

At the same time, it was agreed that the British duty should be reduced to 20 per cent *ad valorem* in order to give a higher profit margin to the Continental producers on the

permitted tonnage of imports. This was combined with a licensing system which came into operation in November 1936; while on imports from non-cartel countries the same rates of duty as those imposed in March 1935 are levied. Early in 1937 the above 20 per cent duty was reduced to 10 per cent, the duty on pig iron removed altogether, and various minor tariff modifications made. It may be noted that in view of the sharp increase in the British demand, the quota for imports from the Continent was temporarily raised by 33,000 tons per month in February 1936. The imports into Great Britain from the Continent are handled by the recently-formed British Iron and Steel Corporation, which buys the imports *en bloc* and re-sells them to the Continental selling agents in this country. The average charge on "cartel" imports has been given in Parliament as 9.01d. per ton.

During 1935 the Cartel was extended to include the Polish iron and steel industry, and there is also a loose agreement between the Cartel and producers in Austria, Czechoslovakia and Hungary, who will probably become full members of the Cartel in the near future. A further agreement between the Cartel, the South African Iron and Steel Corporation and the British Iron and Steel Federation, which is not a member of the Cartel, reserves to the South African producers an annual quota of 350,000 short tons on their domestic market. Another agreement between the British Iron and Steel Federation and the Dominion Steel and Coal Corporation regulates United Kingdom imports of billets, wire rods, bars and wire nails from Canada; no restrictions were placed on United Kingdom exports to Canada under this agreement. There is also an agreement between the Cartel and steel producers in Finland, fixing the maximum output of the latter and the annual tonnage of cartel products to be imported into Finland.

The control of the Cartel covers steel ingots, semi-finished products, sheets, plates, hoop, strip, wire rods and certain rolled sections, each country being allotted a percentage quota of total exports of the various products. The marketing of each product under the control of the Cartel is centralised in a special international syndicate (a list of them is given below) which acts as a clearing house, statistical centre and governing body, and fixes prices from time to time. Sales in excess of the quota are penalised by fines. Failure to form any one of the special syndicates mentioned below gave the participating countries the right to withdraw from the Cartel. Some difficulty was experienced regarding the formation of the syndicate controlling thin sheets and galvanised sheets, but when this was overcome on August 1, 1936, the framework of the Cartel was completed. Syndicates now exist covering semis, merchant bars, sections, plates, black and galvanised sheets, tube and other strip, and wire rods.

In addition, the more specialised steel finished products are subject to separate agreements, which are listed below, together with the adhering countries. In each case export quotas and prices for the various markets are fixed by the Association, except where otherwise stated.

1. *International Railmakers Association* (*IRMA*)

   Austria, Belgium, Czechoslovakia, France, Germany, Great Britain, Hungary, Luxembourg, Poland and the United States.

2. *International Wire Rod Cartel*

Austria, Belgium, Czechoslovakia, France, Germany, Hungary, Luxembourg and Poland.

The Cartel controls prices and production of wire rods. Owing to the fact that recently the German quota has been lower than the domestic market there has been considerable agitation for conversion to a pure export cartel. Austria, Czechoslovakia, Hungary and Poland are not full members of the Cartel, no production quotas being fixed in their case. Producers, in these countries, however, have agreed to quote cartel prices and to adapt exports to the export programme of the Cartel. In return the Cartel granted certain export facilities and territorial protection. The Cartel works in close conjunction with the IWECO (see below), and by quoting differential prices and withholding facilities for obtaining raw materials has forced certain outsiders to adhere to the latter.

3. *International Wire Export Co. (IWECO)*

Belgium, Czechoslovakia, Denmark, France, Germany, Holland, Hungary, Poland and Sweden.

The Cartel controls exports of iron and steel wire, plain and galvanised, and wire products, e.g. fencing, gauze, wire nails.

In August 1935 an agreement was concluded with the United Kingdom producers of wire gauze under which prices were raised and export quotas were allotted, based on the export figures for 1934. Under the raw steel cartel negotiations a five years' agreement was made fixing imports of wire and wire nails into the United Kingdom.

4. *International Ship-plate Agreement*

In January 1934 an agreement was concluded between the thick sheet syndicate of the International Steel Cartel, of which Great Britain was not then a member, and the National Federation of Iron and Steel Manufacturers, under which the British market for ship-plates was reserved to the British manufacturers, who were, in addition, allotted a quota of 25 per cent in export markets. In addition, the price of ship-plates was raised by ten shillings (gold) per ton. This agreement has been merged in the International Steel Cartel.

5. *International Tinplate Cartel*

As from July 1, 1934, agreement was reached between the tinplate producers of France, Germany, Great Britain, the Saar and the United States regarding the division of exports to free markets—Argentina, Brazil, the British Empire, China, Denmark, Holland, Japan, Portugal and Spain. On October 17, 1934, the Norwegian tinplate works entered the agreement with an annual export quota of 3,000 tons, while on January 8, 1935, the Italian works adhered with a quota of 39,750 tons. The division of the export markets was made on the following basis: Great Britain 55 per cent, the United States 22 per cent, Germany 16 per cent, France and Italy together 7 per cent.

In June 1936 it was announced that the cartel was to be prolonged for a period of two years, the German quota being increased at the expense of those of France and the

Saar. The British quota was also increased to 62½ per cent, mainly as a result of the inability of the Italian producers to continue exports in the face of sanctions. A further increase in the British quota to 65 per cent took place in July.

6. International Broad Flanged Girder Association

France, Germany, Luxembourg.

7. International Malleable Tube Fittings Association

Austria, Canada, Czechoslovakia, Germany, Great Britain, Italy, Spain, Sweden, Switzerland and the United States.

Formed in October 1935 to fix prices and production quotas for the participating countries. It was stated that negotiations with a view to securing the adherence of Belgium and Yugoslavia had reached an advanced stage.

8. Other Agreements

(*a*) *Tubes*

The Continental Tube Cartel (Röhrenverband A.G.) controlling the production of tubes in Belgium, Czechoslovakia, France, Germany, Hungary and Poland, and the International Tube Cartel controlling exports from these countries, together with those from Canada, Great Britain, Japan, Sweden and the United States, broke down in March 1935. For some time difficulties had been experienced in controlling production under the Continental cartel, and the dissolution was due largely to failure to convert the latter into an export cartel and to difficulties arising from the transfer of the Saar to Germany.

Negotiations were carried on with a view to reconstituting the International Tube Cartel, but these were not successful, largely owing to a demand from Germany for a greatly increased quota. In the meantime, Great Britain and the original members of the Continental Tube Cartel have entered into agreements for the mutual protection of their domestic markets, which, although not yet amounting to a formal cartel, exercises a fairly close control of minimum prices.

(*b*) *Bolts and Nuts*

At the end of 1935 negotiations were entered into for the formation of an International Bolt and Nut Council with a view to raising prices in export markets.

It is not possible to assess here, nor is this the place to discuss, the advantages and disadvantages which the cartel agreement has brought to Great Britain. There are various criticisms which can be made—in particular, it has been suggested that in the original negotiations too much emphasis was laid on reserving the home market to British producers and not enough on obtaining the biggest possible share in export markets—a policy which undoubtedly contributed to the increased entry of Continental manufacturers of semis into the field of finished products. The present shortage of steel has been blamed on to the Federation—probably without very full justification, since it has been practically impossible to obtain shipments from any foreign source during the early

months of 1937, while probably a further three-quarters of a million tons of steel per annum could be produced in this country if the requisite raw materials were available. It has been suggested that merchants were harshly treated and that consumers have been exploited by high prices, although prices of heavy steel products in Great Britain are relatively lower than in most other countries, as shown in the table below, and the price increases in recent months might easily have been greater in the absence of the Federation. Taking a wide view, the cartel agreement and the reorganisation of the British industry under the Federation have probably done considerably more good than harm.

PRICES OF HEAVY STEEL PRODUCTS : MAY 1937.

£ STERLING PER TON OF 2240 LBS.

	United Kingdom		U.S.A.	Germany	France
	Open Hearth—d/d.*		Open Hearth f.o.t.	Thomas f.o.t.	Open Hearth f.o.t.
	April 30th, 1937	May 1st, 1937	£ s. d.	£ s. d.	£ s. d.
	£ s. d.	£ s. d.			
Heavy Plates .	8 15 6	10 13 0	10 5 3	10 13 9	11 17 8
Joists and Sections .	8 8 0	10 5 6	10 5 3	9 0 6	9 13 10

* Delivery charges in the United Kingdom are estimated to average ten shillings to fifteen shillings per ton.

Lead

For some years after the breakdown of the International Lead Pool in 1932, as the result of the imposition of the British duty of 10 per cent *ad valorem*, the world production of lead was uncontrolled. In July 1935, however, a close association was arranged between the principal lead producers supplying the European market. This covered the Australian producers (Broken Hill Associated Smelters Proprietary, Ltd., and the Mount Isa Mines, Ltd.), Consolidated Mining and Smelting Co. (Canada), Burma Corporation, American Metal Company, American Smelting and Refining Company and San Francisco Mines of Mexico, Ltd. These companies also agreed not to increase production without due notice. Although no rigid control of production or exports was introduced, this arrangement worked extremely well and resulted in a considerable reduction in world stocks of lead. While in recent months there has scarcely been any need for any form of control, it is highly probable that some similar arrangement would be reverted to in the event of any worsening in the statistical position of the metal.

Meat

Imports of beef, mutton and lamb into the United Kingdom have been regulated, since the conclusion of the Ottawa Agreements, either by voluntary agreements with the Dominions or by bilateral agreements with South American supplying countries. Recently, however, the Government has announced its intention to set up an Empire

Beef Council representative of the United Kingdom and other Empire countries concerned, and an International Beef Conference, which will include also foreign countries supplying substantial quantities of meat to this market. Arrangements for establishing the Conference are in process of being completed. The Government retains power to regulate imports by quota in case of failure on the part of the Conference to agree, but it is intended that this body shall, in future, assume responsibility for securing stable market conditions in the United Kingdom. It is proposed that, unless otherwise agreed by the Conference, aggregate exports of beef to this market shall be maintained at recent levels during each of the next three years.

Mercury

The Spanish-Italian Cartel, Consorcio Mercurio Europeo, controlled about 80 per cent of the world production of mercury. The Cartel was renewed for a further period of two years during 1934, when production and sales quotas were allotted in the proportion Spain 60 per cent, Italy 40 per cent. It is understood that it was also arranged that Spain should have the main share of the American, and Italy of the European and Far Eastern markets. This arrangement, however, was upset by the imposition of sanctions against Italy and by the Spanish Civil War. In the former case it is understood that the Spanish producers agreed to supply the sanctionist countries and to leave practically the whole of the market in non-sanctionist countries to Italy. The agreement, which in any case lapsed at the end of 1936, was not officially renewed by the Valencia Government, although the existing distributive organisation appears to have succeeded in maintaining approximately the former ratios.

The price was controlled by the Cartel, but was to some extent limited by the fact that there is a large potential production in the United States, which tends to materialise if the price is raised beyond a certain level. An attempt to maintain an artificially high price level broke down in 1931 owing to the restriction of consumption and the consequent accumulation of very considerable stocks. The sales of Spanish and Italian mercury are handled exclusively by agents established in London.

Nitrogen

Since the completion of the first International Nitrogen Agreement in 1928 the regulation of the production and price of nitrogen fertilisers has presented considerable difficulty owing to the intense internal competition between the European producers on the one hand, and the competition between the European producers as a whole and the producers of Chile nitrate on the other. With regard to the former, the original European Nitrogen Cartel comprised as full members only the Stickstoff Syndikat (Germany), Norsk Hydro (Norway), Imperial Chemical Industries (Great Britain) and the Stickstoff Verkaufsvereinigung (Czechoslovakia). The Cartel, however, eventually succeeded in concluding agreements with the producers in all other European countries with the exception of France, where the Government opposed participation in international nitrogen restriction agreements. Thus the Belgian and Dutch producers (the most important of which is state-controlled, while the other is controlled by the Italian Montecatini Company) agreed to limit production to a small percentage of capacity in return for a deficiency

payment from the British-Norwegian-German producers (DEN group), which enabled them to cover overhead costs and pay a small dividend. Finally, the European producers concluded an agreement with the producers of Chile nitrate whereby the latter were allotted an export quota for all markets with the exception of the United States, which was left as a free market and served to some extent as a safety valve for excess Chile nitrate production. Outside the United States the markets were divided into European cartel countries and free markets, the Chilean producers for the year 1934/35 being allotted a quota of 50,000-55,000 tons in the former, while sales to the latter were divided on the existing basis. A system of price control and duty rebates was also instituted.

Up to 1935 these agreements were renewed annually, the quotas running from July 1 to June 30 each year. In 1935, however, although negotiations for renewal were started in May, a settlement was not reached until September after the British duty on some of the most important nitrogenous fertilisers had been increased from 20 per cent *ad valorem* to £4 per ton. Under this agreement, which extended the control system for three years as from July 1, 1935 (though provision was made for denunciation after two years), all the European producers became full members of the European Cartel, Compagnie Internationale de l'Azote (C.I.A.), which now embraces Belgium, Czechoslovakia, France, Germany, Great Britain, Holland, Italy, Norway, Poland and Switzerland. Although certain adjustments were made to individual quotas the basis of the control of output remained as before. This arrangement paved the way for a further agreement with Chile for a period of three years. Though full details of this agreement have not been made public it is believed that the full quota allotted to Chile, including exports to both the cartel countries and free markets, amounted to 1,250,000 tons (Chile nitrate basis) per annum, an increase of about 50,000 metric tons on the years 1934/35.

The Japanese producers, although their output was increasing rapidly, were not a party to the cartel agreement, since Japan remained on balance an important net importer of nitrogenous fertilisers. In January 1936, however, it was announced that a two years agreement had been concluded between the European Cartel and the Japan Sulphate of Ammonia Manufacturers' Association, under which it was agreed that Japanese imports should be confined to the first six months of the calendar year, and should be limited to 125,000 metric tons (ammonium sulphate basis) per annum, while Japanese exports should be confined to the second six months of the calendar year and should not exceed 60,000 metric tons per annum. It was further agreed that Japanese exports should be confined to Far Eastern countries, excluding America and French Indo-China.

Certain "gentlemen's agreements" have been entered into with Canadian and United States interests.

An important aspect of the International Cartel arrangements has been the institution in a number of countries of joint selling organisations, the pooling of agricultural research activities, and the standardisation of products. On the whole, the International Cartel has probably benefited consumers by enabling them to make forward contracts at fixed prices, by ensuring them a standard product, and by the fact that the Cartel, when allocating quotas, has endeavoured to take into account the special requirements and preferences of the main importing countries for different types of nitrogenous fertilisers.

Phosphate Rock

The principal exporters of phosphate rock are Algeria, Tunis, Morocco and the United States. Prior to 1933 the three North African countries supplied the bulk of the European requirements, the United States product being ruled out owing to high production and transport costs. Following the devaluation of the dollar, however, the United States competition in European markets became considerable, and in order to meet this, producers in Algeria and Tunis formed in September 1933, a cartel known as the Comptoir des Phosphates d'Algerie et de Tunisie. The Moroccan producers, owing to the predominating part played in their industry by the state-controlled Office Cherifien, were unable to join this cartel but have co-operated closely with it. At the end of 1933 it was reported that an agreement was concluded between the Comptoir, the Office Cherifien and the United States producers, whereby exports from the North African countries were to be regulated by quotas based on the total European consumption. This agreement was, however, never confirmed by the United States, and the United States exports to Europe in 1934 did not show any falling off. However, the Comptoir has concluded quota agreements with producers in Egypt and Oceania and has been enabled not only to stabilise prices, but also to secure a series of small but steady increases. In addition, real co-operation has been brought about between the North African mines, and the Comptoir has been successful in securing a reduction in freight rates from North Africa, and in negotiating with various governments on currency release and credit questions.

It is understood that there was a certain amount of friction inside the cartel in 1936 due to shipments from Morocco having exceeded the allotted quota, it being pointed out that the system of fines for excess shipments was only intended to cover exceptional cases involving small tonnages. The matter is believed to have been settled amicably.

There is an International Superphosphate Manufacturers' Association with offices in Hamburg, but it is not a cartel, and its activities appear to lie mainly in the field of statistics and sales development. Its statistics are remarkably detailed and complete.

Porcelain

There is an agreement between the German, French and Czechoslovakian producers regarding the fixing of prices and division of the market for Turkish cups in Algeria and Tunis. While this agreement is of some interest it can scarcely be described as having a very wide scope, but the fact that international co-operation in the industry on the Continent does take place is illustrated by a further agreement made at the time of the Austro-Czechoslovakian trade agreement in July 1936, between the porcelain producers of Germany, Austria, Czechoslovakia, France and Italy regarding minimum prices on the Austrian market.

Potash

The potash cartel was formed early in 1926 by the French and German producers, the former being allotted a quota of 33 per cent in export markets. In March 1922 the cartel was joined by Poland, to which country a quota of 4 per cent was allotted. For some

years the cartel enjoyed a virtual monopoly of potash exports, but, with the growth of Spain as a low cost producer with a limited home market, an intense price war set in—particularly in Holland—and the break up of the cartel was anticipated. After prolonged negotiations, however, a preliminary agreement was made with the Spanish producers in April 1935, under which the latter were allotted a quota of 14 per cent of total foreign sales. The Spanish producers have stated that they are well satisfied with the results of this arrangement, and it is understood that a permanent agreement has since been negotiated which will ensure the continuance of co-operation until 1941.

In March 1936 an agreement was concluded between the cartel and Palestine Potash Ltd., which claimed that it was precluded from joining the cartel on account of the terms of its concession.

The present position, therefore, is that the Franco-German cartel has export agreements with all the principal producers with the exception of those in Russia and the United States. With regard to the latter, however, there is a research and propaganda agreement between the cartel and the United States producers, and a good deal of friendly co-operation exists in relation to export policies. The Russian production has been increasing rapidly in recent years, and this constitutes a potential menace to the cartel, though Russian consumption is also expanding, and the Government has been pursuing a cautious policy with regard to exports, maintaining prices in the region of those fixed by the international cartel.

Pulp and Paper

1. Pulp

The European Sulphite pulp producers in Sweden, Finland, Norway, Germany, Memel, Czechoslovakia and Austria co-operate in the control of exports through Sulphite Pulp Suppliers (S.P.S.). This organisation was originally a cartel controlling production, but after a series of meetings at the end of 1935 it was decided to substitute export for production control. The new agreement is to run for three years to the end of 1938, the total export quota for 1936 being fixed at 2,500,000 metric tons. This figure is divided between the various producing countries in proportion to their output capacity.

There is also a cartel agreement covering mechanical pulp exports from the Scandinavian countries until the end of 1938—Mechanical Pulp Suppliers' Association M.P.S.—composed of the wet pulp exporters of Sweden, Norway and Finland. Fears were expressed that the recent purchase of mills in Sweden by Bowater's Paper Mills might disrupt this cartel, but they appear to be groundless. There has been a good deal of apparently not unjustified criticism of the price policy of these cartels and of suggestions that consumers are being held to ransom. While the very low prices—often below cost of production—prevailing before the recent boom should be remembered, it is to be hoped that these cartels will not jeopardise their future by excessive exuberance in the matter of prices, which would only tend to bring other countries into the market as producers.

2. Kraft Paper

An agreement exists between producers and merchants of kraft paper and kraft paper bags in Great Britain, Norway and Sweden for the purpose of maintaining prices. The

agreement covers all the principal producers, who compel the adherence of merchants by charging an additional £2 per ton to outsiders. Though there is no strict production or export control, the success of the scheme requires a measure of friendly co-operation with regard to production policy. The cartel is known as Scankraft. This cartel would appear to be one of the most complete and rigid, from the legal point of view, of any at present in existence. Considerable skill appears to have been exercised in drafting its constitution in order to make it binding upon merchants and distributors as well as producers, and in this respect it appears to be one of the most comprehensive attempts at control which has yet been made.

3. Greaseproof Paper

An organisation known as Scangreaseproof, similar to Scankraft, controls the price of greaseproof paper. It embraces all the Scandinavian producers and has working agreements with producers in Great Britain, Holland, Germany and Belgium.

Railway Rolling Stock

The International Rolling Stock Cartel (Association Internationale des Constructeurs des Materiaux Roulants) ceased to exercise control over prices and exports in 1931, when a number of important members withdrew from the organisation. The Association, however, continued to act as a statistical and advisory bureau and facilitated the conclusion between members of a number of secret agreements regarding exports to specified countries. At the end of 1935, the Association was greatly strengthened by the return of the German and the entry of the British manufacturers. It was suggested at that time that the Association might again be converted to a cartel controlling prices and exports, but no announcement has yet been made to this effect.

The members of the Association are the railway carriage and wagon builders of Great Britain, Germany, France, Belgium, Sweden, Switzerland, Austria, Poland and Hungary.

Rubber

The international rubber restriction agreement came into force in June 1934, following a period of unrestricted production after the breakdown of the Stevenson Scheme which applied only to producers in the British Empire. The scheme covers approximately 98.5 per cent of the output of natural rubber, embracing producers in the Straits Settlements, Malay States, Dutch East Indies, Ceylon, India, Burma, North Borneo, Sarawak, Siam and French Indo-China. The scheme was intended to remain in force for five years, and each of the participating countries was allotted a basic quota increasing from year to year. These increases, which vary for the different countries, are intended to take into account the potential production of the various countries in subsequent years. This potential production is capable of moderately accurate estimation in advance owing to the fact that plantations do not begin to yield until the fifth year from planting, while full bearing is not reached until eight to ten years.

The operation of the scheme is in the hands of the International Rubber Regulation Committee, which fixes exports from time to time as a percentage of the basic quotas. From the inauguration of the scheme, restriction became progressively more severe, the quota being fixed at 100 per cent for June and July 1934, 90 per cent in August and September, 80 per cent in October and November, 70 per cent in December, 75 per cent in the first quarter of 1935, 70 per cent in the second quarter, 65 per cent in the third quarter, 60 per cent in the fourth quarter, 60 per cent in the first half of 1936 and 65 per cent in the last half. At the end of January 1937, however, in view of the tightening of the supply position, it was announced that quotas for 1937 would be 75 per cent for the first quarter, 80 per cent for the second, and 85 per cent for the third. In March 1937, the quota for the second quarter of the year was again raised to 90 per cent. As shown below, these quota increases did not stem the rising tide of prices—in fact, one of the dangers in the new international control technique is that speculators interested in the short-term position regard a small quota increase as a bull point as it shows the consciousness of the Control Committee of the need for increased supplies, whereas, on the other hand, there is little chance, particularly in the case of rubber, of extra supplies coming on to the market for some time.

Considerable difficulties were experienced, owing to the failure of the Dutch Government hitherto to control effectively native production in the Dutch East Indies. For some time it proved impossible to enforce direct restriction of production, but considerable skill was exercised in the imposition of an export tax graduated in accordance with the price of rubber. By this means, exports from the Dutch East Indies were held down to 90,600 tons in the first half of 1936 compared with a permissible quota of 85,600 tons. Meanwhile, the survey and registration of the native areas has been going ahead with much success. In recent months, however, there has been a tendency for exports from the Dutch East Indies to lag behind the permissible figures, and the problem of the Control Committee has been one of accelerating rather than holding down shipments.

As a result of restriction, the price of rubber which averaged 2 11/32d. per lb. in 1932 and 3¼d. per lb. in 1933 increased to 6 7/32d. in 1934 and 6d. in 1935. During 1936 the price rose from 6½d. per lb. at the beginning to 10½d. per lb. at the end of the year, and by the end of March 1937 the price had touched 1s. 1¾d.—the highest figure since March 1928. Stocks outside the regulation areas, including stocks afloat which stood at 679,000 tons at the end of 1934, had been reduced to 638,000 tons at the end of March 1935 and 461,400 tons at the end of 1936. While the rubber scheme has on the whole been well managed, consumers have become very apprehensive about the stock reduction and restless about the price position in recent months, and though the objectives of the Committee of avoiding excessive price fluctuations and at the same time preventing any repetition of a dangerous rise in price to utterly excessive heights such as took place under the Stevenson scheme, are unquestionable, it must be admitted that most estates are very well placed with a quota over, say, 80 per cent and a price of, say, 8d. to 9d. per lb. The situation at the end of the first quarter of 1937 has many elements of danger. There is, however, this difference from past history, that the control authorities appear to be aware of them and appear to be taking steps—if not the most drastic possible steps—to meet them.

Sugar

In order to deal with a surplus of export sugar amounting to approximately one-third of the annual world consumption, sugar producers in Cuba, Java, Germany, Czechoslovakia, Poland, Hungary and Belgium set up in May 1931 the International Sugar Council for the operation of the Chadbourne plan for joint restriction of exports and production, with a view to liquidation of existing stocks over the four and a half years of the plan's validity. At the end of October 1931 Peruvian producers joined the agreement, followed in December by those of Yugoslavia. The adherence of a number of member countries, however, had been obtained only by granting exorbitant export quotas. Though a very considerable restriction of exports was achieved, this was largely offset by increased production in countries outside the agreement, notably in the United States, Great Britain and the British Empire, and at the meeting of the International Sugar Council held in August 1935 it was decided that it was impossible to continue the Chadbourne Plan in its original form after September 1, 1935.

In the meantime, the British Government had announced their intention of consulting with the Colonies and Dominions with a view to reopening international negotiations for the restriction of production. As a result, the members of the International Sugar Council, with the exception of Java, formed an International Sugar Committee in order "to effect and facilitate efforts to arrive at a new sugar agreement." A number of negotiations have since taken place and in August 1936 the life of this committee was prolonged for a further year to August 30, 1937. At the same time, it was announced that a provisional agreement had been concluded between the committee and the sugar producers of Java and that the former would proceed with preparation of a new agreement to include, if possible, Great Britain and the United States. A meeting of the International Sugar Conference was convened in London in April 1937, when the extent of the free market for the crop year 1936-37 was discussed and agreed, and negotiations for its division entered into. The Conference, however, embarked on a wider field of discussion as well, including measures for the increase of consumption. As a result of these discussions, a five-year agreement has been drawn up to regulate the exports of the chief exporting countries and to stabilise the home production of certain of the importing countries.

It may be observed that the statistical position of sugar, unlike most commodities, has remained bad, and though price rises have taken place these have been largely psychological or in sympathy with other commodity prices.

Tea

The International Tea Committee regulates tea exports from India, Ceylon and the Dutch East Indies by means of a quota expressed as a percentage of the exports in the basis year 1931. The three countries also conduct co-operative development advertising financed by a levy on all tea produced. In August 1934 the committee reached an agreement with tea planters in Kenya, Nyassa, Tanganyika and Uganda to run to March 31, 1938, whereby the permissible area for new planting in these four countries was limited to 7,900 acres (Kenya 1,000 acres, Nyassa 2,000, Tanganyika 2,900 and Uganda 2,000). Production in the last few years has not undergone much variation, and the restriction

rate was not changed between April 1, 1935, and May 14, 1937, when it was lowered from 17½ per cent to 12½ per cent. The stock position has improved remarkably and prices have been on the upgrade.

Tin

In 1927 and 1928, following the considerable expansion in the output of tin due to the introduction of mechanical dredging, unofficial attempts were made to restrict supplies, but without much success. In the following year the Tin Producers' Association was formed for the purpose of stimulating consumption by research and propaganda. This association made several unsuccessful efforts to organise restriction on a voluntary basis, but at the end of 1930 government authorities in Malaya, the Dutch East Indies, Bolivia and Nigeria set up an International Tin Committee to regulate the industry on an international basis with full statutory authority in each country. Production quotas were allotted on the basis of 1929 output, and a restriction of approximately 22 per cent was imposed in February 1931. A further cut of 16 per cent was made in May. In August the co-operation of Siam was secured on the basis of a fixed quota of 10,000 tons per annum.

In September 1931 an official pool was set up under the committee to take up surplus stocks and hold them off the market until the price should increase above £165. Although further cuts in the quota were made, the scheme had little effect in raising prices, and the more drastic Byrne Scheme was adopted in 1932 involving a complete cessation of production in July and August and a further substantial increase in restriction. This had the desired effect, and in 1933 the scheme was prolonged until the end of 1936.

Meanwhile the production of "outsiders" had increased from 8 per cent of the total in 1929 to 20 per cent in 1933, and a clause was inserted in the new agreement allowing any of the signatory countries to cease restriction if this percentage should increase to 25 per cent. Shortly afterwards, however, an agreement was reached with producers in Cornwall, the Belgian Congo, French Indo-China and Portugal not to exceed certain limits.

As from the middle of 1935 the Tin Committee began to adopt a more liberal policy, as a result of the exhaustion of the buffer stock which had been set up in the previous year with the object of flattening out price fluctuations, and of the intense criticism to which the previous policy had been subjected on account of the high prices and actual market shortage which that policy had brought about.

During 1936, negotiations were set on foot for a further extension of the scheme, but considerable difficulties were raised by the adhering countries, notably Siam, which attempted to obtain a substantial increase in output. Although Siam had been demanding a flat rate quota of 20,000 tons against 10,000 tons under the previous agreement, a compromise was reached in November 1936, and the restriction agreement renewed as from January 1, 1937.

Owing to the tightness of the supply position and the rise in prices which took place at the end of 1936 and still more in the early months of 1937, a 15 per cent quota increase to 105 per cent of standard was announced on November 11, 1936, for the last quarter of

1936. For the first quarter of 1937 the quota was reduced to 100 per cent in mid-December 1936, but this did not involve any reduction in world supplies as Siam and the Belgian Congo had been given increased standard tonnages under the new agreement. In March 1937 it was decided to maintain the same rate of restriction for April-June 1937. Towards the end of March there was some talk of the abandonment of restriction altogether following the abandonment in the case of copper and the high price of metals generally. Further quota increases can only affect Malaya and the D.E.I. as Bolivia, Siam, the Belgian Congo and French-Indo China cannot (at the end of the first quarter of 1937) produce their full standard tonnages, while Nigeria is probably experiencing difficulty in doing so. On the whole, however, the agreement is likely to remain in force and in contrast to the position in the early days of the scheme it can be said to be operating on reasonably sound lines.

Timber

In order to adjust output and demand and to prevent a further fall in prices, representatives of the timber organisations in Finland, Sweden, Russia, Poland, Austria, Roumania, Yugoslavia and Czechoslovakia concluded the European Timber Exporters Convention (E.T.E.C.), at Copenhagen on November 15, 1935, with a view to restricting supplies of sawn timber. The agreement which came into force on December 1, 1935, is for a period of two years. Export quotas totalling 3,850,000 standards were fixed for the year 1936, being divided as follows: Finland 1,005,000 standards, U.S.S.R. 950,000, Sweden 820,000, Poland 313,000, Austria 275,000, Roumania 223,000, Yugoslavia 168,000 and Czechoslovakia 96,000. Mainly owing to greatly improved demand, the scheme proved extremely successful, and the rise in prices was further accentuated by the decision of the E.T.E.C. in October 1936 to leave quotas for 1937 virtually unchanged (the Roumanian quota was raised to 246,000 standards. Latvia, a new member of the Convention, was allotted a quota of 127,000 standards).

Wheat

An agreement for the regulation of the world supply of wheat came into force for the cereal year 1933/34 under the auspices of the International Wheat Advisory Committee. Under this agreement wheat-exporting countries accepted fixed export quotas and agreed to limit acreage, while the countries normally importing wheat undertook to reduce their tariffs and increase their import quotas when wheat prices rose to a certain figure, and not to increase home production beyond its current acreage. The agreement was, however, broken by the Argentine among the wheat-exporting countries, while in practically all wheat-importing countries there has been a substantial increase in home production. This was particularly the case with France, which obtained the permission of the Advisory Committee to export the surplus during the period June-October 1935.

Though there has been no formal denunciation of the agreement, the improvement in the statistical position due to climatic conditions has removed temporarily much of the necessity for artificial restriction of output, and the agreement may be considered to have lapsed, in spite of the warning of the Advisory Committee that reliance upon natural

disasters is not an adequate substitute for planned control. The Advisory Committee, however, was prolonged for a further two years as from August 1, 1936, in order to continue its work on the preparation of periodical reviews of the world wheat situation, further investigation of the possibilities of encouraging the use of wheat and the preparation of a survey covering the fundamental economic and social factors affecting production, consumption and exports. The committee is supported by the following countries: Argentine, Australia, Austria, Belgium, Bulgaria, Canada, France, Germany, Great Britain, Greece, Hungary, Italy, Poland, Russia, Roumania, Sweden, Switzerland, U.S.A. and Yugoslavia. The sharp rise in prices which took place in March 1937 is generally regarded as having been due to heavy buying by Germany and Italy, which countries, though aiming at bcoming self-supporting, had indifferent harvests in 1936.

Zinc

The International Zinc Cartel was first formed in 1928 embracing Belgium, Germany, Great Britain, France and Spain. For 1929 a 7 per cent restriction of production based on the monthly figures for November-December 1928 was imposed, but at the end of the year the cartel broke down mainly owing to the non-inclusion of the Canadian, Australian and United States producers.

In 1931 a second cartel was formed, including, in addition to the members of the first cartel, producers in Australia, Canada, Mexico, Poland, Norway and Czechoslovakia, and thus controlling about 87 per cent of the production outside the U.S.A. Individual quotas were allotted on the basis of the best three months' successive output between January 1927 and June 1930, the total of these quotas being known as the Ostend basis. Percentage production quotas were then announced from time to time, the actual permissible output of each producer being calculated by multiplying this percentage by his quota on the Ostend basis. Although one of the objects of the cartel was to maintain the price of zinc, no attempt was made to cause an undue rise in the price (although it is doubtful in any case how far this would have been possible) and the cartel functioned satisfactorily until the end of 1934. During 1934, however, in spite of a substantial improvement in the statistical position, the price of the metal failed to respond, mainly owing to the method of operation of the British 10 per cent *ad valorem* duty. Other difficulties facing the cartel were the growing production in excess of the allotted quotas, which was permitted on payment of a fine, and the rapid increase in the German production capacity. As a result of these difficulties, the cartel broke down at the end of 1934. For some time afterwards almost continual negotiations were carried on with a view to a renewal of the cartel, and these were assisted by a change in the British duty from 10 per cent *ad valorem* to 12s. 6d. per ton and the fact that Germany virtually ceased to be an exporter of zinc. Additional impetus was given to the negotiations by the threat of the British producers to apply for an increased duty unless the Continental producers agreed to a restriction of production, but it proved impossible to find a satisfactory basis for renewal of the cartel and since the latter part of 1936, with the improvement in price and statistical position, most of the original objectives of the cartel have been achieved. It was at one time suggested that the cartel might be reformed on the basis of a restriction of mine output as opposed to smelter output in the case of the previous cartel.

Other Cartel Agreements

In additional to the above examples, a wide range of other products of varying importance is covered by cartel agreements of different kinds. In particular, several other heavy chemical products are covered by cartel agreements. One of the most important of these is alkali (soda ash) but the details of this agreement are surrounded by more secrecy than practically any other. The agreement appears to have arisen in the first place from the virtual monopoly arising out of the Solvay patent position. It now involves the exchange of technical information, the rigid division of markets on a geographical basis, and the limitation of production. It is believed to be one of the few agreements in which Russia co-operates. Other heavy chemicals covered by international agreements are sodium sulphate, sodium sulphide (operating through the Chlorkalk Verteilungstelle), liquid ammonia, and sodium cyanide. The latter agreement includes Germany, the United Kingdom and France, while the American Cyanamide Company appears to co-operate. There is also an important International Saccharine Convention. Explosives are covered by an agreement between the principal interests in the United Kingdom, Germany, France and the United States.

A number of other raw or semi-manufactured materials are also known to be covered by international agreements of which the most important are pyrites, various classes of ferro-alloys, molybdenite ore, cobalt, vanadium, iron oxide, white and red lead. For some years, a European cartel consisting of British, French and German manufacturers of ferro-molybdenum and other molybdenum products has existed for the purpose of dividing territories and standardising prices. Approximately the same group of companies combine to form Ferro-Tungsten and Ferro-Vanadium cartels which exist for the same purposes.

In addition to those already mentioned, such as electric lamps, certain other manufactured goods are known to be subject to international cartel agreements. Of these, the most important are baths and matches. British manufacturers of electric cables, who have for some time been closely organised in the Cable Makers' Association, are also believed to have recently concluded certain international arrangements.

Semi-Monopoly Products

Apart from the large number of commodities which are subject to control by international cartel agreements, there is a large and important group of commodities which enter into international trade, the production of which is so largely dominated by one or two large groups, that, without any formal co-operation, price and sales policy can be determined by a single firm, or loose co-operation may exist from time to time. In this group may be mentioned platinum (International Nickel and Russia), nickel (International Nickel), whale-oil (Unilever), wolfram, manganese ore, asbestos, camphor, quinine, and many others.

The Growing Importance of International Control

The above details of international cartel agreements cannot, of course, hope to be exhaustive as regards structure or operations in the limited space available for discussion.

Even on the basis of the evidence presented, however, the following general observations can be made regarding them.

Control of production is tending to be abandoned, except in exceptional cases, where, in particular, the number of important producing units concerned is small, or where the domestic market in the producing country concerned for the commodity in question is negligible. The chief remaining examples are aluminium and tin. Copper control has been nominally abandoned, although its reintroduction would not be difficult and may be anticipated if the market position deteriorates. The scheme for mercury has been abandoned for political reasons. In the case of lead, loose contact between producers is maintained, but there is no need for a control scheme, though here again one might be reintroduced.

Control by international cartels increasingly takes the more logical—and, historically, more successful—form of control of exports. Examples differing widely in scope are: coal (Anglo-Polish agreement, which has virtually broken down), coke, dyes, electric lamp bulbs, ferro-silicon, lamp glass, granite, iron and steel, nitrogen fertilisers, phosphate rock, porcelain, potash, pulp and paper, rubber, tea, timber and wheat (abandoned).

International cartels in which governments, as opposed to the industries concerned, have taken a hand are fairly limited, although there are some important examples, such as tin, sugar, wheat, rubber and iron and steel (indirectly).

It cannot be denied that the extent to which international control of trade and production has developed is very remarkable and covers, in one way or another, an important proportion of the trade of the world. The practical aspects of this development are already forcing their attentions on governments. For instance, the Import Duties Advisory Committee in this country, in making recommendations concerning the alteration of import duties, has been compelled to report the existence of international agreements, as in the following example, which actually concerns an application for the imposition of additional duties on sodium bichromate and potassium bichromate:

> "The home and export trade is in large measure subjected to control by an international cartel, of which the British manufacturers are members, and we have no reason to doubt that that control, which regulates prices at levels of which substantial sections of consumers do not complain, has been exercised in a reasonable manner consistently with the requirements of orderly marketing."

With the increase in the number of commodities entering into international trade to which such considerations apply, we believe that there is a good case for rationalising the government treatment of such agreements in commercial negotiations, both as a measure of protection to the consumer, and for the development on sound lines of a movement which promises to lead to more orderly and rational marketing.

V. THE MECHANISM OF INTERNATIONAL TRADE

Summary

(i) The efficiency with which the international exchange of commodities takes place depends not only upon the arrangements made between governments and industries affecting general trading conditions, but also upon the efficiency with which contacts between individual traders are organised.

(ii) British export methods have been slow to adapt themselves to changing conditions in international trade. There is even a tendency to disregard export markets altogether in view of the difficulties of selling abroad and of the undoubted attractions, from the point of view of maximising current profits, of a flourishing and protected home market. This attitude is obviously highly injurious to the national interest at a time when prosperity is founded upon the narrow basis of the home market, and is due in part to influences, such as that of the rearmament programme, which are inevitably ephemeral. But it is also short-sighted when judged in accordance with the long-period interests of individual manufacturers themselves. For failure to maintain goodwill in foreign markets by a little self-denial now will react in the future by making infinitely more difficult the reopening of trading opportunities which at some future date may be urgently necessary.

(iii) British export trade was built up in a period when trade was fairly free, population and the demand for imported commodities in the United Kingdom were growing together, overseas territories were being opened up by capital exports and emigration, and were creating new centres of production and consumption, and the multiplication and diversification of the commodities entering into international trade had not, by modern standards, proceeded very far. The merchant house played an important part in the development and handling of trade during this period. The merchant performed a vital function, since he customarily dealt in goods moving in more than one direction, and this kept trade moving and facilitated the rapid circulation of funds invested in trade. Merchant houses have been of two main types, the first operating predominantly from an English port as an exporter of British goods to other countries, the second, in addition to acting as exporters, functioning also as importers in the country of consumption, being domiciled there, and having a large stake invested there in distributive organisation, etc.

(iv) The merchant business of merchant houses has been declining for some years from a number of causes, and the decline has tended to hit firms operating mainly from this country more severely than those with a large stake in their principal markets. The growth in the proportionate importance of goods requiring technical

sales knowledge and servicing has, in the first place, made merchant business more difficult. Though some merchants have made satisfactory arrangements with manufacturers to get over this difficulty, there has been an obvious incentive to the manufacturers to sell direct through a specialised organisation of his own. Conversely, where the merchant has succeeded in developing a definite market to a state of considerable prosperity and importance, the manufacturer may be tempted to take over himself in order to save the merchant's profit. In this respect, the fate of merchants is similar to that of all pioneers. Hence, mainly for these two reasons, large manufacturers have come increasingly to sell through distributive organisations of their own.

(v) A second cause of the decline of British merchant business has been the growth of foreign competition in an occupation which was once largely dominated by British firms. Local importing firms, depending upon local finance, have cut increasingly into British merchant business.

(vi) A third, and probably the most drastic cause, has been the growth of impediments to two-way trade arising from a number of causes. Merchants are particularly dependent upon two-way trade and upon keeping their goods mobile. Serious interference has occurred in the last decade to the two-way trade of British merchant houses, of which the most important factors have been the growth of protection in the United Kingdom; the growth of one-way selling by large British manufacturers, which has not only deprived the merchant house of business, but has also helped to cause exchange difficulties in the importing country; and the general growth of exchange restrictions and impediments to multilateral trading, resulting in the freezing of merchant balances abroad and the shrinkage of ancillary business.

(vii) The growth of state trading has also tended to restrict the business of merchant houses, and must be accounted a factor of long-term importance based on social as well as economic causes, and not merely a "crisis measure" of temporary significance.

(viii) The smaller manufacturer often makes use of agents in conducting export business. There are many difficulties in the way of a manufacturer seeking a reliable agent and further difficulties in building up satisfactory arrangements when one has been appointed. If carefully organised, this system can work well, but constant care and attention to details is necessary; but as a system it is not foolproof. To the extent that merchants are increasingly going in for "merchant-agency" business, however, the position appears to be improving.

(ix) The merchants' interest in two-way trade was vital to the interests of the British export trade in general, since it helped customers to sell their own produce and provided them with funds with which to make further purchases from British exporters. Unfortunately, the overseas sales organisations of large manufacturers are not interested in two-way trade, and while taking from the merchants part of their turnover in goods exported from this country, have refused to take over that other function of merchant business—assisting the customers of the export

trade to sell their own produce. The position is made worse, since manufacturers' sales organisations do not confine their attentions to marketing their own manufactures but add complementary and miscellaneous lines of other manufactured goods in order to (*a*) push the sales of their own goods by offering complementary products, and (*b*) cover the fixed costs of maintaining a large distributive organisation overseas. In many cases, large manufacturing firms compete with merchant houses on the foundation of superior financial and other resources.

(x) The decline of merchant business is threatening to dissipate an accumulated wealth of knowledge and experience of the economic and psychological conditions and requirements of foreign markets which is vital to the successful conduct of the British export trade. In so far as the experience and accumulated foreign funds of the merchant houses are being diverted to investment in local industries, the effect is sometimes the same.

(xi) Foreign manufacturers have devoted more attention to direct selling and direct representation, and have latterly made less use of the agency system than most British firms. Internal economic conditions in many foreign countries have also often acted as an incentive to men of first-class technical qualifications to serve abroad. An active export trade in experts assists the export trade in goods and services in many ways, directly and indirectly. The United Kingdom is relatively unfavourably situated in this respect, and conditions of remuneration and security in positions abroad need to be improved in order to remove this disadvantage. Foreign countries have often competed with British firms in the extension of credits. In many cases, competition of this sort has been pushed to uneconomic lengths and should be resisted by British firms, which should, if necessary, conclude agreements among themselves with this object in view. Foreign firms are also often better informed about local conditions and more receptive to local colour; this is the result, usually, of more direct and thorough local representation.

(xii) Over the world as a whole, consumers' requirements are changing and tending to become more exacting. This is the effect partly of rising standards of living and partly of increased competition, which gives the consumer a wider range of choice, and necessitates a corresponding improvement in the efficiency of sales methods. In so far as the largest potential markets of the future lie in territories where the standard of living is still low and consumer psychology is primitive, attention to local peculiarities is particularly important. Since many of these factors are the fundamental results of economic growth, though they may have been stimulated by the depression, it is clear that goodwill in overseas markets must be cultivated at all times, irrespective of booms and slumps.

(xiii) The existence of gaps in the present organisation of the British export trade, when combined with other impediments to trade and the free movement of trade funds, is partly responsible for the dangerous neglect by British manufacturers of foreign markets. Unfortunately, the gap in organisation is most serious in the case of

small manufacturers, since it is the smaller firms in the newer industries which particularly need every encouragement to export, in order that the vitality of British export trade shall be maintained and improved by continued diversification and development.

(xiv) Many large firms have realised that the requirements of world markets have become more exacting and have adopted intensive methods of sales organisation in an admirable attempt to improve distributive efficiency. But efficiency in selling will be of little avail if the foreign consumer has no purchasing power, and the power of foreign consumers to buy British goods depends on their ability to dispose of their own produce.

(xv) Large manufacturers can hardly be expected to handle directly the export produce of foreign countries, except in isolated instances, but much can be done indirectly. The development in foreign countries of domestic industries to produce goods formerly imported from the United Kingdom is, in any case, inevitable. The transition can be eased, however, and developments kept within sound lines if the British industries concerned will agree to participate in this development. By so doing they will acquire an equity interest in the supply of markets which they formerly supplied directly with goods. And they will contribute towards increased exports of capital goods and the maximisation of income from foreign investments and invisible exports.

(xvi) There is also the possibility of assisting in the organisation of efficient trading companies to handle the export produce of foreign countries which import or wish to import British goods. This represents a logical attempt to bring the efficiency of foreign countries in the disposal of their produce up to the level achieved by the sales organisations of large British manufacturers in export markets, and would alleviate some of the difficulties caused by the development of the latter unilaterally. Large industrial exporters, who would profit by an acceleration in the development of some foreign market, might participate with financial interests, merchant interests and the government of the country concerned to set up a trading company to improve the marketing of the principal export products of the country in question. A few foreign countries are already moving in this direction on their own account, but their efforts would be immeasurably strengthened by assistance from this country.

(xvii) Smaller firms should consider the advantages of trading with certain predetermined territories through the machinery of a special *consortium* in alliance with the resources of merchant and merchant banking houses. Where the resources available for trade development are limited, they can be more efficiently applied if they are pooled and allied to the special knowledge of local conditions possessed by a merchant house. Merchant houses, in addition, often have local funds to invest which might be made available for the purpose of granting credit to consumers. Such *consortia* are particularly suitable as a means of developing trade in complementary or non-competitive goods, but can also be applied to competitive goods, and might include foreign firms as well. The idea is not a new one, and is in a

sense a development out of the increasing use of merchant-agencies. These also should be encouraged.

(xviii) Any improvement in the organisation of trading machinery can only come from within—by the constructive efforts of British industry and of British financial and commercial institutions. The accumulated experience of the merchant houses is the foundation on which any new type of organisation would have to be built.

Problems of Export Sales Efficiency

In the last two chapters we have been concerned with the wider and more general aspects of the mechanism of international trade, namely, the arrangements made between governments and between industries for the purpose of regulating broadly the conditions under which trade is carried on. In the event, however, since trade is conducted between individuals or individual firms, the efficiency with which the international exchange of commodities takes place depends also upon the efficiency with which individual contacts are organised. Just as the domestic structure of industry and industrial sales organisation is subject to evolution, so changes occur in the background of international trade which require changes in the sales technique of individual firms, if their efficiency as importers or exporters is to be preserved. Furthermore, in a great number of countries, internal conditions are to-day subject to continuous changes, so that the achievement of efficiency in selling abroad, which frequently means ability of adaptation to market conditions, is a more difficult problem of business administration for the average firm than the maintenance of the efficiency of its sales organisation at home. Even when allowance has been made for these difficulties, the conclusion is reached that there is an outstanding lack of knowledge of foreign markets in British industry as a whole. Such knowledge must embrace more than mere facility in keeping in touch with market conditions abroad; it must include a wider understanding of political, economic and social trends and aspirations if trading methods are to be developed to serve foreign markets with the fullest efficiency in the long period.

The Danger of Indifference to Export Markets

British export methods have, in fact, failed sadly to adapt themselves to the changing conditions of modern international trade. Possibly because the manufacturer's old methods based largely upon the merchant house which offered him "export without tears"—were so successful in their own time there was a certain reluctance to abandon them. Where new and successful methods have been substituted for certain functions of the older system, other vital complementary functions of the older system have been allowed to fall into decay. And there is even a tendency, by no means negligible, on account of the increasing complexity and difficulty of export trade, to abandon export markets altogether and concentrate upon satisfying domestic demand. This attitude, which is scarcely less than deplorable from the point of view of the national interest, has arisen from a number of factors. The growing consumption capacity of the British home market, protected as it now is by tariffs, has, during the past five years, provided an easy outlet for many manufacturing industries with the certainty of large profits. At the present time, an additional demand on account of the rearmament programme has been superimposed upon a

demand already expanding rapidly with the rising standard of living. Many manufacturers—although there are conspicuous exceptions—with this easy and profitable market at their door, have preferred to take a short view. Such attention as is being given to overseas markets, often tends to be devoted exclusively to Empire markets where ties of language and currency exist and where many goods enjoy preferential tariff treatment.

Most United Kingdom firms can, without difficulty, fill their works to capacity with orders from the home market which yield a high margin of profit. While this is so, why should they trouble to look for orders abroad in circumstances in which the barriers to easy trading, in the shape of tariffs, quotas and exchange restrictions, are more formidable than ever before, and when the profit obtainable in export business is nearly always smaller than the profit to be made in domestic business? From the short view, which looks only at immediate financial results, manufacturers who take this line may appear to be serving their own best interests. But it is doubtful whether they are really serving even their own best interests, taking a longer and broader view, and even more doubtful whether they are on any criterion serving the national good. For the achievement of a progressively rising standard of living, Great Britain must import increasing quantities of materials which cannot be produced at home. To do so involves the building up of larger claims on the countries which produce them, and the principal method of doing this is to export British goods. Viewed from the purely selfish standpoint of the individual manufacturer also, concentration on the home market, even though it maximises present profits, has disquieting implications over the long period. The home market can hardly continue to expand at the rate shown in the past five years; certain aspects of the home market expansion, such as activity engendered by rearmament, are of necessity transitory. It may even be that a setback to the expansion of home consumption, arising out of the mounting cost of living, is much nearer than is commonly anticipated. In such circumstances, the manufacturer would be forced in his own interest to look elsewhere than to Great Britain for consumption outlets to enable him to expand and even to maintain his turnover. Alternative outlets will have to be found abroad. But the neglect of export business at the present time must result in a loss of goodwill among potential customers abroad, which may not seem to be a matter for serious concern now, but which would be of incalculable importance at some later date. The maintenance of an active overseas business at present, even though it may involve a loss of potential profits now, in fact represents a prudent investment—an insurance premium against a less easy state of affairs in the home market in years to come.

Some manufacturers have seen this danger and are endeavouring to provide for it, while members of the government have frequently of late stressed the importance of a flourishing export trade. At the same time, it must be recognised that insistence by the government on the priority of armament construction is hindering production for export by firms which have realised the importance of maintaining export contacts, even if they are firms not directly engaged on armament orders.

Owing to this failure to appreciate the long period necessity of maintaining an active export trade, even the existing machinery of foreign trade is being neglected. At the same time, the mechanism itself is becoming obsolete as a result of radical changes in the struc-

ture of industry and trade and the requirements of consumers the world over. British export technique is in fact in a transitional stage. British export trade was built up during a period when trade was fairly free, population and the demand for imported commodities in Great Britain were growing together, overseas territories were being opened up by capital exports and emigration and the multiplication and diversification of the commodities entering into international trade had not, by modern standards, proceeded very far.

The Functions of Merchant Houses

The merchant house played a large part in the handling of trade during this period. Consumers abroad were not apt to discriminate overmuch, as the range of choice was restricted and "British made" was a hall mark of quality and durability which counted for a great deal in overseas markets as long as Great Britain retained her lead as the pioneer of large-scale manufacture. In many cases the British merchant house relieved the British manufacturer of all responsibility for keeping in touch with his overseas markets or for marketing his products abroad and increased the marketability of his goods by adding to them its own name, which carried considerable goodwill. The merchant, in other words, situated in, say, London, Manchester, or Liverpool, bought direct from the British manufacturer such lines of goods as his experience told him were likely to sell well in foreign markets. These goods he then shipped and sold to importers or distributors in the consuming country. In most cases he repatriated a large part of his proceeds to the United Kingdom by buying and importing for home consumption the produce of the country in which he made his export sales, and did a variety of other business as well, such as transactions in foreign exchange, forwarding and insurance broking. In this way he performed a vital function in marrying export and import transactions, thus keeping trade moving and facilitating the circulation and liquidity of funds invested in trade. His outlook was essentially opportunist, and he customarily made two profits—one on export, the other on import transactions. Moreover, he also facilitated the growth of multilateral trade, since many merchant houses bought wherever they could and sold in a wide range of industrial countries the primary produce which they handled from overseas. And since they were in close touch with the unrivalled facilities of London banking and finance, they brought the cheapest possible means of trading within reach of the world's manufacturers and primary producers.

Merchant houses have, generally speaking, been of two main types, though the distinction has often been blurred in practice. One type has operated mainly from British ports or manufacturing centres as exporters of British manufactured goods to importers in the consuming country. The second type has performed a more elaborate function. Many merchant houses, in addition to acting as exporters of British goods, have functioned as importers in the country of consumption, frequently having become domiciled there. Such firms have in consequence invested the major part of their capital in maintaining distributive organisations abroad. They became intimately connected with the markets in which they sold, and collected a vast volume of commercial intelligence which has been, in fact, the major asset of their business. In many cases, they came to act in course of time not entirely as principals, but handled goods on behalf of British manufacturers in

the capacity of merchant agents, providing the distributive machinery, and bearing only part of the selling risk, or perhaps none of it. Such firms obviously acquired a much more detailed and intimate knowledge of the markets with which they dealt, and a larger financial stake there than the houses which operated mainly from a British port. The names of some of these great firms—Jardine Matheson and Butterfield and Swire, in the Far East; Ralli Bros., in India; Guthrie's, in Malaya; Anthony Gibbs and Duncan Fox, in South America—will always be associated with the commercial development of certain regions. In some cases, and especially in some of the British Colonies, British merchant houses for many years practically dominated the economic life of the territory.

The Decline of Merchant Business

Since the war, and perhaps even before it, the British export business of the merchant houses has been declining from a number of causes. The decline has, generally speaking, made even greater difficulties for those firms which have operated mainly from the United Kingdom than for those with a large stake in their principal markets.

Formerly export goods consisted for the most part of ready-made goods and manufactures for immediate consumption. Since the war, the proportionate importance of exports of machinery and intermediate products for rising industries abroad has increased considerably; these goods require servicing and technical sales knowledge which merchants rarely possessed or could afford to supply. The growth in the importance of technical products, which require specialised selling, has not, moreover, been confined to the market for capital goods, but has affected consumption goods as well. Merchant houses have failed, for the most part, to keep pace with these changes in the requirements of markets, and have in course of time been able to render less and less satisfactory service to the exporting manufacturer. In the market for consumption goods, merchants have often supposed in the past that their interests lay in the diversification of typical lines and sources of supply, and imposing their own "chops" on the products which they sold. In some industries, accusations have been raised against them that they deliberately encouraged the ignorance of British manufacturers concerning conditions abroad. They have, therefore, suffered from the competition of the bulk selling methods of other exporting countries and from the natural desire of British manufacturers to do the same. But it is equally true to say that in other cases merchants have made strenuous efforts to get manufacturers interested in their foreign markets and to co-operate in their development without arousing much response. Some merchant houses with branches abroad have also endeavoured, with some success, to adapt their organisations to handling sales of technical products. They have, for instance, taken the decision to specialise and have engaged technical staff, or have worked out schemes for the interchange of staff with manufacturers, the additional expenses being shared. In this sense, there has been a growing tendency towards the reorganisation of merchant houses as merchant agencies capable of giving technical service in specialised lines of goods. This is a healthy development which is making for more efficient trading. But it is also a tacit admission that the old methods of merchant trading are out of date.

In effect, the merchant houses have been caught between two fires. If they did well and succeeded in developing a growing market for the products which they handled, the

manufacturers became interested and, casting covetous eyes on merchants' profits, began to take over the distributive function for themselves. This is a fate to which all pioneers are subject, whether in trade development, or in invention. If, on the other hand, they proved inefficient salesmen, either through the increasing technical exigencies of the market, or for other causes, there was a strong incentive to the manufacturer to try to do better on his own account.

The Growth of Direct Selling by Manufacturers

Hence, the large exporting manufacturer—and only the largest firms possess the necessary financial, technical and administrative resources—has come increasingly to organise his own export sales and to build up an elaborate distribution system under his own control, in order to reap the advantages of bulk selling and standardisation, and to permit the adoption of long-term programmes of market development. In so doing, some British manufacturers have continued, at any rate for a time, to use the accumulated resources of knowledge and organisation of British merchant houses established abroad, which built up and still possess a fairly elaborate importing organisation in the country which they serve. But in the process, the merchant has tended to become more and more subordinated to the manufacturer, so that in many cases he acts in effect, if not in name, as the local distributing agent of the manufacturer. This, of course, is an inevitable feature of the transition of the old merchant house into a merchant agency.

Competition from Abroad

The second cause of the decline of the merchant house has been the competition of the more modern and efficient merchanting organisations of other countries, such as Japan, and the growth not only of local industries abroad, but also of local importing firms of growing strength supported by local finance. In the first case, British merchants have too often been content to remain in the seaports, leaving the development of the interior to the domestic firms with which they dealt, while the selling organisations of other countries, particularly Japan, have appreciated the necessity of direct contact in even the most remote districts. Those British firms which have appreciated the necessity of preserving a close touch with the market through the distributive trade have been much the most successful in keeping business.

The development of local industries and local importing firms is, in a sense, the inevitable consequence of politico-economic development. The effects are that an increasing volume of import purchases by foreign firms is being made direct from the British manufacturer instead of through the agency of a British merchant house, and that local importers are being supported by local finance instead of British finance. At the same time, the merchant houses have lost part of their local financial business—partly to local banks and partly owing to the course of development of the banking system in this country. In the early days of commercial development, merchanting and banking were so closely allied as to be almost indistinguishable. In course of time, increasing specialisation has resulted in a steady loss of financial business by the merchants to banking institutions. At the same time, the development of State banks and locally-owned banks in countries which were formerly dependent on British finance has affected the financial business of British

merchants and merchant banks alike. Much the same development has occurred in the insurance business.

In so far as British merchant houses have suffered from the competition of local firms, trade is not being lost by the merchant profession as a whole, but British merchants are playing a smaller part in the profession in course of time. All types of merchant houses have suffered from this development, but the export merchant operating from the United Kingdom has been much more vulnerable to it than British merchant houses domiciled abroad.

The third, and possibly the most drastic cause of the decline of merchant house business, has been the growth of impediments to two-way trade arising from a number of causes. We have already seen that merchants are particularly dependent upon two-way trade and upon keeping their funds mobile. But serious interference has occurred in the past decade with the conduct of two-way trade. The most important factors affecting merchant businesses have been the general growth of exchange restrictions and the decline of multilateral trade from a variety of causes analysed in Chapter II, resulting in the freezing of merchant balances abroad and the shrinkage of the ancillary business on which merchant houses depended; the growth of one-way export selling by large British manufacturers which has not only deprived the merchant house of business, but has also helped to aggravate exchange difficulties in the importing country with adverse reactions on the remaining merchant business; and the growth of protection in Great Britain—the exporting country—which makes it more difficult to import goods in return.

The Growth of State Trading

The scope of merchant business has been still further restricted by the growth abroad of Government control of the export trade in primary products. State trading is by no means confined to Russia, but has been extending over the commodity trade of many countries. New Zealand, for instance, has instituted State control of the export of dairy produce, although the London end of the trade is still handled by independent importers in London, working in co-operation with the New Zealand Government. Measures of this sort are not merely slump expedients, but part of a permanent policy of State capitalism which is likely to be extended.

Similar tendencies are visible in a number of countries of which, perhaps, Turkey, Iran and even, to some extent, Egypt, are the most notable examples. There has also been a tendency to establish such control on a more permanent commercial basis by decentralisation. Even Russia is transferring responsibility for trade transactions from the State merchant houses abroad (e.g. Arcos and Amtorg) to the various industrial trusts at home. Some smaller countries are moving in the direction of trading through partially State-owned limited companies, rather than official government organisations. The foreign exchange resulting from government export transactions is often retained by the governments for their own needs, and is frequently used for purposes which could not be described as productive.

The commercial efficiency of such government organisations is often visibly less than that of the private institutions which they have supplanted, and for this reason it is often the opinion of the commercial community that they cannot last. It should, however, be

remembered that when a government enters commerce, either directly or indirectly, the commercial incentive is not always uppermost, and social or political considerations may be stronger. Hence the success or failure of these institutions is not likely to be judged by their originators according to the same standards that would apply to a commercial business. In extreme cases, government control of trading may be consciously used to produce an entirely different result to that obtaining under free commercial operation. The foreign trade of Greenland, for instance, has been under government control for upwards of 150 years, and the relative levels of prices of various imported goods have been so regulated, for social reasons, that they are quite different from the scale of values obtaining in the outside world.

These developments, coming on top of the commercial losses which many merchant houses suffered from the collapse of commodity prices and the drastic decline in the total volume of trade in the early part of the slump, have shaken the foundations of merchant business.

From the point of view of the smaller manufacturer, the declining efficiency and importance of the merchant machinery in modern conditions in the conduct of international trade is creating a serious gap. The larger firm has been able to solve its own immediate problems by setting up its own sales organisation abroad, thus contributing further to the decline of merchant business and giving rise to certain tendencies which, from the national viewpoint, are very dangerous, as will be explained later.

The Agency System

For the smaller manufacturer, the alternative method is available of conducting export business through agents, but this system also is open to a number of powerful objections. British manufacturers have generally, during the last decade, made more use of the agency system than most of their foreign competitors. Agents have often been utilised to handle products of which the sale is too specialised or intermittent to be satisfactorily undertaken by merchants, and by firms which are too small or are insufficiently involved in a particular market to justify the maintenance of a directly controlled foreign sales organisation of their own. If a manufacturer, or a group of manufacturers of complementary products, can find an agent with satisfactory technical qualifications and plenty of business initiative, and can succeed in working out satisfactory arrangements for maintaining contact and giving rapid service, the agency system can work well. But in general, the system suffers from many disadvantages, particularly in the matter of personnel. It is in the first place extremely difficult for a small British manufacturer to get into touch with a satisfactory agent abroad. He must usually rely on the advice or recommendation of someone else. The Department of Overseas Trade is prepared to help in this respect, but even so, it is extremely difficult at a distance to make a satisfactory choice, and having made a choice, to maintain satisfactory contact. It is seldom possible for an agent in a foreign country to acquire a wholly adequate technical knowledge of the product which he is selling and which would normally be possessed by the home sales organisation. Owing to political factors, the agent frequently has to be chosen from among nationals of the country, and the language difficulty, especially in the case of service instructions, must, consequently, not be overlooked. In the second place, the manufac-

turer is entirely reliant upon his agent, about whom he may know next to nothing except by hearsay, for advice on marketing problems and requirements abroad. In short, anything which the agent cares to report must be taken on trust, and the manufacturer has no satisfactory means of assessing the reliability of his agent. Moreover, since most agents are compelled, in order to make a living, to take up agencies on behalf of a number of manufacturers whose goods are not necessarily complementary, and may even be competitive, the products of any one manufacturer are not receiving the undivided attention of the agent. Indeed, it is difficult for the manufacturer to know what proportion of the agent's time and attention he is commanding at all.

These difficulties can, of course, be reduced if sufficient attention is given to the problem. Something can be done by the arrangement of regular visits by agents to this country, or visits abroad by members of the home firm. Some firms have made a conspicuous success of the agency system by attention to this point. Similarly, if the agent is kept fully informed of the general policy which the firm wishes to pursue, and prompt attention is paid to his reports and requests, his confidence as a salesman will be increased and an efficient basis for selling can be achieved. Special attention needs also to be given to such questions as the length of credit given by agents to customers, and arrangements for supplying service or filling replacement orders promptly. Difficulties over credits can be greatly reduced if competitors can agree not to use this method of undercutting one another, but to adopt the same practices. Few agents are persons of sufficient substance to assume much of the selling risk themselves, or to be able to hold adequate stocks, although this class has been growing in recent years. When an agent's business becomes large and is able to carry stocks and employ sub-agents, the dividing line between his functions and the functions of a merchant running an agency business if not very distinct.

Satisfactory organisation of such details as these can make the agency system an efficient method of trading in certain goods. But as a general system, it is not foolproof, and the building up of satisfactory arrangements regarding selling methods, the maintenance of stocks and sub-agencies, the preservation of contacts with customers, credit terms, etc., must be the subject of constant care and attention.

Current Problems of Export Organisation

The following position therefore exists as regards the state of export organisation:—The old merchant system has been breaking down, partly from the inevitable effects of the growing complexity of trade, but partly from hindrances to that mobility of funds which is essential to the successful conduct of a merchant business. Large firms have solved the problem of foreign marketing, fairly satisfactorily from their own point of view, by adopting direct selling through marketing organisations abroad under their own control. Many small firms, unable to bear the cost of direct selling, are continuing to conduct their business through agents—a method which, unless carefully organised, is not a very satisfactory method of trading.

Viewed from a wider angle, the effects of these changes are most disquieting. It is axiomatic that the ability of foreign customers to buy British goods is dependent upon their ability to sell their own produce and services, if not to United Kingdom importers, at any

rate in some free world market. The merchants, who were essentially opportunists, were always willing to conduct two-way trade—in fact they were dependent upon it. In so doing, they were serving not only their own interests, but the interests of British export trade in general by helping customers to sell, and thereby providing them with funds to make more purchases from the United Kingdom. Neither the overseas sales organisations of large manufacturing firms, nor the agents who represent small manufacturers are interested in two-way trade. This would not be so serious if the foreign sales organisations of large British firms confined their attention to the marketing of their own manufactures; but they do not.

The Economic Results of Direct Selling

Overseas sales organisations of manufacturers are often characterised by merchants as uneconomic in the sense that they often sell at prices below those which merchants can achieve and even sometimes in the opinion of merchants, "below cost." The essentially long-term investment aspects of such organisations should, however, be recognised as compared with the tendency of merchants to emphasise the importance of a rapid turnover of capital. An overseas sales organisation is usually set up in a territory in accordance with a long-term programme of development. In consequence, the original structure is often larger than the current volume of trade alone would justify, and is not at first self-supporting, so that its fixed costs have to be borne for a number of years by the parent firm. It must be judged as a long-term investment, since the immediate results may be disappointing. Firms which are prepared to set up and maintain an elaborate and efficient sales organisation overseas cannot be condemned *ex hypothesi*. Nevertheless, it must be recognised that some of the indirect consequences of highly-organised export trade by these means are disquieting.

In the first place, the large specialised export organisation is often converted at an early date into a general export trading company. The incentive to do this arises from the fact that the costs of maintaining an elaborate export organisation cannot usually be covered for some years by the profit on the sales of a limited line of products alone. Large manufacturing firms are usually well equipped to extend their export business in this way. They are compelled to maintain large purchasing departments in this country in order to supply their own varied requirements of a miscellaneous assortment of materials ancillary to their main products. Moreover, the larger the quantity of these materials that the purchasing department is able to buy, the lower is likely to be the price per unit and the lower, therefore, the cost of production of the main products of the firm. If the firm maintains a large export sales organisation, the purchasing department will in fact often be able to buy materials surplus to its own requirements and sell the surplus abroad at a profit, thus contributing to a reduction of the firm's own cost of production and helping to cover the fixed costs of the export organisation. In effect, therefore, the large manufacturing firms are encroaching increasingly upon one function of the merchant house—general export business in British manufactures. But they almost invariably fail to adopt the other vital function of merchant business—the function of keeping trade mobile and liquid by making purchases of foreign produce in return. And although unwilling to adopt this function themselves, they are making it increasingly difficult for the merchant to

continue to perform it, by depriving him of part of his export turnover. An organic development of the policy of large concerns with overseas branches or subsidiaries engaging in merchandising other people's goods, which they may themselves buy for their own use to some extent, has been the clearly pronounced tendency to take on agencies, with the object both of reducing their own overheads and of supplying their customers with products complementary to their own. This, of course, encroaches still further on the export business of merchants. Moreover, the merchant can seldom compete with the larger financial resources of the big firm and his profits are reduced by the higher rate of interest at which he has to carry goods in transit. Moreover, such large firms are often in a position to obtain lower shipping freights, as compared with merchant houses, for the bulk of the goods shipped by them, whether their own manufactures or not.

Isolated instances have, of course, occurred of large manufacturers making purchases abroad outside their own line of business, but they are so rare as to be exceptional, and are quite outweighed by the volume of export business conducted by them in lines outside their own range of manufactures. It is important that these firms should realise that they cannot usurp one function of the merchant house without the other, and hope, at the same time, to retain the same goodwill as did the merchants.

Merchant Houses and Local Development

The decline of merchant business through these and other causes has had the serious effect of driving many old merchant firms out of business, and of forcing others to look elsewhere for the profitable employment of their resources. These resources comprise funds, a proportion of which is locked up in foreign countries, and an accumulated wealth of knowledge and experience of the economic and psychological conditions and requirements of the markets in which they operate. This experience, together with the experience of the acceptance houses, has, in the past, represented the overseas intelligence service of British manufacturers, and its dissipation through lack of patronage would be a very serious loss to the country. But in the present circumstances, it is gradually being dissipated. In so far as the merchant houses are attempting to maintain themselves by a reorientation of their activities, they are mostly turning to local industry or agriculture as an outlet for their resources and, in effect, are ceasing to perform the functions of merchants. In many cases, this represents a somewhat desperate speculation from the point of view of the merchants themselves. But in so far as it is successful, it may mean that the accumulated experience which the merchant houses possess is being used to foster industries which enter into direct competition with United Kingdom export trades. This is not so, of course, where merchants are entering local primary production. As has been indicated in an earlier chapter, moreover, the development of local industries is not necessarily undesirable, and to attempt to prevent it may merely be to attempt to put back the clock of economic progress. A better job can be made of local development, however, if it is undertaken in conjunction with, and with the co-operation of, the British manufacturers likely to be most intimately concerned.

Any plan or policy for the improvement of British export technique, therefore, must take into consideration the following factors. The decline of the merchant house threatens to destroy a valuable accumulation of experience of overseas market conditions which

ought to be preserved and put at the disposal of British exporting firms in a way in which they can use it. The increased activities of the export branches of the large manufacturing firms are not, all things considered, providing a complete or adequate substitute for the former functions of merchants, though their efficiency as sales organisations cannot be seriously questioned. The agency system does not meet adequately the requirements of the smaller manufacturer whose needs are not, in fact, adequately met by any form of export organisation at present available to him. The growth of local industries and local merchanting and financial institutions is an inevitable feature of economic development which must be allowed for and co-ordinated in any plan.

Export Methods of Foreign Countries

In formulating future policy, attention must also be paid to the export methods of other countries which come into competition with our own. The principal features of foreign export methods may be examined under the headings of organisation, personnel and credit policy. In organisation, most foreign firms have not developed the agency system to the extent of British manufacturers, but have concentrated more on direct selling and direct representation. At the same time, they have developed to a much greater extent the system of joint representation. It is no uncommon thing for continental firms producing complementary or even competitive goods to combine for the purpose of securing export contracts, where British firms would usually adopt the much more expensive and less forceful method of making separate tenders or sending out separate representatives or agents. This tendency is particularly noticeable in the sale of capital goods. Quite apart from the classical cases of Mitsui and Mitsubishi, which each supply not only an amazingly wide range of goods, but also banking and shipping facilities (and are incidentally buyers of a variety of commodities), the combined activities of a number of German steel and machinery firms—such as Ferrostahl, Stahlunion, Guttehoffnungshütte, Bismarkshütte—with electrical firms like Siemens Schuckert, in a number of individual markets has been most effective. Competing American firms have also on certain occasions in recent years agreed to pool their resources in limited areas—for instance, in certain Near Eastern and South American markets for agricultural machinery—and to adopt the same terms of business. It may also be of interest to note that one branch of British industry —textile machinery—has sometimes co-operated with electrical firms in joint representation and for visits to foreign markets, with extremely satisfactory results.

The Export of Experts

Many foreign businesses benefit as compared with British businesses from the maintenance of a much more active service of direct representatives abroad. In some cases this is due to the fact that poor prospects of remuneration and employment at home act as an incentive to individuals with first-rate qualifications to seek better conditions of work abroad. Owing to the high standard of living in the United Kingdom, this incentive is far weaker where British export trade is concerned. Moreover, unwillingness to serve abroad is, on the whole, increasing as a result of the experiences during the depression of many British subjects working in foreign countries. As the economic situation grew worse, many became stranded and had great difficulty in finding alternative jobs in the United Kingdom. Furthermore, foreign governments have frequently applied pressure to local

organisations which are not run by their own nationals. It is not without significance in this connection that in the last few years the net movement of migrant population in Great Britain has been inwards instead of outwards.

The existence of an adequate supply of trained men willing to serve abroad has obviously a directly beneficial influence on the efficiency of overseas trade organisation. It has, moreover, an important indirect effect to the extent that nationals serving abroad, particularly in backward areas, are capable of influencing public demand, often unconsciously, in favour of the export trades of their own country. A flourishing export trade in goods is therefore assisted in more ways than one by a flourishing export trade in experts. At the present time, altogether insufficient attention is given to the training of personnel for service abroad, nor is the remuneration offered in most cases likely to attract men of first-class qualifications. Recently, however, the newly constituted Institute of Export has been tackling the problem of training export personnel. Although, as regards independent technical consulting services, the standard reached in the United Kingdom is far ahead of anything that other countries have been able to produce, British export industries have been less well served in the supply of technicians for continuous service abroad.

Credit Conditions

One other respect in which competition is felt from foreign firms is in the matter of credits to customers. Such credit may be given directly or it may be given effectively by a number of indirect methods. In many cases the length of credit granted, for instance, on consumers' goods has grown to the point where it cannot be justified on any economic grounds. It would be regrettable if British exporters were to attempt to meet this competition by similar practices. The ability of continental firms to grant extended credit arises usually from the fact that they are heavily subsidised by governments anxious to increase exports at any cost and acquire foreign exchange, Germany and Italy being the most conspicuous examples. It is questionable whether this practice can be maintained without incurring serious losses, which is the best argument against attempting to copy it. The fate of some of the post-war loans by the United States in South America and elsewhere provide an object lesson on a large scale of the consequence of allowing excessive credit for purchases of consumers' goods. But in some cases, it may be necessary to conclude agreements among exporters in order to ensure that the pressure of this kind of uneconomic price-cutting does not demoralise British practices.

Local Colour

Owing to more direct representation, the backing of more active government services and, perhaps more than anything, receptiveness to local colour, continental and American firms are generally far better informed than British manufacturers on the requirements of local taste and psychology, consumer preferences and customs, and local transport peculiarities, which must materially affect not merely the nature of the goods offered, but also the methods by which they are presented. British overseas trade has been conducted in the past too much, as it were, in the English Club, in the seaports and with a "take it or leave it" attitude to the "dagoes" who are the inhabitants of the country and the customers of British trade. Individual instances of failure on the part of British manu-

facturers to meet local requirements occur almost daily. Most of these are relatively trivial, but they typify an ignorance of, and lack of contact with, foreign markets which are symptomatic of fundamental shortcomings. One firm was found to be making a commendable effort to maintain statistical evidence of consumption trends in Central Europe, but has unfortunately, ever since the War, been adding together the import statistics of Austria and Hungary in the belief that the resulting total would continue the series collected for the Austro-Hungarian Empire prior to 1914. Numerous cases have been reported of goods despatched to remote markets in packages quite unfitted to withstand the exigencies of the local climate and local transport conditions; of goods offered under trade marks which were highly offensive to the religious feelings of the country in which they were sold; of other goods selling in Asia Minor under a British trade name which rendered phonetically represented a word in the vernacular seldom mentionable even in a Near-Eastern bazaar. One prominent British manufacturer, not long ago, in response to a request from his agents in Germany for sales literature, sent large quantities of leaflets in English which had been originally got out for the home market and were heavily headed with patriotic recommendations to "Buy British." It is only by accident that such mistakes are revealed, but their effects on local goodwill are apt to be disturbing, especially where the psychology of the consumer is primitive. They can be avoided only if the manufacturer sets out to avoid complete ignorance of the customs, peculiarities and preferences of the markets which he is trying to serve. In case it should be thought that such matters are of too little importance to merit much attention, it may be pointed out that the greatest potential markets of the future lie among the large percentage of the world's population where the standard of living is low and a primitive psychology is the rule rather than the exception.

Consumption Trends in World Markets

Moreover, over the world as a whole, the requirements of consumers are becoming more exacting and need a corresponding increase in the intensity of sales methods employed to meet them. The consumer becomes more discriminating in the matter of the quality of the goods offered to him as his standard of living rises and as his range of choice increases with increased competition in world markets arising from the spread of manufacturing industry. He also demands adequate stocks from which to make his choice, or channels whereby he can communicate his particular wants to the manufacturer. He also wants efficient ancillary services such as credit and the prompt execution of repeat orders. Above all, the foreign consumer must nowadays be approached in his own language, and prices and measurements must be quoted in currencies and standards which he is accustomed to use or can easily understand.

The Importance of Goodwill

In short, the rise in the average standard of living and education the world over and the spread of manufacturing industry is slowly transforming the world market from the "sellers' market" of the nineteenth century into a "buyers' market" in the case of finished goods. The old methods of export selling are, accordingly, not good enough, and exporters who wish to maintain their position in world markets must make more intensive efforts to

meet the more exacting requirements of the modern consumer. Many of these factors are fundamental results of economic growth, and though they may have been stimulated by the depression, were probably inevitable in any case. The conclusion to be drawn is, therefore, that goodwill must be cultivated at all times, irrespective of booms and slumps.

In the present state of export organisation, the difficulties which face the average small manufacturer in surmounting these obstacles are enormous. When, in addition, he is faced with other impediments to trade and to the repatriation of the proceeds of his foreign sales in the shape of import and exchange restrictions it is not altogether surprising that he should prefer to concentrate on the home market. From the national point of view this attitude is extremely dangerous. As the inevitable process of development of local industries abroad continues to eat into British export trade in the traditional staple exports, it is imperative that new lines should be developed. The industries capable of supplying new lines are usually the newer industries, and most of them are generally composed of small firms which, for the moment, have an easy and plentiful market at their doors. Concentration upon producing the best financial results in the short period leads to concentration of sales activities in the home market and the neglect of the more difficult export market. If any attention is paid at all to overseas trade, it is directed to Empire markets where ties of language and currency make trade relatively easy to conduct and where profits are good and a large part of the market is protected by preferential tariffs. Apart from the damage to national interests inherent in this attitude, long-period considerations should show that prosperity and expansion in the home market may not endure indefinitely, and that at some future date the development of export markets may become an urgent necessity. In these circumstances, the devotion of a minimum of attention to overseas markets, even though it may prevent the maximisation of profits in the short period, would seem to be an act of ordinary commercial prudence on the part of industrialists. There was a time in 1930 and 1931 when considerable efforts were being made to develop overseas markets by British manufacturers, but with the return of prosperity at home and the increasing pressure of rearmament, these efforts are being abandoned by many firms. It is time that they were resumed. But it cannot be expected that manufacturers, and especially small manufacturers, who are already well employed at home, will pay serious attention to export markets unless the machinery of exporting can be made to work more easily and efficiently. Moreover, the small manufacturer is, of all members of industry, the least well served by the present machinery, whereas in the national interest, it is the small firms in the newer industries which particularly need every encouragement to export, in order that the vitality of British export trade shall be maintained and improved by continued diversification and development.

Helping Customers to Sell

Many large firms have already realised that the requirements of world markets have become more exacting, and have, as already mentioned, adopted intensive methods of sales organisation in an admirable attempt to improve distributive efficiency. But it must be realised that the presentation of goods in their most attractive form at the lowest possible price will avail little if the consumer has not sufficient purchasing power to buy them. And the amount of purchasing power which is possessed by the consumer is

directly dependent upon his ability to dispose of his own goods in world markets. When, therefore, British manufacturers have organised export sales branches with the maximum efficiency, they have only gone half way towards the establishment of a flourishing export trade; it is in their own interests to go further and to assist their customers in turn to sell their own produce. This function was performed automatically in the past by merchant houses whose interests were, and still are, in two-way and multilateral trade. In encroaching increasingly upon the export side of merchant business, large firms have considerably weakened the effectiveness of merchant houses in performing this function—these have suffered also from other general causes outlined earlier—but have not provided a complete substitute.

The difficulties of devising adequate new machinery, on the basis of the old, to meet the varied and sometimes very different requirements of all types of exporting manufacturers, large and small, in the face of modern conditions, are bound to be great. The following suggestions are intended to indicate ways in which progress can be made, utilising the export experience and other assets which have accumulated in the past.

The incentive to British exporters to assist their customers to sell, for motives of their own self-interest, must be broadly interpreted in terms of British export trade as a whole.

British manufacturing firms, however large, may well meet with serious difficulties in attempting to do so directly, that is to say, by taking the produce of their customers and themselves disposing of it on world markets in the manner of merchant houses. They are probably better able to do this than many foreign manufacturers who have attempted it, in view of the scope of their own selling organisations. If, moreover, they are able to undertake the merchanting on the export side of British goods which they do not themselves produce, it might be thought that the extension of the same technique to the merchanting of the products of their principal customers would not present insuperable difficulties. Nevertheless, they have always been reluctant to pursue to its logical conclusion the displacement of merchants which they have already effected on the export side of the trade. The existing selling organisations of manufacturers are, in fact, highly specialised for one-way selling purposes. For the handling of return trade, additional machinery would probably need to be created. And the extension of operations to the merchanting of miscellaneous products originating abroad might well antagonise important customers of the parent firm in the United Kingdom.

Participation in Foreign Development

Much, however, can be done indirectly. British firms can, for instance, help themselves and their customers by assisting the legitimate economic aspirations of foreign countries, instead of deprecating them. It is true that the development of domestic industries to produce staple goods which were formerly imported from Great Britain may take place at the expense of British exports of these goods. But the point to remember is that such development is taking place already, and cannot be prevented, but the adverse effect on British industry can be minimised if by active co-operation development abroad can be harmonised with British export policy. It is never more important than in connection with such developments, that British export trade should be considered in its

widest possible meaning. If the growth of foreign industries is allowed to proceed, as it otherwise will unless careful attention is paid to the question, without the assistance of British finance, capital equipment and technical skill, the present export trade in certain lines of goods will be lost to British firms in the markets in question without any compensating advantage. If, on the other hand, manufacturing industries abroad are assisted to grow on sound lines with active participation by United Kingdom manufacturers, the inevitable decline in the export of goods from the United Kingdom should be compensated for by increasing invisible exports in the shape of receipts of profits and should be accompanied by increasing exports of capital and other specialised goods. Moreover, if the situation is subject to control in this manner, the transition in British export policy should be made much easier.

Certain firms have already gone to some lengths in this process, though it has been a much more notable feature of economic development in the British Dominions—where the financial return has often been handsome—than in foreign countries. Some firms have, however, entered foreign markets on this basis—notably in the United States, and the more important continental countries such as Germany.

It is true that the enterprise of British firms in setting up foreign subsidiaries has not always been rewarded. Some of the plants which were set up just before the depression got into difficulties owing to trade and exchange restrictions before they were properly established. Such experiences will inevitably make British manufacturers more cautious in their attitude in future, but they do not affect the validity of the principle.

Trading Companies for Marketing Overseas Produce

The second suggestion concerns the possibility of setting up trading companies for the purpose of assisting foreign customers in the vitally important matter of selling their own produce. We have shown that the large firm, selling through its own direct sales organisation, has not the advantage of the merchant of being also an exporter from the markets to which it sells. For although the big firm will sometimes deal in lines other than its own produce, it is usually unwilling to embark on ventures in trades which it does not understand (an attitude which is entirely comprehensible), unless there is an immediate prospect of profit. In the case of exports from this country, the addition of an extra line of goods to the selling range is often made as a supplement to clinch an order in the line which the firm itself produces. The marketing of complementary products may not require much additional technical knowledge and the increased turnover will help to cover the fixed costs of maintaining an elaborate organisation. To give a purely hypothetical example, electric cable, switches and fittings might be bought for selling to foreign customers in order to strengthen a business which was concerned primarily with producing and selling electric lamp bulbs. In this case the connection is obvious. It is not so obvious, but hardly less true, that the possibilities of sales will be far more widely extended if the potential customer can be assisted to place abroad the produce of his own country.

It has already been shown that the development of overseas countries presents British exporters with many opportunities—in the first place of large orders for capital goods,

then, as the standard of living rises for better class consumer goods, and finally, as the industrialisation of the market proceeds, for industrial specialities. The suggestion made here is that facilities should be created by which the interests of the British investor, the British exporter and of the developing country can be co-ordinated to the greater profit of all parties. The possibility should be explored of collaboration between British interests, whether industrial, financial or commercial, concerned with the development of certain territories as sellers of goods and services, and the national authorities of the territories in question. Such collaboration would be directed towards the establishment of trading companies whose function would be to organise the sale of export produce of the territory in world markets. In proportion to the success of these companies, foreign exchange would become available for the development of the country on the basis of imports of British goods and services.

Such companies would fill the gap caused by the decline of merchant houses in the export organisation of less developed countries. These countries have, it is true, attempted to form export companies of their own. These tend to be somewhat crude in structure and to lack the most elementary and essential servicing capacities. But in association with the resources of the United Kingdom, they would have at their command financial assets and administrative and technical experience which they could not dream of achieving themselves for many years. The benefit to British visible and invisible exports would be obvious.

It should, however, be stressed that the aim of such trading companies would not be to put through barter deals, although it is true that they could, if necessary facilitate them. But such deals, from their bilateral nature allow of only a limited and uneconomic expansion of trade. The trading company would therefore sell not only to this country, but to any country where currency is freely negotiable, and would in this way assist the development of multilateral trade.

A Hypothetical Example

It may perhaps be easier to explain this proposal if a brief sketch is given of a hypothetical trading company as it would appear in full operation.

Utopia, let us suppose, is an undeveloped country which is known to have considerable mineral reserves in its wild and inaccessible mountains; while in the coastal region there are already native industries engaged in working up milk and honey. Financial and industrial interests in the United Kingdom would much like to develop the mineral resources. British manufacturers of, for instance, cement and railway material would be highly interested in a scheme of development as an outlet for their own products. But the Utopian Government is quite reasonably reluctant to allow the development of the country to be taken entirely out of the hands of its own nationals; while as Utopia is a poor country and the milk and honey industries find difficulty in making a satisfactory export market for themselves, development on the basis of internal capital resources must inevitably be long delayed. The British interests see the justice of the Utopian point of view but do not want to lose a valuable market; they therefore agree that the Utopians must be helped to help themselves. Accordingly a joint Anglo-Utopian Trading

Company is set up in London for the purpose of marketing Utopian produce, advising on packing and grading, providing finance against shipment and acting as a buying organisation for the capital goods needed for the Utopian development programme. While it might seem a more direct method that the joint trading company should also take an interest in the exploitation of the resources for which Utopia needs the capital goods, there are several arguments against it. First, Utopia being a weak country is psychologically opposed to foreign investment in its primary producing industries as this clashes with a strong sense of national prestige. In the second place, it is desirable for the sake of building up and maintaining goodwill, to bring Utopian nationals into direct contact with London and its methods of business and the service facilities which it can offer. The joint company would have many opportunities for trading on a multilateral basis and this would draw Utopia away from the simple concept of bilateral trading on which it has been forced to base its economy during a time of exceptional stress and depression.

The general scheme would be worked out at all times in co-operation with the Utopian Government, who are naturally only willing to allow the development of their country according to their own ideas of its best interests. The Utopian Government will probably insist on a certain measure of control of the company's operations and probably on the provision by local interests or by themselves of part of the capital and administrative staff of the company.

Such officials and technical staff as are sent to Utopia would be provided by this country and although acting, since the company is to make a profit, only in the interests of efficiency, would naturally tend to be good selling agents for the country which they know best—that is to say their own. In this way, the British industrial firms interested in the development of export trade to Utopia will be ensuring that such trade is developed on the only basis which is permanent and worth striving for—mutual goodwill and satisfaction on the part of the consumer.

Many branches of British industry and commerce would be interested in the development of Utopia and might, therefore, be expected to participate in the formation of a trading company of this sort. Large exporting manufacturers of capital and consumption goods and contracting services should have an obvious interest in any organisation which by encouraging two-way trade makes easier the task of their own selling organisations. London financial institutions should see in it a method of developing a condition of prosperity in which the investment and trade financing facilities which they provide can find an outlet with adequate security. There is also room for the British merchant firm which has been struggling in the face of increased international difficulties and increasing competition in the import trade from the direct selling activities of large British manufacturers, to maintain a reasonable trade in selling Utopian export produce. In so far as commodity markets have grown in complexity and already compelled merchant houses to specialise in order to maintain a satisfactory standard of service, the participation of merchant houses in any such trading company would, in fact, be essential.

There are obviously great practical difficulties in the organisation of a company of this size and of such complexity. For a beginning, it would have to be not only on a

small scale, but might possibly have to be limited to an organisation created for the purpose of financing a particular large contract or group of complementary contracts. But the primary function of the trading company would remain undisturbed—to act as an agency for the finance and organisation of trade by assisting to provide outlets for the primary produce of countries in the course of development and by providing technical and financial assistance. But such a company would be capable of growing to take an important part in securing the orderly development of the overseas territory on a co-operative basis. That the whole concept is not alien to modern trends of commercial development is illustrated by the fact that a few countries which have met with exceptional difficulties in placing their exports and developing their resources are already known to be feeling their way towards such a technique.

Some such efforts will soon have to be made in order to bring up the standard of organisation and efficiency in the marketing of the produce of overseas countries to the level which is being achieved in the export of manufactured goods by the largest firms. Otherwise there is the danger, the reasons for which have been described earlier in this chapter, that import and export trade will become completely divorced from one another, with disastrous consequences for the volume of trade in general.

The functions of an institution such as has been described above would be wider than those of any single type of organisation at present in existence. Something of the kind exists in part in the great commercial combines which are largely responsible for the handling of Japanese foreign trade. The growth in importance of such concerns as Mitsui and Mitsubishi is largely the accidental result of peculiar features of Japanese economic development as a whole, whereby the control of economic activity was from the first concentrated in a few hands. The wide scope and ramifications of these combines makes it a relatively easy matter of administration to combine intensive selling methods with an active policy of two-way trading. This system has not been developed, however, primarily with the idea of expanding export trade by assisting customers to sell; it has been rather that the urge to obtain adequate raw materials has compelled Japan to develop a highly organised export system. What matters, however, is that the machinery used is well adapted to secure the efficient organisation of two-way trade in close collaboration with manufacturing industry.

Loose Consortia for Export Manufacturers

The above suggestions apply mainly to the operations of the larger industrial firms. A somewhat different organisation would be needed to meet the requirements of smaller firms. Most of these have not, acting on their own account, sufficient resources to develop an intensive system of export selling. For the most part, they are likely either to employ the agency system which may or may not work satisfactorily according to their success in organising this difficult method of trading within the limits by which it is circumscribed; or else, they may be taking only a minor responsibility in organising their export sales by selling at second hand through a merchant house. For firms dealing in specialised capital goods the most promising method of development would seem to be in combination—through joint sales and development associations for specific products and markets.

Loose *ad hoc* consortia of this type between a number of firms producing complementary and non-competitive products for the purpose of dealing with specific schemes of development, could command resources which individual firms cannot provide. This would be so particularly if such consortia could be linked to merchant houses and merchant banks. Merchant houses can contribute their resources of local knowledge and local funds, and can provide a live contact direct with the consumer. Banks can provide credit, if the conditions are suitable. The combination of the technical resources of industry with the commercial and financial resources of merchant houses and merchant banks would result in an organisation which none of them could approach in competitive strength if acting alone. British manufacturers anxious to sell abroad are handicapped by lack of local knowledge and inability to provide credit, if required. Merchant houses possess local knowledge and have local funds to invest, but are often devoid of the technical knowledge necessary in local development. Banks have funds to invest provided that the security is adequate and the project is economic. A foreign country may require, for its development needs, capital goods and special finished goods and possibly raw and semi-manufactured materials. It may be benevolently disposed towards the United Kingdom and prepared to purchase its requirements from British manufacturers if they can provide service even approximately as good as their competitors. Individually manufacturers may be incapable of making the most of this situation. Their means of negotiating may be imperfect or they may have to insist on payment in cash. Acting together as a consortium, in association with a merchant house and a bank, they could afford direct representation for purposes of negotiation, survey the prospect in more detail, and possibly arrange for the purchases to be made on credit terms. Moreover, a consortium can speak and negotiate with more authority and is on surer ground, particularly if it acts in conjunction with a well known and respected merchant concern, than the representatives of a number of individual manufacturers working independently.

The idea is not, of course, a new one. In fact it has often been applied in the building of capital works such as power stations which require the co-operation of a number of manufacturers. It has been employed by British firms in China, and by Continental and United States firms in South America.

Trading by means of consortia need not be confined to trade in complementary capital goods or to British firms only. It can be employed also for consumers' goods and in competitive lines and can be international in scope. The difficulty admittedly occurs in forming consortia of competing firms of convincing the potential members that the future of their export trade in a certain market lies in co-operation rather than competition. Numerous attempts at organising co-operation have broken down because of the short-sighted attitude of a potential member whose collaboration is vitally necessary. But old rivalries can be conquered by the appreciation that only by combination and association with the local commercial experience of a merchant house can the resources be commanded which are necessary to cover the market with adequate efficiency under modern conditions. Moreover, if such associations prove successful when confined to British exporting manufacturers, there is no reason why efforts should not be made eventually to strengthen them by reaching agreements with local industries or exporting firms of other countries in the same line of business. But in associations of competitive manu-

facturers, care must be taken to ensure that selling policy is based always upon providing the best service to the consumer, and the temptations of monopolistic exploitation must be resisted.

The practical advantages of joint selling lie in the avoidance of duplication of activities and the greater efficiency of service provided where resources are pooled. Centralisation of stocks, showrooms, advertisement and service arrangements produces a more efficient organisation for selling than the divided efforts of many firms, however enterprising. The agreement of standard practices in such matters as terms of credit enables activity to be diverted from negative measures of competition to the task of increasing sales by measures of active trade development.

Using the Experience of Merchant Houses

These results can only be achieved from within—that is to say by the efforts of British industry and of British commercial and financial institutions to appreciate the more exacting requirements of modern trade and to mould existing institutions to fit the conditions of the times. In any such process, the merchant houses must play a leading part. In fact, these developments can only come about if a strong initiative is given from some direction, and it would come most appropriately from the merchant community. The decline of purely merchant business of the old type is described in some detail earlier in this chapter. The merchant house provided admirable machinery for the original development of areas which had been virtually untouched by the products of large-scale Western industry. It would now appear that the decline of the merchant, acting purely on his own account is an inevitable feature of economic development as soon as the market has passed through its first period of expansion. As soon as the first flush of market expansion is passed, it would seem inevitable that manufacturers should seek to employ in export markets, with the appropriate modifications, the methods of sales expansion which they have learnt to use in the home market. Merchant business is, therefore, likely to flourish only in territories or in products which are being newly developed, after which the manufacturer will tend to take over increasingly for himself—apart altogether from hindrances to the conduct of merchant business arising from other causes. Yet the merchant has much to teach the manufacturer regarding local markets and local conditions. The experience built up by the merchant profession is invaluable to the British export trade if only it can be placed more directly than hitherto at the disposal of industry. It must be the object of any new type of export organisation to make this experience more fully and readily available—to apply it differently from the way in which it has been applied in the past, in order to meet new conditions. The types of export organisation which have been outlined above could only be built by years of painful effort if there were no existing nucleus round which they can be formed. There is however available this accumulation of British commercial experience which no other country possesses in the same degree, which is alone capable of forming the backbone of any of the types of trade organisation envisaged. Under existing circumstances this experience is being slowly dissipated, but the machinery by which it is being replaced is not, when viewed from every angle, a complete substitute. Hence the necessity for bringing to bear upon the problem consideration of all the aspects and requirements of the ideal commercial machinery with a view to building an adequate new structure.

VI. GOVERNMENT ASSISTANCE TO THE EXPORT TRADE

Summary

(i) Government assistance to the export trade has been considered only in so far as it concerns the improvement of the efficiency of exporters through the organisation of commercial intelligence services and of government commercial agents overseas. This definition excludes the stimulation of exports by subsidies which serve the purpose rather of neutralising the consequences than of removing the causes of inefficiency.

(ii) The organisation of the government commercial intelligence service in this country did not begin effectively until the foundation of the Department of Overseas Trade and the reconstitution of the Commercial Diplomatic Service and the Trade Commissioner and Consular Services in 1918.

(iii) The Department of Overseas Trade is a joint sub-department both of the Foreign Office and of the Board of Trade, and exists to assist exporters with their day-to-day difficulties. It is not charged with the direction of foreign commercial policy, which remains the function of the Commercial Relations and Treaties Department of the Board of Trade. The relationships as between the Department of Overseas Trade, the Board of Trade and the Foreign Office on the one hand, and Commercial Diplomatic Officers, Trade Commissioners and Consuls on the other, are somewhat complicated owing to the necessity of avoiding the waste of inter-departmental overlapping and omissions.

(iv) The Department of Overseas Trade sets out to advise British manufacturers wishing to establish contact with overseas markets on a variety of matters. Commercial Diplomatic Officers and Trade Commissioners are, in a sense, the overseas agents for the collection of information and the assistance of travelling representatives.

(v) The gross expenditure on the maintenance of the services of the Department of Overseas Trade amounts to little more than one-tenth of one per cent of the value of British exports. Expenditure has, however, been fairly well maintained in the past few years in spite of budgetary difficulties, and was, on balance, higher in 1936 than in 1929. The United States Bureau of Foreign and Domestic Commerce, which is not dissimilar in organisation from the Department of Overseas Trade, has, at times, been much more liberally financed in relation to the total value of American exports, but expenditure was heavily curtailed during the depression. The same conclusion results, if American expenditure on the Foreign Commerce

Service is compared with British expenditure on the government Commercial Services overseas.

(vi) Since the value of a government commercial service depends in a large degree upon its permanence, any increase in the D.O.T. vote to a level which could not be maintained at all times must be considered uneconomic. Nevertheless, the amount at present spent on trade promotion activities is very small in relation to the total volume of trade, and even if the vote of the department were to be increased by 50 per cent, the additional cost to the exchequer would be quite outweighed by the improvement in service which the department could provide.

(vii) In particular, lack of staff and of finance appears to prevent officers overseas from travelling sufficiently to organise proper contacts and to leave the higher ranks overburdened with routine work. It is also a pity that diplomatic routine should sometimes necessitate the transfer of commercial diplomatic officers to new posts, since personal contacts take time to build and continuity is an important factor in the efficiency of the commercial service.

(viii) The D.O.T. organisation at home is handicapped by insufficient and unsuitable accommodation, which affects the efficiency with which its day-to-day business is conducted. Its periodical publications compare unfavourably at the present time with those, for instance, of the United States Bureau of Foreign and Domestic Commerce. Its services could be made more complete and useful in certain directions, without exorbitant expense—for instance, by the institution of a commercial library and a competitors' museum.

(ix) The services of the Department of Overseas Trade compare particularly badly with those of the United States Bureau of Foreign and Domestic Commerce in the matter of the information on foreign production and manufacturing activities which is published by the latter. The shortcomings of the Department of Overseas Trade in this connection appear to be due partly to a tendency to specialise overmuch on a geographical basis and partly to the rigidity with which policy regarding imports is reserved to the Board of Trade. The Imperial Institute does invaluable work, within the limitations of inadequate finance, on Empire sources. There is a good case for the extension of this work to other fields.

Government assistance to exports is a wide subject, which by itself would provide material for a long report, but in this chapter we propose to discuss it only from one specialised aspect—from the aspect which concerns the improvement of the efficiency of exporters through the organisation by Government of commercial intelligence services, and through the action of Government commercial agents in overseas countries. This study entails also some consideration of the organisation of departments concerned with foreign trade generally, but, in any case, it seems probable that a short description of the Government organisation may be useful to traders.

Our definition excludes the increasing use of Government subsidies for the purpose of stimulating exports, a method which can hardly be described as serving the purpose of improving the efficiency of exporters, but which has the effect rather of neutralising the

consequences than of removing the causes of inefficiency. Subsidies are generally given owing to political expediency or in accordance with what are regarded as higher national interests, and cannot be considered as a basis of a long-term policy towards foreign trade which is worthy of any serious consideration.

The Evolution of British Government Commercial Services

Until the end of the nineteenth century, Government policy towards trade in general was one of *laissez-faire*, and British export trade was not in any need of assistance owing to the virtual monopoly in large-scale manufacture which Great Britain enjoyed, and the eagerness with which British goods were absorbed by foreign consumers. It is not therefore surprising that the Foreign Office did not appoint its first Commercial Attaché until 1880; in 1900 a small Commercial Intelligence Branch of the Board of Trade, and in 1908 a Trade Commissioner service in British countries overseas, were created. The Consular service was already collecting commercial information on behalf of the Foreign Office and the Board of Trade. Up to 1914 the personnel employed in such commercial activities was small and their usefulness was limited, owing to the size of the territories which the meagre staffs had to cover.

It was realised, even before the War had finished, that special efforts would have to be made to restore British exports, in view of the dislocation of old trade channels which had taken place in the period 1914 to 1918, owing to the pre-occupation of all British industry with war-time requirements. Accordingly, the Commercial Intelligence branch of the Board of Trade was reorganised and expanded and finally "floated off" in 1918 as the Department of Overseas Trade. At the same time, the Commercial Attaché service was enlarged and reconstituted as the Commercial Diplomatic Service, and the Consular and Trade Commissioner services were also enlarged. Conditions of service were also considerably improved.

The problem which confronted the Government, and which the establishment of the Department of Overseas Trade attempted to solve, is one which still arises on any study of Government assistance to export trade. First comes the problem of deciding what assistance can, within the limits of available finance, be given to exporters, and what is the authority which is to issue instructions to the overseas services. Secondly, there is the problem of the organisation and constitution of the overseas services themselves.

Co-ordination of Departmental Activities

The fundamental administrative difficulty is that while all activities of Government officials in foreign countries must clearly be under the control of the Foreign Office, instructions on commercial matters and the dispositions for passing on advice and information to the trading community must equally clearly be settled only in the closest collaboration with the Board of Trade, the department responsible for all commercial and industrial policy. A proper delimitation of functions is absolutely essential to avoid waste of effort in inter-departmental overlapping and omissions.

To meet the difficulty of organisation, a new department was formed to deal with overseas commercial information. This was the Department of Overseas Trade. The

Department of Overseas Trade, it must be stressed, is a joint sub-department of both the Foreign Office and the Board of Trade, and it is an integral part of both organisations; there have been cases of interchange of staff. It is, however, housed in a separate building. It gives instructions to its agents in foreign countries in the name of the Foreign Office, and in the Empire in the name of the Board of Trade. The political head, the Secretary of the Department of Overseas Trade, has the rank of a Parliamentary Secretary at the Board of Trade, and performs some of the duties of a Parliamentary Under-Secretary at the Foreign Office, while the permanent head, the Comptroller General of the Department of Overseas Trade, is appointed jointly by the Secretary of State for Foreign Affairs and the President of the Board of Trade. This form of organisation was adopted in order to obviate all possibility of friction between the two parent departments over the administration of their offspring.

In the case of Empire countries, the instructions, as mentioned above, are issued in the name of the Board of Trade, and the necessary consultation with the departments responsible for inter-Imperial policy, the Dominions Office, the Colonial Office and the India Office, is carried out by the Board of Trade and Department of Overseas Trade, either jointly or separately as occasion arises.

The Department of Overseas Trade is not charged with the direction of foreign policy, either commercial or political, which remains the function of the appropriate section (the Commercial Relations and Treaties Department) of the Board of Trade and of the Foreign Office, respectively. The Department of Overseas Trade exists to assist exporters with their day-to-day difficulties, and to this end is empowered to issue instructions to Commercial Diplomats, Trade Commissioners and Consuls. Since the Department of Overseas Trade is a section of the policy departments and is subject to their instructions in matters of policy, there is no possibility of a clash between day-to-day action and long-term policy.

The agents of the Department of Overseas Trade in foreign countries are the Commercial Diplomats (Counsellors in the highest rank and Secretaries in the three lower ranks) who are attached to the Embassies and the Legations, and the Consuls: and in the Empire the Trade Commissioners (T.Cs.) and Imperial Trade Correspondents (I.T.Cs.)—these latter only at less important posts.

The Imperial Trade Correspondents are not salaried officials, although they sometimes obtain an allowance to cover expenses, but are usually local residents, or, in Colonial territories, sometimes officials of the local government who carry out their I.T.C. duties as well as their ordinary work.

The duties of Commercial Diplomatic Officers and Trade Commissioners are entirely economic, but Consular work varies according to the post. The Consuls are under the orders of the head of their Mission, but the Commercial Diplomatic Officer has, under his Minister, general control of their commercial work. In matters of policy, the instructions, although originating perhaps with the Treasury or the Board of Trade, are sent to the C.D.O. through the Foreign Office—major matters of policy or full dress representations being generally handled by the Minister or Chargé d'Affaires himself.

In the Empire, Trade Commissioners are not on the staff of the High Commissioners, who are the representatives of the U.K. Government, in those countries where there is a High Commissioner. The Trade Commissioners receive their instructions from the D.O.T., although again in matters of policy that department would take the advice of the appropriate department in London.

The Consular and Diplomatic Services are recruited from the examinations named after them. The C.D.Os. and the T.Cs. are recruited from the headquarters staff of the Department of Overseas Trade and from the Consular Service, although in services as young as these two are, there are naturally still officers who entered from other occupations. The Department of Overseas Trade headquarters staff, in the highest grade, is recruited from the Consular examination. The material provided in this way for the overseas services is undoubtedly of excellent quality, in so far as a stiff examination can check quality. It should be stressed that the Diplomatic, Consular and Commercial Diplomatic services are three separate services. There are instances, however, although they are not frequent, of Consuls and C.D.Os. who have attained Ministerial or even Ambassadorial rank.

The D.O.T. is charged with the general administration of the C.D.O. and the T.C. Services, and is consulted by the Consular department of the Foreign Office on Consular appointments, so that due weight may be given to commercial considerations. The Department of Overseas Trade also undertakes the technical work of the British Government's participation in exhibitions and fairs, and organises the British Industries Fair. It is also responsible for the organisation of Trade Missions. Both these activities are regarded as forming a part of general trade propaganda, although, naturally, exhibition work has other aspects.

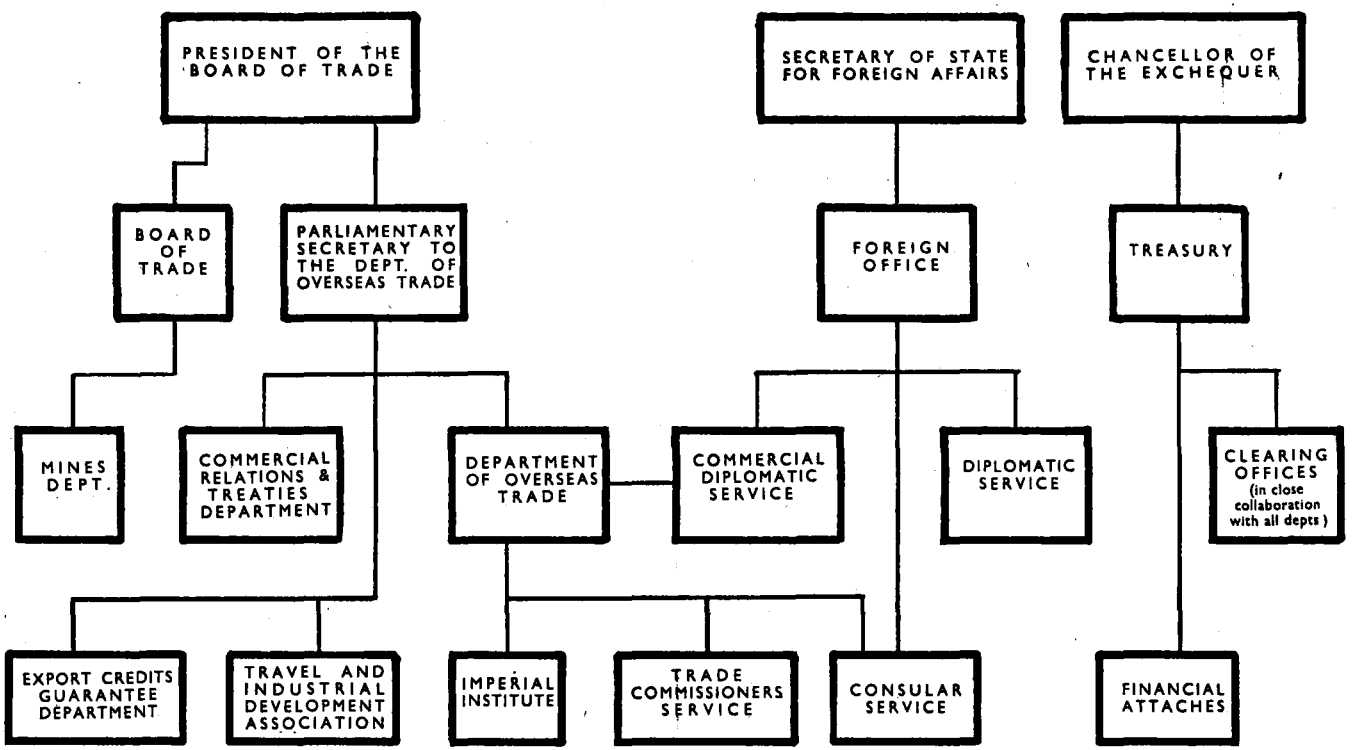
The Secretary of the Department of Overseas Trade is responsible also for the Commercial Relations and Treaties Department of the Board of Trade, and for the Export Credits Guarantee Department.* He is also Chairman of the Executive Committee of the Travel and Industrial Development Association of Great Britain and Northern Ireland and in charge of the Imperial Institute, a body principally concerned with the compilation of statistics concerning Empire products and research into their uses, although it is charged with the development of inter-Imperial trade generally. The Imperial Institute is financed by contributions from Empire governments and, to a certain extent, from private individuals. Its value is, unfortunately, insufficiently appreciated and its financial resources are too limited. The position of the Secretary of the D.O.T. and the organisation of departments under the Board of Trade (see chart on page 155) enables the work of the different departments dealing with overseas trade matters to be co-ordinated.

For completeness it should be added that shipping matters are decided by the Mercantile Marine Department of the Board of Trade, and matters relating to minerals, including coal, by the Mines Department, which is a sub-department of the Board of Trade.

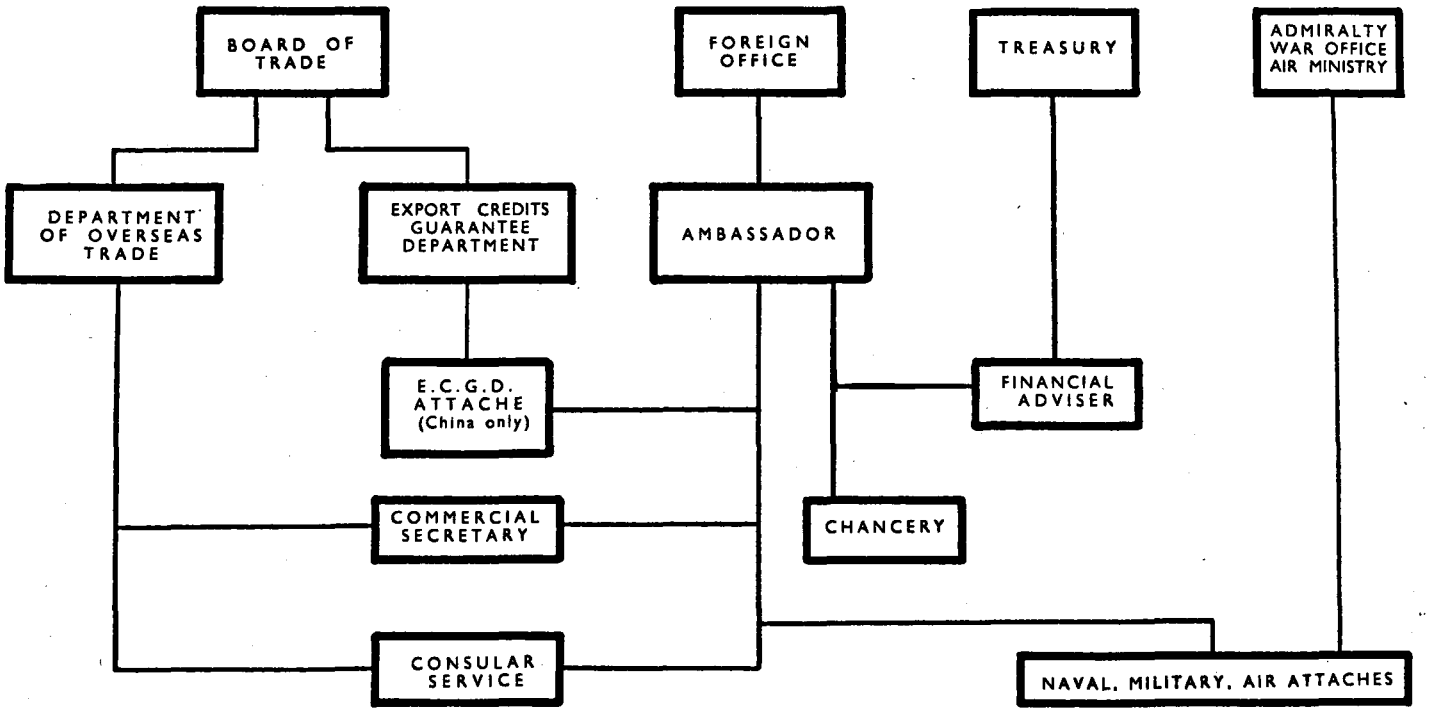
Charts on the next two pages show in pictorial form the relationships between the foreign trade departments of the government and the organisation of a typical Embassy.

* This Department, which has for some years been independent, is discussed more fully in Chapter VII.

I.—ORGANISATION OF GOVERNMENT DEPARTMENTS MOST NEARLY CONCERNED WITH EXPORT TRADE.



II.—ORGANISATION OF EMBASSIES.



Functions of the Department of Overseas Trade

The general method by which the Department of Overseas Trade seeks to fulfil its function of promoting British exports is by the collection and dissemination of commercial information, and by the efforts of its overseas officers, not only in the collection of information but also in "pushing" particular cases.

The type of information which the Department of Overseas Trade sets out to provide is as follows:

Advice is given to British manufacturers wishing to establish contact with overseas markets, whether by setting up a branch selling organisation or by the appointment of a local representative or agent. Such advice includes information on the standing, reputation and efficiency of agencies operating in foreign markets, and, indeed, of all foreign firms. Information is also available on trade and other statistics, tariffs and trade legislation, restrictions on commercial travellers, trade marks, shipping and transport services, local methods of marketing and distribution, quotas and import licences, exchange restrictions and credit conditions, competitive and market conditions, and contracts open. The field covered is, therefore, very large. Much general information is published periodically in a series of reports on conditions as a whole in individual countries. These are compiled by the principal Commercial Diplomatic Officer or Trade Commissioner in each country. This general information is supplemented by the Special Register Service, under which any firm can receive regularly and immediately information from officers abroad which would not ordinarily be made public. With the exception of the Special Register Service and published reports, for which a small annual charge is made, the Department of Overseas Trade's services are free.

C.D.Os. and T.Cs. are charged with reporting on developments in economic conditions, on foreign competition, and on changes in market conditions. They must answer enquiries on specific points sent to them by the D.O.T. or by private firms directly. They also assist any representatives who may be travelling in their territory, this being one of the most important of their duties. At regular intervals they have periods of duty in the United Kingdom, when they are available for consultation by firms interested in their territory. These periods of home duty include visits to the provinces, and enable C.D.Os. and T.Cs. to keep in touch with developments in the United Kingdom.

The home organisation of the Department of Overseas Trade is specialised in two main divisions—geographically and industrially—so that, on the one hand, expert knowledge of conditions in each market is constantly made available, and on the other hand, contact is maintained with each major branch of industry in the United Kingdom.

The Finance of the British Commercial Information Services

The field which the Department of Overseas Trade attempts to cover is vast and, on general grounds, it is difficult to believe that the finance available at present is fully adequate for the task which a Government Department of this type might undertake. On the other hand, a commercial information service by Government must not be subject to fluctuations with the buoyancy of the revenue. It is in times of depression and

financial stringency that it is most useful. We do not therefore advocate any extension of the D.O.T. vote to a point which cannot reasonably be expected to be maintained at all times. But nevertheless, consideration might be given to the possibility of expanding the D.O.T's. operations.

Annual Vote of Expenditure for the Department of Overseas Trade *			Total Exports of British Merchandise		D.O.T. Expenditure as Percentage of Export Trade	
Years ending March 31st	Gross	Net†	Calendar Years		Gross	Net
	£	£		£		
1929/30 . .	515,092	378,633	1929	729,349,322	0.071	0.052
1930/31 . .	628,035	502,972	1930	570,755,416	0.110	0.088
1931/32 . .	519,957	424,507	1931	390,621,598	0.132	0.107
1932/33 . .	517,128	375,773	1932	365,024,008	0.146	0.103
1933/34 . .	497,108	365,478	1933	367,909,052	0.108	0.099
1934/35 . .	562,890	421,530	1934	395,985,521	0.142	0.106
1935/36 . .	574,255	417,827	1935	425,834,428	0.135	0.098
1936/37 . .	606,960	458,371	1936	440,718,784‡	0.138	0.104

* Including grants-in-aid of the Imperial Institute and the Travel and Industrial Development Association.
† i.e. after allowing for various receipts (principally the British Industries Fair, which is self-supporting but included in gross figures. These figures include cost of C.D.O. and T.C. services).
‡ Provisional.

At the present time, gross expenditure on the maintenance of the services which the D.O.T. provides represents little more than one-tenth of 1 per cent of the value of British direct exports. This can hardly be described as an excessive charge, and even if the vote for the department were to be increased by 50 per cent, the additional cost to the nation through the Exchequer would still represent a very small fixed charge on the total export turnover. We attempt to show later in this chapter that it would be quite outweighed by the improvement in the services to the export trade which the department could provide.

Scope and Organisation of the United States Bureau of Foreign and Domestic Commerce

Other countries maintain similar organisations, and the services provided by the D.O.T. have often been compared unfavourably to those provided abroad—especially those provided by its opposite number in America—the Bureau of Foreign and Domestic Commerce of the American Department of Commerce. The American Bureau is organised in two main divisions, each of which is subdivided and is broadly specialised on the same geographical and industrial basis as the D.O.T. On the geographical side, the Bureau of Foreign and Domestic Commerce is subdivided into Technical Divisions and Field Divisions. The Technical Divisions comprise Commercial Laws, Commercial Intelligence, Finance, Foreign Tariffs, Foreign Trade Zones, Regional Information, Foreign Trade Statistics and Transportation. The Field Divisions comprise a Foreign Service Division maintaining representatives in foreign countries and a District Office Division maintaining representatives in a great number of industrial centres inside the United States. On the

industrial side, one branch deals with economic questions, of which the principal subdivisions are Economic Research, Marketing Research, and Negro Affairs. The other branch deals with eleven main industrial divisions, such as the Automobile and Aircraft Industry, Electrical Industries, Forest Products, etc. The director of the Bureau is also responsible for the reciprocal trade agreements section in which, inevitably, export policy and import policy have to be considered in conjunction with each other.

The funds on which the Bureau is run were severely curtailed during the financial crisis, but they have been increasing again since 1934. Even so, the Bureau's expenditure was only $2,887,000 in 1936 against $5,094,000 in 1932, while in this same period the gross expenditure of the Department of Overseas Trade has increased from £517,128 to £606,960. As a result, Great Britain is now spending slightly more than the United States on the promotion of overseas trade, whereas before the slump American expenditure on this item was nearly double the expenditure of the D.O.T.

Expenditure of the Bureau of Foreign and Domestic Commerce		Total Exports of U.S. Merchandise		Expenditure as % of Exports
Years ending June 30	$ 000	Calendar Years	$ 000	%
1929 . . .	4,264	1929	5,157,083	0.083
1930 . . .	4,751	1930	3,781,172	0.126
1931 . . .	4,977	1931	2,377,982	0.209
1932 . . .	5,094	1932	1,576,151	0.323
1933 . . .	3,745	1933	1,647,220	0.228
1934 . . .	2,071	1934	2,100,135	0.099
1935 . . .	2,458	1935	2,283,000	0.107
1936 . . .	2,887	1936	2,453,000	0.118

Up to the last three years, American expenditure on the promotion of export trade has tended to be larger in relation to export turnover than in this country, and will no doubt be increased again as soon as financial circumstances permit. Moreover, as a large proportion of the American export trade consists of trade in raw materials which are fairly readily marketable, the proportionate disparity in the resources applied to stimulating exports of manufactured goods is probably larger than the above figures would indicate at first sight.

Comparison of British and United States Expenditure on Trade Promotion

It may, however, be somewhat misleading to compare British and American efforts at trade promotion on the basis of the total expenditure of these two organisations, since it is difficult to say how far their functions are identical in character. Comparison of that part of their respective expenditure which is spent on the maintenance of the overseas commercial service reveals an interesting divergence of policy. The expenditure of the D.O.T. on salaries, office expenses and travelling of the C.D.O. and T.C. services has been remarkably stable, in spite of fluctuations in the total gross and net votes. Having been increased from £171,056 in 1929/30 to £220,319 in 1930/31, it has not since fallen

below £208,665 (1934/35), and stood at £218,649 for 1936/37. Expenditure on the United States foreign commerce service (excluding administrative expenses in Washington) was on about twice the scale of British expenditure in the period 1929-32, but was drastically cut—by about two-thirds—during the slump.

ANNUAL VOTE OF EXPENDITURE FOR THE D.O.T.

Years ending March 31	Total Vote		Salaries, Office Expense and Travel of C.D.O. and T.C. Services*	
	Gross	Net	Gross	% of British Export Trade
	£ 000	£ 000	£ 000	
1930 .	515	379	171	0.023
1931 .	628	503	220	0.039
1932 .	520	425	212	0.054
1933 .	517	376	225	0.062
1934 .	497	365	217	0.059
1935 .	563	422	209	0.053
1936 .	574	418	214	0.050
1937 .	607	458	218	0.049

ANNUAL EXPENDITURE OF THE U.S. BUREAU OF FOREIGN AND DOMESTIC COMMERCE

Years ending June 30	Total Expenditure	Expenditure on Foreign Commerce Service†	
	$ 000	$ 000	Percentage of U.S. Export Trade
1929 . .	4,264	1,862	0.036
1930 . .	4,751	1,883	0.050
1931 . .	4,977	2,199	0.093
1932 . .	5.094	2,234	0.142
1933 . .	3,745	1,766	0.107
1934 . .	2,071	1,572	0.075
1935 . .	2,458	675	0.030
1936 . .	2,887	811	0.033

* i.e. excluding Head Office expenditure.
† Excluding administrative expenses in Washington.

The United States has therefore spent considerably more than the United Kingdom in the past on trade promotion activities abroad, both absolutely and in proportion to export trade, but has been unable to keep this up in the last three years. British expenditure was less ambitious in the boom period and has been steadily maintained. There is no doubt that permanency and continuity is one of the most important factors in building up a successful service of commercial information overseas, and to this extent it is probable that

British policy has been more economical in the long run than the policy of the U.S. Government. In spite of this, the flow of business information from overseas countries maintained by the American service is in several respects more complete and effective than that provided by the D.O.T. In particular, the American service sets out to provide valuab e information on raw material and industrial development throughout the world which is of importance to a considerably wider circle of business interests than export trades alone.

Extension of D.O.T. Services

Possible extensions of the D.O.T. service can only be usefully considered after some definition of its functions—that is to say, the functions of Government commercial agents. These officers have the duty of approaching the Government of the country in which they are stationed on behalf of their own Government; of reporting on economic conditions; and of assisting in the thousand and one enquiries which private commercial organisations may put forward. They must therefore be prepared to handle different questions concerning any and every economic activity. With work of such a general nature, it is clear that they cannot have any profound technical knowledge, although, naturally, they must understand the main processes of the principal activities of the export trade of this country and of the industry of the country in which they are stationed. In the case of the political attitude of foreign Governments, they must give expert advice, but generally their function may be described not so much as advisory, but as introductory. They should be able to indicate the line of approach which their enquirer should follow.

The measure of assistance which a C.D.O. or T.C. can give therefore depends largely on the range of his contacts. An essential part of his work is to know everybody worth knowing in the trading, official and, in many countries, also the political world. In the larger posts, this is a counsel of an impossible perfection, but it is certainly the goal of every C.D.O. and T.C.

Now these contacts, although they need not entail any extravagance, cannot be made without expenditure on entertaining and so forth, nor can they be made if the officer is tied to his desk by routine work. We do not wish to criticise the present work of these services, but we feel that their work might be improved by an increase in salaries to cover increased representation and by an increase in the number of posts, and perhaps sometimes in the number of staff. The latter recommendation applies particularly to the Empire, where distances are great and travelling takes time, but is relevant to all posts.

It is, moreover, a pity that the exigencies of diplomatic routine demand the transfer of C.D.Os. at times from one post to another, since it may take years of work and experience of local conditions to build up the detailed knowledge and contacts which is necessary for the attainment of maximum efficiency. If any large expansion of staff is ruled out by considerations of expense, greater use might possibly be made of honorary consuls—usually citizens of the country or residents of long-standing—who can often be of great help to representatives of British firms owing to their intimate contact with local business.

The attempts of the Department of Overseas Trade to provide an information service are handicapped by the limitations imposed on any printed report from official sources, which can only with the greatest difficulty criticise foreign methods or conditions, although the printed services are supplemented by letters and interviews on particular enquiries which are exceedingly valuable. It might, however, be possible for the Department of Overseas Trade to supplement its service by the provision of a commercial library of foreign commercial and technical papers, works of reference, and even books discussing foreign trade and industrial developments abroad generally. To a small extent this service is in being already, and it could probably be supplemented from the resources of trade institutions which have libraries, and could provide a very useful place of reference. It should be observed that while the Patent Office library provides foreign technical papers, there is at present no governmental, and scarcely any extra-governmental, source of foreign commercial and industrial publications and reports.

A valuable service to exporters could also be performed by the institution and maintenance of a "competitors' museum," in which the more successful competitive lines and innovations of manufacturers in other countries, illustrations of designs that have proved popular, etc., could be permanently exhibited for the benefit of British industries. But such developments depend upon the provision of additional finance and accommodation. The visitor to the headquarters of most of the departments engaged in work connected with overseas trade can hardly fail to be struck by the inadequacy of the office accommodation, even for the existing duties which the staff performs. The same applies to the simpler mechanical aids to office efficiency such as files, indexes, and even bookshelves. A department which exists largely to supply information should be given adequate facilities for storing it efficiently and not, as at present, in loose and tattered volumes, frequently to be found by hunting on the floor. It is to be hoped that the completion of the new building in Whitehall will relieve the pressure on government accommodation sufficiently to permit the housing of these departments in better conditions.

The Governments of certain foreign countries, such as Italy and Germany, under the spur of decreasing foreign exchange resources and increasing economic nationalism, have devoted great attention to the development of new sources of supply. The U.S. Bureau of Foreign and Domestic Commerce provides some information on the available export products of other countries. In the United Kingdom government organisation there seems to be a gap in this respect. It is difficult to suggest means of filling this gap as long as official difficulties remain in recommending sources of supply which are competitive with the Empire sources. As regards Empire sources, the Imperial Institute does valuable work, but on a limited and inadequate scale.

This position has also the secondary effect of making it difficult for the Department of Overseas Trade to assist United Kingdom exporters in those cases, frequent of recent years, where the exporter can only secure the order by assisting the customer to market some of the produce of his own country.

The Board of Trade is, of course, responsible for Government policy regarding imports generally, including the imports of our raw materials. The only body to deal exclusively with imports is the Import Duties Advisory Committee which is mainly

concerned with hearing applications for tariff alterations on manufactured goods. But the question of research is a distinct problem, and in an age of rapid technical advance any gap in the provision of advice on this subject may prove very dangerous for the competitive power of British exports. There is a good case for an extension of the work now performed by the Imperial Institute and in an allied field by the Department of Scientific and Industrial Research.

The deficiency appears to be due in part, however, to the system on which the information is collected and presented. In comparison with the U.S. Bureau of Foreign and Domestic Commerce, the D.O.T. is apt to specialise overmuch on a geographical basis rather than an industrial basis. The manufacturer of a particular line of goods, from a business point of view, wants information about world developments in the market for products which affect him, and is not so much interested in sporadic piecemeal studies of national industrial conditions. The U.S. Bureau appears to have appreciated this, since much of the information which it puts out is grouped on an industrial basis.

From the description which has been given of the work of the Department of Overseas Trade it will be seen that it is of particular use to the small firm which is unable to afford an extensive overseas service. It should therefore be valuable to the newer industries which are just beginning to export; but it is just as useful to even the largest concerns. In fact, many of the largest organisations in the country do make great use of the D.O.T. In any case, any large extension of the Department of Overseas Trade vote is only justifiable if it is followed at a reasonable interval by an increase in the number of enquiries directed to the department. The D.O.T. is not a trading institution and does not charge for its services, but if it is to be an economic proposition it must have a volume of enquiries in relation to its overheads. We would therefore make a plea for a greater use of the Department of Overseas Trade and its overseas services. It is an instrument which the government has placed at the disposal of exporters, and, to some extent at least, its efficiency depends on the use which exporters make of it.

VII. THE FINANCE OF INTERNATIONAL TRADE

Summary

(i) The relationship of finance to international trade is essentially one of dependence. If opportunities for trading do not exist, financial measures alone will not create trade. But given economic and political conditions in which trade can be carried on, financial measures are useful as a lubricant.

(ii) Currency manipulation may secure a temporary advantage to the traders of a country practising it at the cost of compelling other countries to protect themselves by creating obstacles to trade. The misuse of international financial machinery has been a fertile source of hindrances to trade in recent years. The currency agreement of September 1936 was intended to help to remove such of these as arose from purely financial difficulties. In the event this hope has not materialized, and new constructive action is necessary.

(iii) From the standpoint of financial policy, the world is divided into three groups of countries—the creditor group, the industrialised debtor group, and the primary producing debtor group. The creditors (U.K., U.S.A., France, Holland, Sweden, Switzerland, Belgium) are suffering, as a group, from an *embarras de richesse*. The industrialised debtor group (principally Germany, Italy, Japan, Poland, Czechoslovakia) has been forced to adopt exchange restrictions and various financial and commercial devices to maintain ostensibly the exchange value of its currencies and to support the existing volume of production and consumption upon inadequate financial resources. The difficulties of the "debtor industrial" countries have not been diminished by the rise in the world prices of raw commodities, which they have to import. The primary-producing debtors form a large group in which not all are old debtors, but some are large potential borrowers. In this group, the process of national development has been held up by inadequate internal capital resources and inability to borrow in the conditions of the past few years. The economic position of primary producers has, however, been improved by recent price trends.

(iv) From the economic point of view, the difficulties of the debtor industrial countries would be the keypoint of the present impasse. Their solution would contribute automatically to the abatement of the remaining difficulties of the primary producing debtors by encouraging a larger volume of trade in raw commodities. But the financial difficulties of the industrial debtor group are not due merely to financial factors or even to financial and economic factors combined. They are the result of financial and economic policies which have been forced to fit larger national aims embracing also social, political, and even "racial" objectives.

In default of a comprehensive agreement covering all these fields, it is impossible, and dangerous, to extend piecemeal assistance. This factor limits the opportunities of useful financial assistance in the near future. At any time, financial assistance should be given only as part of a wider scheme of economic co-operation.

(v) The first condition for the extension of wider financial co-operation must be the stabilisation of conditions within the creditor group. This having been achieved, the surplus financial resources of the creditor group could be made available to countries where they are more needed. Pre-war world economic development went hand in hand with the development of an international financial system in which London played a leading part. After the war, international lending was resumed and was pursued perhaps more energetically than the current degree of international economic co-operation really warranted. Since 1931, international financing has dwindled to small proportions, partly owing to serious natural obstacles, but partly owing to deliberate control for political or internal reasons. Yet the underlying economic demand for international lending has not sensibly diminished. And conditions within the creditor group, particularly in the United Kingdom and the United States, have reached the stage where the resumption of international economic and financial co-operation is becoming urgently necessary in the interests of internal stability.

(vi) Opportunities for new long-term lending are likely to occur in two distinct forms. In the first place, financial assistance will be required, mainly by the debtor industrial group, for reconstruction purposes. Reconstruction financing is an economic proposition only in a general sense, and is not directly self-liquidating. It provides only an indirect return in that it recreates conditions favourable to other activities which are likely to be prosperous. Since reconstruction loans can seldom, in practice, be adequately secured, the burden of undertaking them should not be allowed to fall entirely on the private investor. A guarantee by the government of the lending country would spread the risks more evenly over all the probable beneficiaries and should reduce the inherent risk of default by enabling the loan to be raised at a more moderate rate of interest.

(vii) In the second place, opportunities should recur of "development lending" of the old economic type, mainly to the primary-producing debtor group. Such loans should be linked as far as possible to exports of capital goods. In practice, this can seldom be ensured by legal means. But the competitive position of British export industries, despite subsidisation in certain foreign countries, has probably improved sufficiently to enable this connection to be established on purely economic grounds more frequently than occurred in the post-war decade. This process would be assisted by greater attention to the export of technical assistance in conjunction with development investment.

(viii) Foreign investment should be undertaken as far as possible on an equity basis which spreads the risks of major economic fluctuations more equitably as between

creditor and debtor. Events have proved that legal rights to fixed interest payments are not of much practical value in times of acute depression. And the existence of heavy fixed-interest burdens tend to cause interference with current trade and to prolong a depression. Certain types of development must, however, from their nature be financed by loans at fixed interest.

(ix) Equity investment is becoming a more appropriate medium in so far as economic changes are tending to reduce the natural sinking fund for certain types of development lending. Where this takes the form of lending which contributes directly or indirectly to developing the export industries of the borrower, or reducing his dependence on imports, the borrower's balance of payments tends to be improved to the extent where he can meet the service of a foreign loan without embarrassment. Ample opportunities for this type of lending are still outstanding, in so far as the rising standard of living in the creditor countries is leading to a more diversified demand, requiring a corresponding diversification in the export industries of overseas producers. This diversification will require new investment in equipment. But in so far as economic development abroad is tending, under the influence of economic nationalism, towards the creation of purely local activities, foreign lending may become more precarious, since such projects are not likely to produce an automatic return in foreign currencies. Hence development of this sort is more appropriately undertaken by internal capital and foreign investment for this purpose should be conducted with care.

(x) The reorganisation of their past indebtedness by the "old debtor" countries is proceeding faster than is sometimes supposed—though not always favourably to creditors—and this will remove one of the obstacles to new international investment.

(xi) A country should not, in the interests of stability, lend consistently more than the running surplus on its balance of current payments. To the extent that foreign investment can be linked to exports of capital goods, however, the fund available for further lending is not reduced. Conversely, it is desirable in the interests of international stability that a country should lend up to the full amount of its running surplus and should in subsequent years, by reducing exports or increasing imports, make the necessary adjustments in its own economy to enable it to receive interest payments without friction.

(xii) The United Kingdom's ability to lend abroad depends on the extent to which income from invisible exports and past foreign investment suffices to cover the adverse balance of visible trade. The excess of imported merchandise over exported merchandise is likely to be smallest in a period of slump or early recovery, when prices of raw materials tend to be low in relation to prices of manufactured goods. Hence it is important to ensure that invisible exports should flourish in times of boom, when the adverse balance of visible trade tends to be large, and to create conditions in which invisible exports can expand freely.

(xiii) The United Kingdom showed a heavy deficit on the balance of current payments in 1931. This was partly responsible for the depreciation of sterling, the effects of which were reinforced by a wide import tariff and the assumption of strict control by the Treasury over the volume of external capital transactions. This control was extended at one time to internal capital issues as well, but was subsequently relaxed in favour of issues on behalf of borrowers in Empire countries and of certain types of loans inside the sterling area. The control of the Treasury is informal, though it carries with it certain sanctions which are important in practice, and has led to friction. The position is unsatisfactory in that the policy of the Treasury in this respect is not sufficiently subject to public debate or Parliamentary control and there is reason to believe that the control has not always been used for the purposes for which it was originally set up. The position has not even been greatly improved by the appointment of a Foreign Transactions (Advisory) Committee. It is the more unsatisfactory since control can only extend to certain transactions, and others such as dealings by investors on foreign stock exchanges other than in large amounts, and the disposal by exporters of the proceeds of their sales abroad, may at times be responsible for the undesirable tendencies for which other activities are made to suffer.

(xiv) Government intervention in financial business has also extended to the important field of short-term credit and the increasingly important field of medium-term credit, through the agency of the Export Credits Guarantee Department. From dealing with credit risks (i.e. the risk of the insolvency of the importer) on current trade in a relatively small group of countries where business was particularly difficult, the operations of the Department have been extended to the guarantee of credits on exports to any country for a period of up to ten years and, subject to certain conditions, transfer risks as well as credit risks can now be covered. It is usually argued that the Export Credits Guarantee Department does not compete with private institutions since it is undertaking business which no private institution is willing or able to take in view of the risks involved. But by stipulating that traders wishing to cover *exchange risks* on any transaction must insure *credit risks* on all their overseas business, the Department takes care that it should get plenty of good risks as well as a few bad ones. While the Department has been deservedly successful in making possible, during the exceptional conditions of the depression, business which could not otherwise have been carried on, some anxiety must be expressed concerning the probable effect of the Department's activities, when conditions became easier on the average, upon the cost of trade financing. For the services of the Export Credits Guarantee Department would appear to be more expensive than the use of the old-fashioned trade bill. The fact that the Department is avowedly run on commercial lines and makes a profit, and does not merely set out to subsidise certain classes of exports constitutes one of the chief reasons why the principle involved in this experiment in state trading should be critically examined. It should be noted that the Department is in some senses in a privileged position owing to its facilities for prior access, as a branch of government, to the government intelligence service and is backed ultimately by the full financial resources of the State.

(xv) At any time, a large proportion of the trade not only of the United Kingdom, but also of the world at large was financed very cheaply through the machinery of the London bill. Notwithstanding that the procedure of drawing, accepting, and discounting of bills is complicated and a matter for experts, large numbers of traders did, before the War, conduct their foreign trade through the medium of the bill of exchange. Expert advice was always readily forthcoming from bankers who were interested in maintaining the supply of good trade bills which were a profitable investment for them. London acceptance houses had to possess very detailed knowledge of the credit standing of the importers and bankers whose bills they might be asked to endorse and hence became the intelligence system of the whole banking system and the agency through which the debt of one individual to another could be carried at the lowest possible cost by its transformation into a readily negotiable and self-liquidating security. As long as the banking system remained regionalised, bankers were interested in maintaining the circulation of a security which was, in case of need, readily negotiable in London. The economy in the holding of cash which resulted from bank amalgamations; the growth of the alternative short-term investment medium of the Treasury bill; and the larger return obtainable from financing traders on overdraft, reduced the incentive to maintain a large trade bill circulation after the War. With the fall in interest rates and the growth of surplus assets, bankers may now be regretting the decline of the trade bill. Exchange uncertainty has reduced the popularity of the sterling bill abroad, in spite of its cheapness, since foreigners are reluctant to undertake obligations in a currency which they may not be allowed to purchase. The depreciation of sterling in 1931 further affected the prestige of the sterling bill and the decline in importance in world trade of the commodity exchanges quoting London prices in terms of sterling has also been a factor. It is highly desirable that the use of the trade bill should be revived, since it is cheap to traders, it provides the clearing bankers with a useful type of investment, and increases the invisible exports of this country. Something can probably be done by an overhaul of the London acceptance machinery and an educational campaign for traders. Apart from this, the revival of the trade bill awaits the removal of the impediment of exchange uncertainty.

(xvi) Exchange instability is having the dual effect of keeping up the cost of trade financing and keeping down British income from invisible exports. The extent to which London's financial services are employed by foreigners depends upon the volume of world trade, the price at which London can offer its services and the extent to which foreigners regard sterling as a safer currency than their own or some other to transact business. The third factor arises not so much from any concern about sterling as from unwillingness on the part of foreigners to commit themselves to liabilities which they may be prevented from meeting. All currencies are regarded as unstable to-day in the last resort and though at certain times some of them may be regarded as less unstable than others, this does not alter the determination of the trader to conduct as much trade as possible in his own currency, even though the cost be high.

(xvii) As long as this instability and its effects persist a major recovery in British income from invisible exports is out of the question and the cost of conducting current trade must remain dear. The maintenance of a high degree of *de facto* stability for sterling does not appear to have been enough. The problem should be faced whether there is not more to be gained on balance at the present time from *de jure* stabilisation. It would seem probable that prolonged periods of "testing" for the purpose of ascertaining empirically the economic level of a currency may be largely worthless. Re-stabilisation would only be possible as a result of international co-operation and would take place, as a result of the world's intermediate experience of the technique of currency management, in very different circumstances from the post-war stabilisations. Conditions in the United Kingdom are, in particular, very different from those in which the 1925 stabilisation was undertaken.

The Functions of Finance in Relation to Trade

The present chapter is concerned with the extent to which financial measures can be used to assist and accelerate purely economic measures of trade development. But before embarking on a detailed discussion of the practical aspects of this problem, it is necessary first to make clear the scope and limitations of the use of financial measures as a constructive force.

The Oxford Dictionary defines the word "finance" as meaning the pecuniary resources of a kingdom, company or individual, and, as a verb, the provision of such resources. Thus, while failure to provide pecuniary resources in the form of capital may make trade infinitely more clumsy and difficult to carry on than it otherwise would be, it is nevertheless clear that it would be futile to provide financial resources for something which did not exist. Since, therefore, the relationship of finance to international trade is essentially one of dependence, it is impossible to expect that the provision of finance alone will recreate facilities for trading which have been destroyed by other agencies. Finance adapts itself to whatever the current conditions of trade may be. It can be used to oil the wheels of such trade as it may be currently possible, in the light of other factors, to carry on, in order that they may revolve faster and more freely. But its potential use as a lubricant depends at all times on the prior existence of the trading machine. If opportunities for trading do not exist, financial measures by themselves are of no avail in creating trade *ex vacuo*. Hence, while finance has a part to play in rebuilding a larger structure of international trade, it can only be of effective use in conjunction with other measures of a wider economic and political nature.

It is, of course, possible for a country, by manipulating the external value of its currency to secure temporary advantages for its traders of a kind which compel other countries to protect themselves by creating obstacles to the extension of trade. Currency depreciation is a two-edged weapon. Clearly, under present conditions the use—or misuse—of international financial machinery as an instrument of political policy by a large number of countries has been at least as fertile a source of hindrances to the exchange of goods and services as tariffs, quotas or other concrete impediments to trade.

The tripartite currency agreement between the United Kingdom, the United States and France, in September 1936, was intended, according to the announcements of the governments concerned, to help to remove a number of these trade barriers in so far as they arose purely from financial difficulties. In practice, the subsequent course of events has shown this view to have been too optimistic. The tripartite agreement has not proved sufficient by itself to achieve the desired result in any appreciable degree. Hence, it is necessary to devise new constructive action, and in this finance can play its part.

The Economic Position of the Creditor Countries

Regarded purely from the standpoint of their respective financial policies, three main groups of countries may be distinguished at the present time. The first of these comprises the creditor countries (the United Kingdom, the United States, France, Belgium, Sweden, Holland and Switzerland). All of these have now depreciated their currencies against gold and have established Exchange Funds for purposes of currency management. Two, at least—the United Kingdom and the United States—have been forced to use these funds increasingly for the purpose of keeping their currencies from appreciating unduly in the face of a heavy and prolonged influx of capital. This influx of capital has occurred largely for non-economic reasons. Much of it represents the movement of capital as between creditor countries: French funds moving to London owing to internal political troubles, and British funds moving to Wall Street in anticipation of rising security prices. It has now reached the stage where the flow of gold is becoming embarrassing to the recipients—hence the somewhat defamatory term of "hot money" by which it has been picturesquely described.

The United States administration has taken some steps to ensure, by "sterilising" part of the gold imported, that it shall not exercise an unwanted inflationary effect on the national economy, but the measures adopted can only be regarded as a palliative and do not tackle the real problem at all. The real problem is one of maldistribution of capital; it is not enough that money should be plentiful in the leading creditor countries while enterprise is starved elsewhere. To some extent, the influx of funds may still be due to difficulties in debtor countries, and it is important to remember that the removal of exchange restrictions in debtor countries might accelerate the influx unless accompanied promptly by other ameliorative measures in order to maintain confidence. As regards France, the time of major flights of capital has probably now passed, and Paris may be expected to function increasingly in its true capacity as a leading creditor centre. Taking the creditor group as a whole, the events of the first few months of 1937 have only served to emphasise the inherent dangers of a plethora of money and of the disruptive effects of large movements of funds under these conditions in response to changes in market psychology.

The Industrialised Debtors

The much larger debtor group of countries falls into two distinct divisions. One important though not very numerous band includes such countries as Germany, Italy and Japan, and may be characterised as the "debtor industrial" group, since, although debtors,

they are, in varying degrees, industrialised countries like the principal creditors, importing raw materials and exporting manufactured goosd. These countries have not, for the most part, been able to help themselves much by open manipulation of the external values of their currencies. They have, instead, been forced to adopt exchange control of a different and much more rigorous character than that employed by the creditor countries. These controls have been used, mainly and increasingly, either to keep the value of currencies up or to develop a system of selective currency depreciation, where the external value of the currency varies in effect according to the nature of the transaction, though the old parity is nominally retained. Some countries in this group have attempted to buy at one rate and sell at another, and by a control of their trading realtionships to extort forced loans from the countries with which they trade or to which they have outstanding financial obligations. Their whole policies have been conditioned by the necessity of supporting the desired volume of production and consumption upon inadequate financial resources. In this respect, their task is being made no easier by the rise in the general price level of commodities which, as industrial countries, they must buy to a large extent in world markets.

The Primary Producing Debtors

The third group consists of a large and scattered collection of countries, many of them already debtors on a large scale, and others large potential borrowers. Most of them are not industrialised in any degree, but are dependent mainly upon the production of agricultural and other primary commodities, some of them being highly dependent upon the market for one or two commodities alone. For the sake of convenience, this group of countries may be referred to as the "old debtor" countries, though some of them are not so much old debtors as large potential borrowers. These primary producing countries have largely looked for a solution of their immediate difficulties through the medium of economic or financial alliances with countries in the other two groups, but mainly with one or other of the creditor countries. Thus, countries in and outside the British Empire have based their financial policies on sterling and have concluded special trade agreements with the United Kingdom. Some, though not many, have allied themselves with the dollar; Canada must always to some extent link her fortunes with those of the U.S.A. Some, chiefly in Europe, have intimate financial and economic relationships with France. Others have been drawn, sometimes unwillingly and temporarily, into the orbit of Germany and Italy—members of the "industrial debtor" group. In general, however, natural economic forces, in the shape of rising commodity prices, have begun to reduce their difficulties and to restore the balance of payments of the primary producing countries to a position more in keeping with the existing structure of debts.

To sum up, the three groups have very different financial prospects. The creditor countries have ample funds and, for the most part, favourable prospects which are only threatened by the limitations imposed upon recovery by undue dependence on the home market and by the inflationary dangers created by the existence of surplus funds. The countries in the third group, primary producing debtors, have their problems in the shape of insufficiency of capital and a burden of debt contracted at high rates of interest and

unadjusted to the fall in productivity of the capital assets, but economic forces, in the shape of rising commodity prices, are tending to make their difficulties less formidable. In contrast, the industrial debtors are faced with increasing difficulties. The shortage of capital and the problem of past indebtedness are as serious as ever; commodity prices have risen against them and accentuated the shortage of foreign exchange; and in some cases, their foreign commitments of a non-economic nature are increasing.

The Problem of Economic Reconstruction

Regarded purely from an economic point of view, the difficulties of the debtor industrial countries are the keypoint of the present impasse. If they could be solved, their solution would automatically contribute much to the abatement of the remaining difficulties of the "old debtor" countries, which have consisted mainly of a restriction of export outlets coupled with the burden of past debts. Economically, the first step towards a solution of the world's difficulties would consist of measures calculated to set up the currencies of the debtor industrial countries in a position where they could be freed of control. In so far as this would be a problem of finance, the creditor countries would be able to help. But the problem is not merely one of finance and could not be solved by the extension of financial assistance alone. The problems of many of the debtor industrial countries are not even due only to difficulties arising from financial and economic causes. They are the result of financial and economic policies which have been forced to fit larger national aims embracing also social, political and even "racial" objectives. In default of a comprehensive agreement covering the whole field of possible co-operation—economic, financial and political—it is obviously impossible and indeed highly dangerous, for the creditor countries to extend assistance piecemeal which might only be used to strengthen isolationist tendencies based on grounds which must appear in the long run economically unsound. Hence, co-operation must be complete, or it cannot be envisaged at all as a practical policy. Further than this, financial assistance cannot at any time or in any particular case, be extended with any hope of success except as part of a wider scheme of economic co-operation. The experience of attempts at reconstruction in the decade ending in 1930 should have taught us this, if it taught us nothing else. Financial assistance for purposes of reconstruction can only be of use if it is accompanied by measures of economic assistance which will consolidate the beneficial effects of financial aid.

These factors impose serious limitations upon the geographical scope of possible financial measures of assistance in the immediate future, but they do not prevent the preparation of the ground or the consideration of the directions in which financial policy can be usefully employed.

The Redistribution of Financial Resources

The first condition for the successful widening of the scope of international financial co-operation must be to recreate conditions in which the abnormal and embarrassing flow of funds to the major creditor countries and the upward pressure upon their currencies is stopped and, if possible, reversed. The achievement of this object implies in the first place greater political and financial stability within the creditor group itself. This may

already be emerging slowly from natural causes, but could be much accelerated by constructive co-operation. In the second place it is necessary to remove as far as possible the fear, largely political in origin, which has played a large part in causing the flight of funds from other currencies to the creditor group.

Assuming, for the moment, that steps can be taken towards the establishment of this first condition, it would become increasingly possible to use the financial strength of the creditor group, in conjunction with the purely economic measures which are discussed in earlier chapters, to secure an improvement in the general economic position of such of the hard-pressed countries as are willing to co-operate at all points. In this process two main types of financial assistance would be required. In the first place, economic reconstruction and economic development would require long-term capital; in the second place, a larger volume of international trade would require increased short-term financing. London must obviously play a leading part in both spheres, as in the past.

The Position of London in Post-War Finance

The development of the pre-war international economic system went hand-in-hand with the development of an international financial system. The Old World exported not only men and women and goods and services, but also money. It provided long-term capital for the opening up of new areas, for the building of railways, harbours, mines, and for the establishment of local industries. In addition, it made available short-term finance for the whole series of business transactions between the producer of raw materials at one end of the chain and the final consumer at the other. London was a world financial centre far more truly than it was a national financial centre. The most highly developed part of the London financial system was to be seen in the acceptance and issuing houses, with their valuab'e special knowledge and contacts which enabled them to act as a channel for British savings. They provided investment opportunities both for long-term capital, through the new issue market, and for short-term capital through the bills which they accepted and placed on the bill market. Their world connections—for most of them had originated as merchant houses, and the term "merchant banker" still survives—enabled them to open up opportunities which would have been out of reach of any more localised financial institution. Trade and finance went hand in hand.

With the War came a complete break in continuity, and after the War the economic situation was altered out of recognition. The char cteristic features were less economic and more political, the growth of new creditor countries led to competition among lenders, and investment opportunities tended to become investment necessities—necessities from the point of view of the borrower rather than of the lender. The machinery of London adapted itself to the new conditions; London played a leading part in organising reconstruction lending under the auspices of the League of Nations, and in establishing new institutions to maintain contact with Central Europe, the Near East, and elsewhere. At this time finance was not only accompanying commercial development but was even trying to lead the way in the attempt to restore order out of chaos and to build up an integrated world economic system once again. There can be no accusation against the City in its outlook; on the contrary, events have proved that perhaps it tried to do too

much. Slower progress would have been more in keeping with underlying realities and would have prevented some at least of the maladjustments which were revealed in the depression years. In this connection, the efforts of London to act only on a sound economic basis during this period was not necessarily a guarantee of success in so far as the whole world financial machinery suffered from the mistakes made by financial centres of less experience.

Since 1931 international financing has dwindled to small proportions. The decline is the consequence of substantial losses in different parts of the world, which have made for increased caution, and of increased risks and uncertainties due to trading restrictions and political obstacles. In part also, it is the result of deliberate policy. New overseas issues are subject to a rigid control. Other forms of foreign lending, though not restricted, are, in many cases, frowned upon. The pendulum has swung to the other extreme; instead of seeking to develop London's international business, official policy has aimed at keeping British capital at home in order to reduce pressure on the exchange and to promote ease in the domestic capital market for the benefit of Treasury and industrial financing.

New Opportunities for International Investment

Yet, the underlying demand in the world for capital for all purposes has not sensibly diminished even though it may have altered somewhat in character. Any attempt to create a larger volume of international trade would have to be accompanied by efforts to secure a more even distribution in the employment of financial resources. There is, in other words, an urgent demand for a resumption of international lending in various forms. It remains to be seen what are the forms these demands are taking and what are the best means of satisfying them, to the mutual benefit of borrower and lender, profiting from the experience of past mistakes.

Opportunities for useful long-term lending are likely to occur in two distinct forms.

Reconstruction Lending

There will, in the first place, undoubtedly be a demand for reconstruction finance, while opportunities will also doubtless occur for finance for the purpose of the development and expansion of trade. It is important to realise that these two types of finance are quite distinct in nature and purpose. Reconstruction financing is an economic proposition only in a general sense and should be conducted only with full understanding of its nature. Loans for the purpose of stabilising the currencies or balancing the budgets of foreign countries bring no direct economic return, but their indirect return in recreating conditions of stability and confidence in which trade can develop may be considerable. Even though they can be secured in theory upon a particular asset, such as the revenue of a State undertaking, they can seldom be regarded as self-liquidating in the strict sense. The hypothecated asset in most cases is not likely to provide a return in foreign currency from which the service on the loan can be met. Nor, in the extreme case of a default, is it in practice possible to enforce the security on which the loan is in theory based. Such

loans can only, as in the case of the League reconstruction loans in the post-war decade, be reliably expected to bring in a return in a general and indirect form—by the consolidation of the assets of the debtor and the general amelioration of trading relations—and in the latter connection only if the loan is made in conjunction with other economic concessions of a wider nature. From the national standpoint of the lending country, regarded as a whole, it may be profitable on balance to make such loans even if prospects of their repayment and of continued service are doubtful. But if this is so, it is inappropriate that the full burden of such loans to the lending country should fall, as did most of the League Loans, on the private investor. If the benefit to the lending country is likely to be general, the burden of a possible default should be generally shared and this can most readily be achieved if reconstruction loans are only made under the guarantee of the government of the lending country and if the burden of possible default is therefore spread over the whole body of taxpayers. It may be added that a government guarantee of this nature, by reducing the risk element for the private investor, enables such loans to be raised much more cheaply than would otherwise be the case, and this automatically diminishes the intrinsic possibilities of default.

Development Lending

Since the "old debtor" countries are already in a large degree linked to one or other of the creditor countries, there is no serious obstacle except the existence of unadjusted debts contracted in the past to the revival of loans for the purpose of capital development of backward areas on traditional lines. As the expansion and differentiation of international trade proceeds, opportunities for lending of this sort may be expected to increase. Such loans are essentially of a directly economic nature and, in so far as they are concerned with capital development, they can, in the right circumstances, lead to an expansion in the export of capital goods from the lending country. And since they usually contribute directly to the development of the fixed assets of the borrowing country, they can be regarded broadly speaking as directly self-liquidating, in the sense which does not apply to reconstruction lending. These characteristics only apply, however, within certain limitations. It is seldom possible to compel the borrower of a long-term loan to spend it on the purchase of goods in the country where the loan is raised. This may be provided for by informal agreement, but the borrower is only likely to raise the funds under these conditions or to respect such an agreement provided that the goods which he is expected to buy are competitive in price and quality with similar goods from other sources. In the post-war decade, this condition was not in general fulfilled in so far as Great Britain was concerned, but there is reason to believe, in view of the adjustments which have taken place since 1931, that British industries are economically more satisfactorily placed to-day, except in so far as they are subject to subsidised competition from other European manufacturers.

The subsidies that are given by the German Government, for instance, though Germany does not stand alone in subsidising the export of capital goods, are, if need be, large. They are also of a sufficient flexibility to ensure that any particular contract may be captured on price, if it is desired to do so. German undercutting by subsidy has in fact been pursued at times with what appears to be an excess of zeal, foreign quota-

tions having on occasions been underbid by something like 25 per cent. There are, however, some grounds for believing that this is not necessarily a permanent feature. In so far as the policy of economic isolation and self-sufficiency can be pursued to a successful conclusion and imports reduced, the need for forcing exports by means of subsidies for the purpose of acquiring foreign exchange may be expected to diminish. At the same time, the forcing of capital goods exports under clearing agreements is already beginning to prove self-destructive, as has been shown in an earlier chapter.

Although, therefore, the sale of British capital goods in conjunction with the extension of development lending may meet with difficulties, the marriage of the two transactions can probably be more readily achieved in the economic conditions of to-day than was the case in the post-war decade. And when loans can be linked to capital goods exports in this way the problem of transfer of the loan from the lending to borrowing country in the first instance is much reduced. Loans linked to capital goods exports in this way do not reduce the surplus on the balance of payments available for other commercial and financial purposes because the increase in exports itself produces the sterling which is lent to the borrowing country.

The process of linking foreign lending with British capital goods exports would be further assisted if, as is suggested in an earlier chapter, the export of technical assistance is consciously encouraged in conjunction with the extension of development loans. Technical experts sent out from this country, or foreign nationals having received a technical training here are capable, besides watching the best interests of British creditors, of stimulating and maintaining the goodwill of foreign purchasers for British capital goods, British financial institutions and technical services. It might, indeed, pay financial institutions in the City of London to encourage the building up of this goodwill by themselves organising and collecting young men of suitable technical training for this purpose, and giving them the security of employment and of adequate remuneration, the absence of which, in many posts in foreign countries at present deters many of the best trained men from seeking employment outside the British Isles. At the same time, care must be taken that such technical assistance is offered in a manner which does not offend the national susceptibilities of the borrower, and in all cases where the borrower is placed under an obligation, whether informal or otherwise, to buy British plant, it is imperative to ensure that the standards of the goods he is buying should at all times be maintained as regards quality and moderation in price.

The Extension of Equity Investment

Difficulties of transfer of loans in the first instance from the lending to the borrowing country are inconsiderable in relation to the potential difficulties of transfer of continuous service on the loan by the borrower. Defaults on foreign loans have recurred repeatedly in the past and will probably occur again in the future. But something can be done to make defaults less probable and less onerous to borrower and lender when they do occur. It would be too optimistic to expect that fluctuations in the prosperity of debtor countries will not continue to occur even if they become less sharp with the increasing diversification of the debtors' economies. In these circumstances, defaults or serious interference with

current trade can only be prevented from time to time if the misfortunes of the debtors such as are caused to primary producers by a sharp fall in commodity prices are borne also in some degree by the creditors. As long as Great Britain retained a virtual monopoly of foreign lending, this result was roughly achieved by the policy which London financial institutions customarily pursued—to withhold further funds from the defaulting country until such a time as the automatic adjustment of the balance of supply and demand of the commodities, on which the defaulting country depended, facilitated a return to prosperity and a resumption of payments. Since foreign lending has become internationalised, it is impossible to rely upon any such unity of policy among creditors, with the result that, for example, New York may continue to support South American debtors at a time when London decides that South America has over-borrowed in relation to her existing economic and financial position. In these circumstances good loans may in the end suffer along with bad. For the future, the risks of a freezing of the financial structure of debtor countries in times of low commodity prices with widespread destructive effects on world trading and financial relationships would be reduced if as high a proportion of of international investment as possible is conducted on an equity basis. In this way, foreign borrowers not being obliged to transfer fixed interest payments, will be able to meet a depression by the reduction of dividends. Such a procedure ensures that the effects of depression are equally shared by borrower and lender and that the recovery of the borrower is not impeded by the existence of a burden which he is temporarily quite unable to bear.

It may be objected that such an arrangement would not be any more attractive to the investor. The experience of investors in the last few years should, however, have taught them how much the guarantee of a fixed interest payment is worth on an international loan. Where, in fact, the income received from foreign bond holdings is liable to fluctuate no less drastically than the return on an equity holding, the additional legal security which the bondholder enjoys may not be worth very much. From a wider standpoint, foreign investment by means of equities rather than loans might be commended as likely to involve a much keener scrutiny of the economic prospects of the project to be financed in the first instance, both by the issuing house and by the private investor. The evils of "bond salesmanship" cannot arise if there are no bonds to sell and no attractive and seemingly secure fixed payment with which to tempt the less experienced investor.

It may also be objected that equity investment makes no provision for a sinking fund and, in effect, amounts to lending in perpetuity. It is true that this is a disadvantage in some respects, but is not so disadvantageous as might appear at first sight. In the first place, the wide distribution of wealth to-day enables risks to be spread. In the second place, the multiplication of Stock Exchange facilities enables an investor to make his own sinking fund arrangements. In the third place the probable life of an equity interest is generally allowed for in fixing its market valuation. And already in the case of many existing issues, the repurchase of the obligations of their country by foreign nationals constitutes a more effective sinking fund than that provided for in the legal terms of the loan contract.

World Consumption Trends and the Effects on International Investment

Borrowing by means of equities is not of course appropriate to all forms of lending, such as, for example, borrowing by foreign municipalities for the construction of public

utilities. The theoretical possibility has been advanced from time to time of permitting variations in fixed interest payments on such loans in accordance with the movement of some index of prices or prosperity. The practical difficulties involved are so great that it is doubtful whether such a scheme could ever be applied with success. A scheme of this sort was in fact attached to the payment of reparation annuities by Germany under the Dawes Plan, but, unfortunately, just at the time when it might have been usefully tested, it was excluded from the provisions of the Young Plan. This being the case, it is essential that whatever foreign lending has to be conducted at fixed interest, owing to technical conditions, should be conducted with caution. This is the more necessary in that fundamental economic changes may be making it gradually more difficult to maintain large volumes of transfers of loan services from debtors to creditors than was the case before the War.

As long as the populations of the creditor countries were increasing rapidly and their standard of living remained relatively low, the potential demand for the production in bulk of foodstuffs and primary commodities by overseas countries, such as could be encouraged by intelligent investment in their capital development, was considerable. The satisfaction of this demand created, as it were, an automatic sinking fund for the capital which was invested in order to allow the demand to be satisfied. Although the potential increase in the consumption of bulk foodstuffs may still be considerable, it is clearly not as large as formerly. In the first place, increases in the standard of living at this stage are likely to require a shift in the balance of production of various types of goods, both at home and overseas. There may well be a smaller relative increase in the demand for wheat and meat products and a larger relative increase in the demand for more diversified foodstuffs. The whole of the demand for these new products cannot be satisfied from domestic resources, although, in so far as it is fresh foods that are needed, British agriculture must be relied upon to change over and produce them. But for commodities such as fruit, butter and cheese, the rising standard of life in Europe will almost certainly necessitate an increased volume of imports from overseas. If the industrialised nations are going to consume a much larger quantity of commodities such as fruit, butter and cheese, and relatively less wheat and meat, primary producers overseas will need more elaborate capital equipment for transport, packing, local processing and the like, thus providing, during the development period, for complementary trade between the United Kingdom and the Dominions and other overseas countries. Thus, while the future course of economic development may require major capital investment such as in building railways and ports on a less extensive scale than in the past, the diversification and expansion of overseas primary production will undoubtedly require further capital outlay on a considerable scale. In so far as the populations of the creditor and industrialised nations are tending towards stability and even towards decline, however, the total volume of their consumption may not continue to increase as rapidly as it has done in the past, unless the rise in the standard of living is much accelerated.

At the same time, it must be recognised that the development of primary producing countries in the future is likely to be concerned, to some extent, with the building up of secondary industries producing predominantly for internal consumption. The development of such industries is carried out more appropriately by internal capital than by imported capital unless certain conditions are complied with. For the development of

secondary industries generally speaking contributes less towards improving the exporting capacity of the borrowing country than many earlier types of development which were more concerned with opening up the export trade in primary products. Unless the creditor country is prepared to take some of the output or unless development of an internal industry helps towards cutting down imports of goods and so improving the balance of payments of the borrowing country, investment in secondary industries abroad does not create a natural sinking fund for itself as easily as some of the traditional types of foreign investment. The export of capital for the development of secondary industries abroad must, therefore, be conducted with caution and is, at any time, best conducted on an equity basis.

The Reorganisation of Past Indebtedness

As has been mentioned earlier, an essential prelude to the resumption of foreign investment, whether for reconstruction or development purposes, is the reorganisation of past indebtedness.

Some progress has already been made in this direction, though it has often been by unilateral action of the debtor which the creditors have subsequently been compelled to accept *faute de mieux*. The Council of Foreign Bondholders and parallel organisations abroad have, however, by their activities on behalf of creditors, been able to restrain the baser instincts of debtors in some instances. Altogether, the progress which has been made in the adjustment of past indebtedness has not been unsatisfactory, although it has meant in many cases that the rights of the creditors have been very drastically scaled down. It is impossible to give a full account of the defaults which have occurred since 1930 and the efforts which have subsequently been made to patch them up, but the following cases may serve as examples.

Chile, which had otherwise maintained an exemplary record in respect of foreign obligations, declared a complete moratorium on external debt in 1931, which was hardly avoidable in view of the decline of export proceeds—particularly those of the nitrate industry. Following a reorganisation of the export system for nitrates and copper, the Chilean Government introduced a new law whereby, from the beginning of 1935, the Government's income from the exports of these commodities was to be applied exclusively to the service of the external debt. In point of fact, only 50 per cent of these proceeds are applied to payment of interest, with the result that bondholders have not received more than a fractional payment on their holdings. In 1935 the proceeds of the assigned revenues amounted to $4,128,251, and when half of this was applied to the payment of interest it was only sufficient to provide £4 15s. for every £1,000 of sterling bonds. The remaining 50 per cent is applied to the redemption of external bonds by purchases (at depreciated prices) in the open market. This particular arrangement has been criticised, perhaps correctly, as discriminating unduly in favour of the debtor, but the principle introduced—whereby Chile's foreign creditors are placed virtually in the position of equity holders, being dependent on the prosperity of two of Chile's principal industries —is salutary.

A more satisfactory example of the methods by which debt burdens must be adjusted

to a changed economic background has been provided by the Province of Buenos Aires. Financial stringency compelled the introduction of a funding scheme in 1932 for three years, and sinking funds were suspended except on the 6½ per cent Internal Consolidated Loan. By August 1935, improved conditions enabled the Provincial Government to make a new offer to bondholders. The Government had in the meantime adhered to the Argentine Unification Law by which certain revenues (previously assigned to loan services) will henceforth be collected solely by the Federal Government and redistributed in a fixed ratio to the Provincial Governments instead of being collected in part by each. The Buenos Aires Government consequently offered to make available improved security and to make service on its obligations independent of fluctuations in the rate of exchange. In return, it asked that bondholders should accept a reduction of interest, except on the 3-3½ per cent loan of 1906-09, as follows, with amortisation beginning in 1942:

	1936/38	After 1938
	%	%
5% Consolidated . . .	4½	4½
5% 1908	3¾	4
4½% External 1909/12 . .	3½	3¾
5% External Gold . .	3¾	4

China has also within the past two years made praiseworthy efforts to tidy up her external debt position. Payments have been resumed on two of the defaulted railway loans and certain other arrears made up.

The debtors of Eastern Europe have been less conciliatory, even when account is taken of their exceptional difficulties. Roumania's record has been particularly unsatisfactory, and a number of new agreements have been made only to be broken shortly afterwards. Greece has also consistently refused to transfer moderate amounts which representatives of the creditors and of the League of Nations have considered to be well within the country's abilities, and Bulgaria's record has also been unsatisfactory. Although history shows that the memories of bondholders are often short, the records of these countries during the last seven years will make a settlement more difficult. Nevertheless, they will probably be the first to realise that the settlement of their past debts is an indispensable condition to contracting new ones, and if funds become more readily available for international investment, they are likely to take a more optimistic view than hitherto of their own abilities.

Foreign Investment and the Balance of Payments

It has already been shown that in so far as capital exports can be correlated with exports of capital goods, the strain imposed upon the balance of payments in transferring funds from lender to borrower is minimised. It follows, therefore, that the flow of foreign investment need not be strictly conditioned by the position of the national balance of payments at any moment. Nevertheless, the ability of a country to lend abroad will, in general, depend upon the existence, in the medium period, of a surplus of income over current outgoings. It is highly undesirable that any country should consistently lend

abroad more than the annual surplus on its balance of current payments—or rather the running surplus from year to year, since it is seldom possible to measure in advance exactly what the position of the balance of payments may be. Any country doing so will be placed in the awkward position of "borrowing short and lending long" of which the United Kingdom was guilty in the period 1926-1931. A country's balance of payments reflects the results of its commercial and financial dealings with the outside world. Income is received from the proceeds of export trade in merchandise, shipping and insurance services sold to foreigners, interest on past investment, the entertainment of foreign tourists, etc. Most of it is spent on purchasing imports or in meeting other commitments of British nationals in foreign countries. The surplus of income over these payments can either be lent abroad as short term balances or it may be invested abroad at long-term. Otherwise it can only be liquidated by movements of gold into the United Kingdom. Before the war, the British balance of payments customarily showed a very large surplus, which was practically all lent abroad. Since the war, and particularly since 1931, the available surplus has been smaller as is shown by the Board of Trade's estimates which are reproduced in Chapter I*. It may be added, in parenthesis, that while a country should not, in its own interest, lend more than the running surplus on its balance of current payments, it is also desirable, in the interests of world equilibrium, that it should lend abroad to the full amount of its surplus if opportunities for sound lending can be found. But at the same time, it should be remembered that to lend abroad the surplus on the balance of payments for one year will only tend to create a larger surplus in the following year by the amount of the service on the new investment, unless, at the same time, measures are taken, such as by increasing imports or reducing exports, to ensure that the balance of payments is adjusted elsewhere. The history of American lending since the War should provide a sufficient warning to those who believe that a country can continue to lend large surpluses abroad with profit to itself and others without making major adjustments in its own economy.

Except for the fluctuations caused by cyclical movements in prices, the adverse balance of merchandise trade in the British balance of payments is not likely to vary very much from year to year, in the medium period. The adverse balance on merchandise account will, however, tend to be smaller in slump and in the early stages of recovery than in times of boom. For in slump the prices of primary commodities (which mainly affect the value of imports) tend to fall more drastically than the prices of manufactured articles (which mainly affect the value of exports). It is true that the period 1929-1936 has not, as a whole, shown a movement of this kind in the balance of visible trade. But the continuity was broken by two major changes—the depreciation of sterling, which affected the terms of trade, and the introduction of tariffs on British imports on an extensive scale. Whether or not a sufficient surplus is issued on current transactions as a whole to permit foreign investment on any appreciable scale, depends largely upon the size of the income from invisible exports and past investments. If it more than suffices to cover the adverse balance of visible trade plus tourist expenditure abroad and other smaller commitments, something will be available to lend abroad. Apart from interest receipts from past investments, British invisible exports are made up of income received from a

* See page 41.

variety of services such as shipping, insurance, and a number of facilities provided by the London money market, including the financing of other people's trade, of which we are net sellers to the rest of the world. It is important at any time in the national interest that the prosperity of the "invisible export trade" should be maintained. Efforts in this direction are particularly necessary in times of boom when additional income is needed from abroad to offset the rising tendency in the adverse balance of visible trade.

The Treasury Control of Foreign Transactions

As is shown by the Board of Trade's estimates, the overseas transactions of the United Kingdom resulted in a big balance on the wrong side in 1931. The depreciation of sterling was to some extent the consequence of this and the cure for it. At the same time tariffs were introduced as a reinforcement, and the Government virtually assumed control of the volume of foreign investment. The control imposed in 1931 assumed the form of a departmental "request" from the Treasury to the market, unsupported by any legislative sanction. In the first instance, the issue of foreign loans was virtually banned by this means and later, in June 1932, the Chancellor asked for the co-operation of issuing houses in suspending domestic issues in order to assist the War Loan Conversion. The restriction on domestic issues was lifted by stages and later on, Empire borrowers were readmitted to the London market on certain conditions. In June 1934, the ban was further modified in favour of certain loans to foreign countries in the sterling area. Loans for the purpose of stabilising their currencies on sterling and issues which were likely to be of direct benefit to British exports were then able to secure admittance to the London market. Early in 1936, the position was regularised by the appointment of a Foreign Transactions (Advisory) Committee. This committee is presided over by Lord Kennet, a former Financial Secretary to the Treasury and Minister of Health, and includes representatives of the Bank of England, the merchant banks, the joint-stock banks, the discount market, the Stock Exchange, insurance and industry. Its duties are to advise the Chancellor of the Exchequer generally upon the scope of restrictions and upon particular applications.

It is important to remember that this financial dictatorship of the Treasury over the operations of the City of London has no legal basis and depends upon the goodwill of financial institutions in respecting the observations, informal requests and expressions of opinion which the Treasury may see fit to make. Though in so far as the policy of the Bank of England is likely to conform to the Treasury's views, and in so far as the Committee of the Stock Exchange is also amenable, powerful pressure could be put indirectly upon any individual or institution who presumed to neglect the Treasury's advice. The control covers not only issues in London on behalf of foreign borrowers but all capital transactions involving a large movement of funds, including the purchase of large blocks of securities from foreign owners in one deal. It was imposed in the first instance in order to strengthen the protection of sterling and in this sense may be regarded as an adjunct of the Exchange Equalisation Fund. The public may be forgiven for reaching the conclusion, however, that in the course of time the control has been used at various times for just whatever purpose has suited the immediate policy of the Treasury. There have been signs, especially of late, of growing resentment in business circles.

The "Red Star" Case

A particularly informative instance of the not infrequent cases of friction arising from the Treasury's decisions occurred towards the end of 1934 when a British syndicate applied for permission to purchase certain ships of the American Red Star Line, then in the process of being sold up. The promoters' intentions were to organise a new transatlantic passenger service for tourists at rates which would undercut existing services by one-half to one-third. The Treasury was approached in an informal manner for approval and "in an equally informal manner" indicated that in the national interest the proposal should not be carried through. The reason for the Treasury's disapproval, as stated by the Chancellor of the Exchequer, was that the proposal would "facilitate the setting up of a new competition which could only have the effect of injuring" the Cunard-White Star merger which had recently been promoted by the Government with the assistance of a subsidy of £4½ millions. The syndicate received a further rebuff from the Treasury when it offered to go so far as to consult with the Government before building any new tonnage. The Government was unable to regard favourably a proposal which laid upon it "a recurring responsibility of an embarrassing character in respect of a concern in which it had no financial stake." At this, the promoters, possibly recalling that the Treasury's expression of disapproval had only been informal, seem to have contemplated continuing with their scheme. In fact, when asked in the House of Commons whether it could be assumed that the Chancellor would take no further effective measures to oppose the promoters if they chose to ignore his advice, the Financial Secretary to the Treasury replied in the first instance in the affirmative, but a day later reversed his decision. The episode was instructive as indicating, in the first place, the extent to which considerations extraneous to the protection of sterling appear to influence Treasury policy, and, in the second place, the weight which must be attached to informal expressions of departmental opinion. It may be mentioned that the final outcome of the Red Star case was that the ships in question were bought by Germany and immediately put into service, while the British syndicate is carrying out its plans by building new ships in the United Kingdom. The British Government, therefore, far from averting possible competition from Cunard-White Star has only succeeded in intensifying it.

Capital Control Policy

Altogether, the position must be regarded as serious, inasmuch as major decisions of policy can be made and enforced by moral pressure without opportunities of public debate or control through Parliament. In these circumstances, it is not surprising that the opinion is on occasions expressed that the control is used less for reasons of wide national policy than to suit the current requirements of Treasury financing. The formation of the Advisory Committee may have done something to make the system less productive of friction in practice. The terms of reference of the Committee have been publicly laid down and later elaborated by the Committee itself in a circular to all interested parties. The primary consideration to be observed is the protection of sterling, of which the intrinsic strength must be judged without reference to the temporary influx of short-term funds. The Committee is not, in general, concerned with private overseas investment as long as it is not made for the purpose of redistribution or likely to lead to

public dealings. Regard will be paid, in treating applications, to exchange considerations and the movement of international securities as between London and other markets. Empire borrowers will receive favourable consideration (they have long received special advantages under the Colonial Stocks Acts) as will loans which will finance additional British exports or assist British-owned enterprises overseas. Moreover the Committee was instructed in examining applications to take account of the treatment accorded to British-owned enterprises by the foreign country concerned. Finally, the position has been further re-defined in a recent Treasury statement which requires that the following four types of financial proposals should be submitted to the Committee for approval:—(i) financing on behalf of foreign authorities; (ii) capital offers to the public involving remittances directly or indirectly outside the British Empire; (iii) similar offers not made to the public but being the subject of applications to the Stock Exchange Committee for "permission to deal"; (iv) the acquisition from foreign holders of large blocks of securities (including securities dealt in on the London Stock Exchange) for the purpose of resale in the United Kingdom. It will be noted that investment trusts, and perhaps even some ordinary businesses operating mainly in the United Kingdom, may be affected by the second requirement when wishing to raise new capital.

While the position now appears to have been regularised, the strictness of the control seems, if anything, to have been increased. The refusal of facilities to the French Government in the matter of the large Defence Loan issued in the spring of 1937 appears to have been particularly shortsighted when the wider circumstances surrounding this issue are recalled, though with defence borrowing operations of its own in the offing, a certain cautiousness on the part of the Treasury was only consistent with its past policy regarding foreign issues.

The system of control as at present operated and in the permanent form which it now seems to have assumed is the more regrettable in that it is imperfect. Discrimination is an essential feature of any system of control of capital exports. But the British system is only able to discriminate successfully over part of the total volume of capital exported. Although informal, the control is undoubtedly effective, for a variety of reasons, over the field which embraces new issues and offers of capital or purchases of blocks of shares of such dimensions that special banking facilities are likely to be needed. Two of the most important factors in the international movement of capital to-day, however, are the purchases and sales of existing securities on foreign Stock Exchanges by investors, and the disposal by traders of the proceeds of their exports of goods and services. Short of a complete system of control of transactions by the allocation of permits for all dealings with foreign countries, as, for example, is done in Germany, international capital movements cannot effectively be controlled in the long run. In certain circumstances, movements of funds of an uncontrollable nature may rightly be regarded as undesirable. Under the present system the authorities can, however, do little to check such movements and, if they decide that some check must be applied, can act only in respect of such part of the market as they effectively control. In these circumstances it is not inconceivable that undesirable movements will be allowed to flourish while desirable movements are suppressed.

The entire question, both of the methods on which the control is based and of the general policy which underlies its operations, needs to be carefully re-examined in the light of the wider requirements of the national interest. The conclusion, we believe, can only be that a relaxation of the restrictions on foreign borrowers is overdue. It may be added that there seems to be no really satisfactory reason why loans to British borrowers should be intrinsically sounder or more economic than those to foreign borrowers. The admission of British borrowers to the London market on preferential terms must, therefore, be attributed to political factors and on balance, at the present time, the advantages do not appear entirely to outweigh the disadvantages.

Growing Importance of Medium-Term Credits

Government intervention in financial business has not, however, been confined to attempts to regulate overseas capital issues and other large capital transactions abroad. The Government has encroached to an increasing extent in recent years on the preserves of private enterprise in the important field of short-term credit and the increasingly important medium-term credit.

Medium-term credit, bound up with the export of capital goods is, relatively, a modern development. It is largely a consequence of slump conditions and the drying-up of long-term capital exports; foreign borrowers, unable to obtain funds on long term have been driven to borrow as far as they can on medium term. Medium-term lending of the type which has developed since 1932 has enabled countries which cannot meet all their past obligations to single out small and specially safe transactions for financing abroad. Importers have been the more able to use this machinery because lending countries have been anxious to increase their exports and have been prepared, in certain circumstances, to overlook past bad debts. This represents a common-sense attempt to prevent unliquidated past obligations from interfering unduly with current trade of a beneficial nature. And it can usefully continue as a permanent feature, since it will always be a useful method of financing specific desirable projects in countries which are not immediately creditworthy, or transactions which are too small in size to be financed economically by the traditional methods of foreign lending. There is no reason why private institutions should not play an increasing part in medium term financing, though hitherto it has been carried out mainly by government enterprise.

Moreover, there is a certain permanent economic foundation to the increase in the importance of the medium-term credit. This is due in some degree to the smaller scale of many individual capital projects to-day as compared with some of the large scale developments of the past. New capital expenditure for the purpose of purchasing additional rolling stock or for constructing machine shops, for instance, is likely to be less heavy than the original capital expenditure for the construction of main-line railways. This tendency will probably persist as increasing emphasis is laid on the development of light industry. For the purpose of the modern capital project, therefore, the total funds required in the first instance may well be smaller than in the past, and the time required for amortisation may, consequently, be shorter. The speed of technical progress in modern times, also, demands that plant should be written off more rapidly on account of obsolescence.

The Export Credits Guarantee Department

Developments in this field have largely taken place under the influence of government. While the authorities have adopted a negative attitude in the case of long-term capital exports and have sought to prevent new foreign issues being made in all but certain approved cases, they have taken a positive line in encouraging the extension of short and medium-term credits used to finance British exports. Government policy has been implemented through the medium of the Export Credits Guarantee Department of the Board of Trade, which, it should be noted, has counterparts in several other countries exercising approximately similar functions.

The Department was founded shortly after the war for the purpose of insuring for British exporters on a short-term basis their business with certain countries where the credit risks involved were considered to be very high—higher in fact than established financial institutions were disposed to regard as legitimate business risks. For many years, the Department dealt principally with Russian business, but its scope has, in the course of time, been greatly enlarged as regards the countries covered, the length of credits eligible for guarantees in certain circumstances, and the contingencies against which credits may be guaranteed.

From dealing with credit risks on current trade in a relatively small group of countries where business was particularly difficult, the operations of the Department have been extended to the guarantee of credits on exports to any country for a period of up to ten years. Subject to certain conditions, transfer risks as well as credit risks (i.e. the risk of insolvency of the importer) can now be covered. In practice, the Department appears to be very reluctant to guarantee extended credits, and transactions involving credits of more than two to three years duration have probably been rare and credits of this length are only usually guaranteed in the case of exports of machinery. The guarantee of credit risks applies only to U.K. exports (other than munitions) and does not normally cover more than 75 per cent of the value of the goods shipped. In practice, however, disclosure of costs and of the margin of profit may be necessary in order to qualify for cover of a percentage as high as this. From the point of view of the trader, also, the limitation of the guarantee to a proportion only of the total value of the transaction, tends to make the guaranteed credit a less satisfactory instrument than the ordinary trade bill if he wishes to recover cash immediately by discounting.

The rates charged vary within the discretion of the Department, but are definitely lower for regular customers or those who insure all their export business with the Department under a "comprehensive guarantee." As the business is not large enough to permit the assessment of charges on a completely actuarial basis, and as none of the business is reinsured, rates tend to be high. Certainly large profits must have been made on the Department's guarantee of trade with Russia, and it is sometimes said that these have been used to subsidise business elsewhere. The Department has, in the course of years, accumulated a substantial reserve out of profits. This has been paid into the Exchequer, but is recoverable in case of need.

Cover for transfer risks is given in addition to cover for credit risks only on the following conditions. The Department is prepared to guarantee to an exporter of United Kingdom goods *invoiced in sterling* that he will receive from a solvent buyer 75 per cent of the sterling value of those goods six months after the original due date of the bill of exchange or account, provided that all import requirements and exchange regulations have been fully and punctually complied with. The guarantee normally covers only goods shipped within three months of the date when the cover is issued and will not necessarily be renewed. The Department reserves the right to alter its premium rate for transfer cover for shipments to a given country at any time; premiums of course vary with different countries as well. The Department may also at any time decline to provide further transfer cover on any country beyond its existing commitments, if it considers the country in question to have bought enough already in relation to its capacity to transfer sterling. If the Department has to pay up under its guarantee, it retains a charge upon the proceeds of recoveries until its payments have been recouped *with interest.* Transfer cover is not given for individual transactions. In view of the immense complications of the business, transfer cover to any country is normally available only to exporters *who insure the solvency of the whole of their overseas buyers* under the Department's Comprehensive Guarantee.

The Department is possessed of certain advantages which are denied to private institutions. Its information service is indisputably better, partly owing to sheer efficiency, due to no small extent to its ability to build up its foreign relationships *de novo*, but partly owing to the access to the government commercial intelligence service which it enjoys as an official body and an adjunct of the Board of Trade. In the second place, it is backed ultimately by the full financial resources of the State. The latter advantage can, however, be exaggerated. There is no doubt that the principal reason for the Department's success has been the exceptional commercial ability with which it has been run and the extent to which it can spread risks all over the world.

The Dangers of Government Competition in Commercial Activities

It is usually argued that the Export Credits Guarantee Department does not compete with private institutions, since it is undertaking business which no private institution is willing or able to take in view of the risks involved. This argument must be critically examined. It is, of course, true that private institutions cannot protect traders against transfer risks and are normally very cautious about increasing their commitments in countries where the exchange risk is high, whatever the intrinsic merits of the commodity transaction under consideration. The Export Credits Guarantee Department provides cover against transfer risk, at a fairly stiff price, as long as the situation seems moderately safe, but reserves the right to refuse cover—in the same way as private institutions—if the situation becomes dangerous. Moreover, by stipulating that traders wishing to cover *exchange risks* on any transaction must insure *credit risks* on all their overseas business with the Department, the latter is taking care that it should get plenty of good risks as well as a few bad ones. It is too often assumed that the Export Credits Guarantee Department is only there for the purpose of taking bad risks which private institutions cannot shoulder.

In fact, it will only do so provided that it gets as well business which private institutions might be very glad to undertake. When the Department is called upon to fulfil its guarantee to pay sterling on an overdue debt, it does so subject to the retention of power to recover with interest when the debt is eventually met. As only 75 per cent of the value of the transaction is insured in the first place, the exporter is not therefore by any means immune from loss.

From a business point of view, the Export Credits Guarantee Department has been an undoubted success. In fact, its financial success really constitutes one of the chief reasons why the principle involved must be critically examined in relation to long-term policy. The Department's activities are usually defended on the grounds that it does enable business to be done which would otherwise be impossible, that it is operated on purely commercial lines and that it has proved profitable in operation. Considerable emphasis has been laid from time to time on the fact that it is not designed to subsidise exports. On the first point, no one can deny that the Department has performed an invaluable function in promoting British exports at a time of great economic difficulties. In many cases, the Department's guarantee of transfer risks enabled business to be done, which could not be covered by private institutions, and which, therefore, could not otherwise be transacted. If the premiums charged are high, they are only proportionate to the risks involved. But it should be noted that in accepting this type of business, the Department is careful to cover itself very thoroughly, and the trader is by no means immune from all loss. The principle of leaving the trader with some liability in the event of a default is, on the whole, to be commended as an encouragement to prudent trading. But the conditions under which the Department accepts the heavier risks must tend to raise the cost to the firm using the Department's facilities of conducting all its overseas business. For the Department is not in existence only for the purpose of carrying bad risks which private institutions cannot shoulder, but does so only on condition that it receives other business on which the risk is not abnormal. And on this other business the rates charged tend to be higher than those which prevail on the open market. Approval of the Department's activities in facilitating difficult transactions must, therefore, be qualified by appreciation of the fact that it tends to increase the cost of exporting as a whole. The services of the Department will always continue to be valuable in promoting development lending to countries where conditions are difficult. But if and when conditions of international trade become easier there is some danger that the Department's encroachment on the field of ordinary commercial business will become a much more serious problem, since it will tend to perpetuate a high level of costs in the financing of exports. If the Department existed merely to assist British export business to areas where special difficulties exist, this criticism would not arise. But, in fact, its activities are by no means confined to this, and consequently its position has become the dangerous one of a privileged State-owned institution operating on a commercial basis and making profits in competition with private institutions. It is this hybrid nature of its activities which is the principal cause for concern, and it would seem that sooner or later the question will have to be faced whether the State is to take over responsibility for financing the whole of the British export trade or whether its activities should be strictly confined to assisting only those exports where assistance is very obviously needed.

The Decline of Traditional Methods of Trade Financing

The question may well be asked—if the services of the Department are in part identical with those which private institutions can render, and are given at a high cost, why do traders use the Department and disregard the private institutions? The question is pertinent, but the answer is to be found in part in the fact that the average manufacturer and trader have lost contact with the traditional machinery of trade and finance and no one has made it his business to see that such contact is maintained or renewed. At one time a very large volume of the trade of the world, not merely trade which concerned Great Britain as an importer or an exporter, was transacted in sterling and financed through the machinery of the banks and acceptance and discount houses of the City of London. Notwithstanding the fact that the procedure of drawing bills and of acceptance and discounting is complicated and a matter for experts, large numbers of manufacturers and traders were, before the war, accustomed to trade by means of bills of exchange. They did so largely because the expert advice necessary to this method of trading was readily forthcoming. It was readily forthcoming because banks the world over wanted good London trade bills for their investment portfolios. Hence, they were prepared to take trouble to see that an ample supply of bills was always coming into the market.

The Machinery of the Bill of Exchange

It may be appropriate at this point to give a short sketch of the methods by which trade is financed by bills. A British importer may require to finance a shipment of oranges from Brazil. He is unwilling to pay cash until he has not only received the oranges but had the time to dispose of a substantial proportion of them on the market; at the same time the Brazilian exporter is unwilling to export except under conditions where he can obtain reasonably prompt payment. In order to meet both these requirements the British importer can go to an acceptance house in London or a British bank undertaking acceptance business and arrange with them to open a Documentary Credit in favour of the seller in Brazil. This may be opened in sterling, in which case it will probably be payable in London, or in Brazilian currency, in which case it will probably be payable in Brazil through a local bank acting as a correspondent to the London issuing bank. If it is a "Confirmed Credit" it bears the guarantee of payment of the paying bank as well as of the issuing bank. The Brazilian exporter draws a bill on his London debtor and, having made the shipment of oranges, takes it together with all the necessary shipping documents to his local banker. The local banker recognising the name of the London acceptance house which has opened the credit, will, usually, be prepared to buy the bill from the Brazilian exporter, who is thereby paid off, and will forward the bill to its London agent for negotiation together with all the documents concerning the shipment. The London agent presents the bill to the London accepting house for acceptance and, having secured acceptance, hands over the shipping documents which enable the British importer to take delivery of the oranges. The London agent for the Brazilian bank can then either hold the bill for collection from the acceptance house as it becomes due, or can obtain prompt cash by selling it in the London discount market where it will be regarded as a desirable security. The importer meanwhile sells the oranges and from

the proceeds provides the acceptance house with the necessary funds to meet the bill when it falls due and at the same time pays a charge which will not normally exceed 2 per cent per annum on the value of the transaction, as a reward to the acceptance house for having lent its credit-worthy name as a guarantee of integrity. The acceptor is, of course, obliged to discharge the bill on its due date whether or not he has been put in funds for the purpose by the importer.

Acceptance houses do not only lend their names to assist British importers. They have also traditionally done a large volume of business in the reverse direction—involving acceptance of bills on behalf of foreign importers—and also business in which Great Britain is not concerned at all, either as importer or exporter. In doing business abroad, however, they do not normally deal directly with the foreign importer but with a foreign bank. The London house in effect undertakes to accept bills obtained by the foreign bank from its clients up to a total amount outstanding at any one time. The greater part of the sterling frozen in Germany under the "Standstill Agreements" originated in business of this sort. The principal asset of an acceptance house must obviously be very detailed knowledge of the credit standing and integrity of the importers and bankers whose bills it may be asked to endorse and its charges will vary according to the confidence which it can place in its customers. In fulfilment of their functions, therefore, the acceptance houses before the war accumulated a vast store of knowledge of the standing of firms and individuals not only in this country but abroad, where each concern has always tended to specialise in particular countries. To this extent, the acceptance houses became, as it were, the intelligence service of the whole banking system and the agency through which the debt of one individual to another could be transformed into a negotiable London bill. Acceptance business forms one of the most important activities of the "merchant banks," though its proportionate importance has declined in recent years and many merchant banks have branched out in other directions, such as the finance of British industry. The joint stock banks also play a large part in the acceptance of bills, but bill business does not constitute such an important part of their total activities as in the case of the merchant banks. Most of the merchant banks also act as issuing houses, through which the loans or securities of foreign borrowers are introduced to the London market. This side of their business has inevitably almost disappeared in recent years but has been replaced in part by similar activities on behalf of domestic borrowers.

The Bill Market

The development of the system of financing trade by bills depended ultimately upon the existence of an active bill market. This is provided by the discount houses whose business consists entirely in buying and selling bills. They operate almost entirely upon borrowed money, often obtained on a day-to-day basis from the joint stock banks. The joint stock banks have, in fact, looked to the bill market as a means of employment for their surplus cash and a source from which can be obtained bills of a sufficiently safe character and of the desired dates of maturity for inclusion in their own portfolios. In times of stress, the bill market is dependent upon the rediscounting facilities of the Bank of England and is, in fact, the entrance point for the Bank's control of the monetary system by the machinery of Bank Rate.

As long as the banking system remained regionalised, there was always a good demand among local bankers for liquid investments and for this purpose bills drawn in such a form that they were readily negotiable in case of need in the London bill market, ranked high. Consequently assistance for local manufacturers and traders in drawing bills in proper form was readily forthcoming. The bill of exchange was the most important medium for conducting foreign trade and bills were also used largely for internal transactions. The inland bill has long since disappeared with the growth of the internal financial resources of industry and the increased use of the overdraft as a means of financing trade transactions, which is attributable to the growth and integration of deposit-banking. In addition, sterling was without dispute the major currency of the world, so that apart from the greater part of British overseas trade, much other trade was customarily invoiced in sterling as well. This helped to swell the business of London and probably contributed towards keeping its charges cheap. Various circumstances have combined to alter this background since the war, to the detriment of London's business in financing world trade, and these must be shortly examined.

The Decline of Sterling as a World Currency

The use of sterling as a common trade currency certainly declined immediately after the war and never fully recovered, even following re-stabilisation in 1925. London had begun to lose its monopoly in the finance of world trade; in addition certain classes of bills were regarded as suspect, and charges were dear. Many foreign traders, also, either through increasing nationalism or through fear of exchange instability, became reluctant to transact business with the United Kingdom except in their own currencies. This, of course, reacted adversely upon the supply of sterling bills and meant that the British participant in the transaction bore the exchange risk. In addition, the instability of sterling itself lessened its attractiveness as a "neutral" currency in which trade between two foreign parties could be conducted. Five years of stabilisation did something to restore the volume of London's business, but not to pre-war levels. The depreciation of sterling in 1931 administered a further shock, though sterling has subsequently recovered some of its prestige as an international currency. In addition, the imposition of exchange restrictions in many foreign countries has created the further risk that the individual debtor, though perfectly solvent in his own currency, may be unable to obtain sterling exchange for the purpose of transferring payment. This has obviously still further affected the ability and willingness of foreign traders to assume liabilities expressed in sterling. Hence the use of the sterling bill has suffered an all round decline, in spite of its cheapness, because the risks involved in its use, which were at one time almost negligible—particularly to British traders—have now become formidable owing to the instability of exchanges and restrictions on the free movement of funds. A further factor contributing to the decline of sterling as an international currency has been the declining importance of organised commodity markets. These are mainly situated in London or Liverpool and quote prices in sterling, and formerly a large proportion of the purchases and sales of commodities entering into international trade took place through them. Since the war, direct trading as between producer and consumer has increased, and is not necessarily conducted in sterling. Operations on some of the commodity exchanges have become confined more and more to hedging transactions.

Changes in the Structure of Banking and the Money Market

But at the same time, the popularity of the bill of exchange as a medium for conducting trade has been affected by a more fundamental change—declining demand as a medium for investment. The disappearance of the country banks and the substitution for them of the highly centralised system of the clearing banks has led to very radical changes in the character of British banking as a whole. Local branches need no longer be concerned with maintaining their individual liquidity to the same extent which prevailed with the private banker; amalgamation has in fact led to economy in liquid resources. And when earning capacity only is considered, the making of advances on overdraft is a much more lucrative business for bankers than the discounting of bills.

In so far as some of the assets of the clearing system must always be held in readily realisable securities, the trade bill has, of course, remained in demand along with other short dated securities. But at the same time there has been a very large increase in the volume of Treasury Bills and other short-dated Government debt in the market. There is no doubt that in the post-war decade with a high rate of return available from lending on overdraft, and a plentiful supply of Treasury Bills bearing high rates of interest, the clearing banks were not compelled to make undue efforts to see that the volume of trade bills in the market was maintained. The volume of Treasury Bills issued by tender rose from £10 millions at the end of 1913 to over £550 millions at the end of 1929 and over £600 millions at the end of 1936. This enormous increase in the volume of Government paper has transformed the bill market and for ten years after the war gave the banks most of the turnover in bills that they could reasonably want in a form which needed very little expense in management. In consequence, there is some reason for believing that many British manufacturers and traders to-day would not know how to use a bill of exchange even if they wanted to, because it has been nobody's business in the past twenty years to teach them. It would not be at all surprising to find that the business of the London acceptance and discount houses, heavily curtailed as it is by currency instability and exchange restrictions, includes to-day a higher proportion of transactions on behalf of foreigners than before the slump. Many British firms prefer the easier, but infinitely more expensive method of financing through the Export Credits Guarantee Department which probably now insures about one-quarter of the country's total exports, or financing on overdraft, which is also more expensive than the bill.

Need for Revival of the Trade Bill

In the changed conditions of the money market of the last few years, since the heavy fall in the rate of interest, there is some evidence that the clearing banks are beginning to regret the decline of the trade bill. The volume of the Government's floating debt has been reduced and the interest to be earned on Treasury Bills has fallen to the neighbourhood of ½ per cent per annum; at the same time industry has become less dependent upon the banks for advances to maintain working capital and the banks themselves have been forced to invest an unusually large proportion of their assets in the gilt-edged market. With the Treasury's insistence on the continued maintenance of cheap money and the demands of rearmament borrowing upon the gilt-edged market,

there seems to be little prospect that bank balance sheets will be relieved of a disproportionate reliance upon investments in Government securities for some time to come. Alternative investment opportunities would undoubtedly be very welcome to the clearing banks. It is not without significance that one of the clearing banks which issued in 1925 a short brochure for the instruction of its customers in the machinery of foreign trade financing by means of bills, should suddenly have repeated the publication of this booklet in 1932 and in practically every year since. A subject which was disregarded between 1925 and 1932 has suddenly attracted renewed interest since the latter year.

Undoubtedly, on the score of its cheapness alone, the advantages of the bill of exchange require to be brought again to the notice of the trader. The acceptance houses and the joint stock banks might well consider the possibilities of co-operation for educational and propagandist purposes in an effort to re-establish the trade bill. At the same time, if the chief recommendation of the trade bill—its cheapness—is to be made the most of, it is essential that the cheapest possible rates should be achieved by an overhaul of the machinery of acceptance business itself—in which the most important factor is the efficiency of its information service. In this connection, the geographical specialisation which the principal acceptance houses have always maintained is the soundest method of arriving at an efficient organisation.

With the decline in the use of the trade bill and the greatly increased difficulties which surround its use, there has probably not been much direct competition between private institutions and the Export Credits Guarantee Department. Should the trade bill show any tendency to revive in popularity, however, an increasingly difficult position would be likely to arise. Unquestionably the Department fulfils a useful function in covering risks to certain countries which the open market hesitates to touch and in covering transfer risks which the market does not touch at all, but it does so only on condition that it gets also business which private institutions might be glad to handle. The Department has, moreover, special facilities, in access to the official intelligence service, which the market does not possess. As trading under an Export Credits Guarantee is also comparatively expensive to the trader, it does not seem altogether satisfactory in the national interest that a Government institution possessing certain special advantages should continue to encroach on the field formerly served by private enterprise if there is any prospect that private enterprise is likely to perform the same services more economically.

The Effect of Exchange Uncertainty on Invisible Exports

Apart from the ignorance of the public in the machinery of its use, the chief obstacle to the increased employment of the London trade bill as a means of financing trade is exchange uncertainty. British traders can *avoid* the risks of fluctuations in foreign currencies only if they are able to insist on transacting business in sterling, as they did for the most part before the War, though they can *cover* the risk of fluctuation by forward exchange operations. But it will only be possible to plant the exchange risk on the foreigner by insistence on the use of sterling if the financial facilities offered by London are so superior to other available methods of finance in point of cheapness that the saving

covers the risk, for the foreigner, of using sterling. Moreover, as long as sterling remains an unstable currency, it is difficult to see how it can exercise much appeal as a medium for transacting business entirely between foreigners—the type of business which at one time accounted for a large percentage of the turnover of the London money market and of the country's income from invisible exports.

It is, of course, true that this does not apply over the substantial area of the world which is known as the sterling area, while the tripartite exchange agreement of September 1936 between the United Kingdom, France and the United States has done something to increase international confidence in the exchange stability of the three currencies concerned from day to day. But even these conditions do not offer over much security, as is shown by the recent indications of a possible revaluation of the Swedish Kronor, and the fact that the Tripartite Agreement is, virtually, only on a twenty-four hour basis. In addition to the risk of currency fluctuation, there is also to-day the risk in doing business with many countries that the sums due cannot be transferred. There is no way of avoiding this risk or of covering it in the open market, though the Export Credits Guarantee Department will cover part of it at some expense and subject to conditions which have been outlined earlier. But it is essentially a slump phenomenon and may well be expected to decline in severity as the balances of payments of the hard pressed countries take a better turn in consequence of a better equilibrium in the price relation of primary to other commodities. The creditor countries have it in their power to hasten a return to better conditions in this respect by the judicious use of "reconstruction lending" where the circumstances are propitious.

Something can probably be done to increase the cheapness and popularity of the trade bill by overhaul of the financial machinery, but this can only go some part of the way towards restoring the turnover of London trade bills. The principal obstacles to increased turnover are exchange instability and interference with the free movement of funds. Exchange instability is, therefore, having the dual effect of keeping up the cost of trade financing and keeping down the United Kingdom's income from invisible exports. The importance of maintaining income from invisible exports and of increasing it at this stage has already been touched upon. The extent to which London's financial services, which make up a large part of British invisible exports, are employed by the rest of the world depends on three factors—the volume of world trade, the price at which London can offer its services in competition with other centres, and the extent to which foreigners regard sterling as a safer currency than their own, or some other, in which to transact business. The first factor is conditioned largely by the state of world economic activity, which British policy can profoundly affect, although it is altogether dependent upon wider considerations. London's superior competitive position reacted much to the British advantage before the War, but was not so much in evidence in the period 1920-30; there is reason to believe that something of the pre-war competitive position of London is now capable of restoration owing to fundamental internal changes. The lack of confidence of foreigners in sterling as a medium for transacting business is obviously the most powerful influence at work at the present time. It arises, as has already been mentioned, not so much from any active demerit on the part of sterling as from unwillingness on the

part of foreigners to commit themselves to liabilities which they may be prevented from meeting. The truth is that all currencies are to-day regarded as unstable in the last resort since all can be revalued if the circumstances are sufficiently urgent. The fact that at various moments, and in response to various changes of financial opinion, certain currencies may be regarded as less unstable than others affects the movements of loose international funds, and tends on the whole to increase instability and to menace the progress of world recovery. Such changes of opinion, however, do not materially alter, but may even strengthen the determination of the individual trader to conduct as much business as possible in his own currency in order to leave the exchange risk with his customer.

De facto and *de jure* Stabilisation

As long as this instability and the effects of it persist, a major recovery in the income received by the United Kingdom from its invisible exports is out of the question. It may be argued that sterling has shown a high degree of stability *de facto* in the last two or three years. Against this, however, it is doubtful whether the existence of a *de facto* stability is enough to recreate that confidence in sterling as an international currency which is necessary for an expansion of British invisible exports. Accordingly, the problem should be squarely faced of whether Great Britain has not at the present stage gained as much as there is to be gained by maintaining the independence of sterling and whether from now on there is not more to be gained on balance from a *de jure* stabilisation.

The U.K. Government, while reserving freedom of action, has from time to time declared its intention to re-stabilise sterling eventually. In the first place, it is clearly unwilling to do so as long as other important currencies remain free or markedly out of alignment with their "real" exchange parities. Doubtless, other governments feel the same way as regards the stabilisation of their own currencies as long as sterling remains a "free" currency. To this extent the re-stabilisation of any major currency can probably only be brought about as part of an international agreement—an agreement probably involving a much wider measure of international financial co-operation than the world has known hitherto. But it should be noted that the feasibility of such an agreement has been greatly increased by the realignment of currencies *de facto* which took place in September 1936. The period of "managed currencies" dating from 1931, if it has been accompanied by almost unprecedented exchange fluctuations, has, at least, emphasised the value of international co-operation in currency and exchange policy.

In the second place, the British Government is presumably concerned with "allowing sterling to find its own level" and adequately "testing" any rate before fixing upon it as the rate at which a *de jure* stabilisation can be undertaken without risking a serious maladjustment. In practice, the freedom of sterling to fluctuate is, at the present time, severely circumscribed by political considerations, arising largely in the United States, and by the superior resources of the United States in particular for seeing that sterling is maintained within limits which are politically acceptable. In practice too, the appropriateness of any given rate can only be tested by one criterion—its effectiveness in maintaining a reasonable equilibrium in the balance of payments. Under existing

conditions it is very difficult to measure the criterion itself. Prior to 1931, changes in the balance of payments were accurately reflected by movements of gold in and out of the country. This is not so to-day when large movements of gold may take place as a result of purely capital transactions which do not affect the balance of current payments. The intervention of Exchange Equalisation Funds complicates still further the task of disentangling trade movements from capital movements. Before 1931, the Board of Trade's estimate of the balance of payments could hope to arrive at a fairly accurate statistical measurement of the position in spite of inherent weaknesses. To-day, fluctuations in the value of sterling from week to week rob them of much of their former validity. In addition they would appear to combine estimates of payments received with estimates of payments due, which, in a world where exchange restrictions and frozen commercial debts are important, are by no means the same thing. Moreover, some of the figures are evidently very roughly estimated and items of some importance are probably not included at all. If, therefore, attempts to measure the true position of the balance of payments cannot, in current circumstances, hope to attain a very high degree of accuracy, the resulting statistics lose some of their value as a criterion against which various exchange rates can be "tested."

If, in addition, we are right in believing that a *de facto* stabilisation at any given rate will not create the same confidence in sterling as a *de jure* stabilisation at the same rate, with the consequence that invisible (and to some extent visible) trade is curtailed, it would appear that the circumstances in which a *de facto* stabilisation at the "right" parity are achieved, are liable to alter immediately that stabilisation *de facto* is translated into stabilisation *de jure*. In other words, we may arrive after a great deal of experimenting, at a rate which appears likely in the existing circumstances to secure a reasonable equilibrium, but as soon as legal effect is given to the chosen rate, a new set of circumstances is created. Taking all these factors into consideration the conclusion emerges that it may be an impossible task to attempt to arrive by empirical means at a rate on which stabilisation can be undertaken with complete safety. The necessary information does not exist for a scientific approach and can never be obtained. But in searching for the perfect scientific rate, we are continuing to deny ourselves the benefits which stabilisation could, with some certainty, be reckoned upon to bring and which would make it easier to maintain any rate which we happened to choose than it is to maintain the same rate in existing circumstances.

There is, therefore, an obvious risk inherent in any attempt at stabilisation of choosing the wrong rate. If, however, the compensating advantages are strong, this is no argument for continued inaction. The example may be cited of the Belgian currency which, early in 1935, was devalued and re-stabilised on gold at a rate which represented rough equality with sterling calculated, as was admitted at the time, on the "purchasing power parity" basis. Subsequent events have shown the chosen rate to have been as close to the economic equilibrium of the belga as could have been obtained by months of elaborate experiment. Apart from this, the technical task of testing adequately any given rate may be infinitely complicated by the sporadic influence of capital transfers, whether "hot money" seeking speculative profit, or "panic money" avoiding political disturbance.

Effect of Internal Conditions on Currency Policy

British reluctance to re-stabilise sterling may well be due in a large degree to the memory that the post-war stabilisation of sterling at the pre-war parity with the dollar turned out in course of time to have been a major error of judgment. As far as it is possible to tell, however, the attraction of the pre-war rate was traditional and political rather than the result of considered judgment. It is also necessary to allude to certain respects in which the international economic position of Great Britain has altered since 1925. In 1925, major economic and technical adjustments necessitated by the dislocations of the War had still to be made and were in fact never effectively tackled until the 1931 slump. At the same time, the United Kingdom then had no tariff and such imperial preferences as then existed were of negligible importance in relation to the total volume of external trade. Moreover, the technique of international financial co-operation with a view to minimising unnecessary pressure on the exchanges was less perfect than that which has subsequently been evolved. And in addition, a troublesome budgetary and internal debt problem to some extent hampered the free working of currency and credit policy. In all these respects, the position of the United Kingdom is indisputably stronger in the year 1937. Moreover, the requirements of British internal policy are daily becoming more closely associated with external factors. In 1931 and 1932 the United Kingdom wished, for internal reasons, to pursue a policy of internal credit expansion and since this was at variance with the ideas of many other countries, this end could only be achieved by a managed currency policy which freed sterling from any international responsibility. By 1937, the majority of the nations of the world have come to share the views of the United Kingdom in this respect. Furthermore, while the process of economic recovery has, in course of time, brought production for the home market into a condition bordering upon full employment, certain branches of the national economy which are more intimately associated with external activity have remained, if not depressed, at any rate seriously under-employed. In approaching the problem of British financial policy at this time, therefore, the question needs to be asked whether the policy which was right in the circumstances of the period 1931 to 1936 is necessarily the most suitable policy for the circumstances of 1937? In particular, is the continuation of an indiscriminate stimulus to internal activity, swollen as it is by the over-riding necessity of construction for re-armament purposes, likely to lead to permanent stability? We believe that there can only be one answer to this question—that a boom based mainly upon the home market is too insecurely founded to persist for more than a definite time, that the trend of events is demanding with increasing urgency the development of external activity as a balancing factor. It cannot, however, be expected that a financial policy which was designed principally for the purpose of stimulating internal activity will prove in any respect effective in encouraging external trade; in fact, it is likely to have a discouraging effect. For this reason changes of the sort which have been examined in this chapter will become increasingly urgent. In particular, an international exchange position will have to be created which will permit the recovery of British invisible exports by once again making it possible and attractive for the world to use the financial machinery of London. Opportunities for undertaking foreign investment of the old "development" type will recur and this should, wherever possible, be linked to British exports of capital goods and, for the sake of future equilibrium, should take the form as far as possible of equity investment.

Medium-term credits may well continue to be important and might be made increasingly by private institutions as conditions become easier. It may, however, be difficult for private institutions to increase their business in competition with the Export Credits Guarantee Department, and for this reason the activities of the Department may need re-examination as the world trade position improves, particularly as they tend to increase the cost of trading. Similarly some modification of the attitude at present being adopted by the authorities controlling foreign issues is becoming increasingly urgent, the more so because the methods of control employed are not such as can enjoy the full confidence of the public. The desirability of "reconstruction" lending to the industrialised debtor countries of Europe can be recognised on economic grounds, but any development in this direction must await the settlement of outstanding political difficulties. When, however, the opportunity is ripe, schemes of economic rehabilitation must be comprehensive and must not rely on financial assistance alone.

It may also be suggested that the international background is very different from that which existed in 1925, if only because central bankers are vastly more experienced to-day and because one of the fundamental factors underlying orthodox central banking policy, the supply of monetary gold, has altered radically. Considerable experience has been gained during the period of managed currencies of the possibilities of insulating the internal currency and credit structure from external disturbances through the technique of Exchange Equalisation Funds, which amount, in effect, to a second line of currency defence. Moreover, there is now in existence an international institution—the Bank for International Settlements—which is potentially an invaluable instrument of international financial co-operation for smoothing over difficulties and making adjustments. It is true that the B.I.S has not hitherto exercised a very conspicuous influence in international financial matters, but this is not surprising in view of the fact that it was not founded until 1930 and was also immediately surrounded by circumstances in which international co-operation has been at a discount. In the third place, it should not be forgotten that whereas ten years ago financial opinion was beginning to become apprehensive of the economic effects of a potential shortage of monetary gold, in recent months it has been displaying anxiety concerning the opposite dangers of a possible gold inflation, should all the existing reserves of the lending creditor countries be brought into effective monetary use. For, in fact, the physical volume of gold production has nearly doubled in the last fifteen years, vast hoards have been disgorged by Eastern countries, and the market value, in terms of money, of all gold, whether newly mined or already in existence, has increased by some 60 per cent. Consequently, the background to the present situation differs radically in three major respects from that which existed in the period 1925-1931. And any new form of international currency system would likewise have to differ from the system in force during that period. Whatever may be the technical arguments about the proper value of gold, it is an indisputable fact that confidence in gold as the ultimate criterion of values has been shaken, and traders are apprehensive of the effects on the general level of prices which a change in the gold policy of any leading country might bring about. If this apprehension is allowed to grow, it may become a powerful influence towards the curtailment of commitments, and so towards a recession in general activity. Consequently, superficial prejudices must be discarded and all of the pros and cons of stabilisation by

agreement need to be carefully re-examined on the basis of the real factors involved. Objections may be raised that stabilisation would automatically create that condition of gold inflation concerning which apprehensions have been widely expressed. But, as mentioned above, much has been learnt in the last six years concerning the mechanism and technique of currency management, and it should not be difficult to turn this experience to good account in devising adequate safeguards for a new international currency system.

VIII. AGRICULTURE AND INTERNATIONAL TRADE

Summary

(i) The traditional interpretation of the economic history of the United Kingdom in the last century lays great emphasis upon the significance of imports of cheap food from overseas. And the great food-producing territories overseas have hitherto provided one of the most important markets for British exports. The cutting down of U.K. agricultural imports since the passing of the Agricultural Marketing Acts of 1931 and 1933 has probably reacted adversely on British export trade in manufactured goods and services. It is, therefore, sometimes argued that the policy of agricultural protection should be abandoned. Rigid specialisation as between British industry and overseas agriculture is, however, now no longer possible owing to social and strategic considerations. It may even be doubted whether the rigid specialisation of the past was as sound economically as is sometimes supposed, in so far as food shipments from overseas were made cheap at the expense of destroying land fertility. The aim of British agricultural production and import policy at the present time should therefore be to supply the home consumer with cheap food, to develop a prosperous home agriculture for social and strategic reasons, and to maintain and even increase imports of foodstuffs from our best export customers overseas. These aims are not incompatible if the standard of living can be raised; their achievement implies a better specialisation in world agriculture, such as has already been advocated in industry. But it will also imply a reorientation of policy in British farming, both in the technical and in the economic sphere.

(ii) Far-reaching changes have already taken place in world agriculture, and are still continuing. These have led to increasing productivity per unit of human labour. At the same time, population trends in the chief food importing countries are slowing down the rate of expansion of food consumption and imports. These and other factors have been driving agricultural workers off the land in all Western countries, in spite of increasing government intervention to keep them there. The problem of redundant agricultural population, and the political measures taken to alleviate it, must affect international trade for some time to come.

(iii) The process of adjustment demands, first, the development on an economic basis of alternative occupations, and, second, improvement in the mechanism of trade in order to facilitate more efficient distribution of agricultural produce.

(iv) It is becoming increasingly misleading to think in terms purely of primary producers and industrial countries, since each group is tending to become more diversified in activities. The United Kingdom's agricultural industry, for instance, does not

compare unfavourable as regards size with the agricultural activities of some countries which are always thought of as essentially primary producers.

(v) In formulating British agricultural policy, the aims to be pursued should be—the maximisation of the national real income, the improvement of real incomes on the farm by methods which will not injuriously affect other incomes, the assurance of ample supplies of cheap and good food to consumers, the most economic utilisation of the land and the maintenance of its fertility, protection against the evil consequences of over-specialisation in times of war or slump.

(vi) Farm incomes depend not only on the volume of farm production but on the value of the produce sold at the farm gates. Value per unit may be raised by improved processing and distribution and by concentrating on the production of commodities which must be consumed fresh and which tend to command the highest prices, importing products where freshness is less important.

(vii) The lengths to which this process might be pushed on economic grounds are modified by strategic and social considerations. The requirements of National Defence raise a number of questions regarding the respective efficacy of different policies of immediate development and of food storage, in meeting various possible emergencies.

(viii) Within these limits, there is great scope for raising British farm incomes, by increasing the productivity of labour, by better grading and weeding out of inferior produce in order to concentrate on the quality market, by the development by producers of processing in order to dispose of gluts and extend seasonal markets, and by reducing distributive costs.

(ix) It should be the object of government policy to prevent a conflict of interests between the home farmer and the home consumer on the one hand, and the home farmer and the export manufacturer on the other, by putting every pressure consistent with democratic methods of government upon the British farmer to transfer his activities to producing those products which he is best fitted to produce on competitive terms. The low-income consumer must be left as free as possible from the influence of tariffs and other devices tending to raise the cost of his food. In this way, the sterling purchasing power of overseas primary producers, and consequently British exports, will be maintained and the rise in the standard of life facilitated, while concentration on quality in home production and efficient marketing will ensure the home farmer an expanding market, as the standard of living rises, at higher average prices.

(x) Within the last few years, the United Kingdom market has been subject to uneconomic pressure from overseas supplies which have had virtually no other free outlet of importance. British and world agriculture has a vital interest in the development of alternative markets in other industrial countries and the elimination of weak selling. This may be achieved by better trade mechanism and the encouragement of consumers to overthrow trade restrictions in search of improved nutrition and a higher standard of living. The social necessity for an increased

material standard of life in all industrial countries is undoubted. Its achievement depends upon the extent to which certain ideological illusions can be overcome and the social demand translated into effective economic demand. The educational movement in favour of improved nutrition has already markedly affected public opinion in this direction.

Any comprehensive treatment of agriculture as such is outside the scope of this report, but it is necessary to indicate briefly the general direction and extent of the agricultural factors which it is important to take into account in considering the future of international trade.

Reactions of Agricultural Policy upon International Trade

The traditional interpretation of the economic history of the United Kingdom in the last century lays great emphasis upon the significance of cheap imports of food from overseas. The building up of an intensely specialised industrial structure was, in truth, due in a large degree to the development of overseas territories as producers of cheap bulk foodstuffs. And the practical necessities of their development, and the prosperity which followed upon large shipments of foodstuffs for consumption in the United Kingdom, undoubtedly contributed much to the expansion in British exports of goods and services. Since the war, and particularly since the passing into law of the Agricultural Marketing Acts, imports of overseas foodstuffs into the United Kingdom have been increasingly subject to regulation in accordance with the new agricultural policy which has sometimes been described as "the British farmer first, the Dominion farmer next, and the rest nowhere." It is argued that this policy has reacted adversely upon the British export trade in manufactured goods and services by depriving some of our best customers of part of the purchasing power which would otherwise be spent here. Holders of the extreme free trade view go on to condemn the principles of British agricultural policy root and branch for this reason. They imply that all the efforts of the United Kingdom should be devoted as far as possible to industrial production and that the United Kingdom should seek a degree of international specialisation, as between industrial and agricultural activities, which may once have been safe and beneficial, but must now be subject to modification by social and strategic factors. It may even be doubted, in the light of subsequent events, whether the economic benefits of extreme specialisation as between agricultural and industrial countries in the past were really as great in the long run as is sometimes supposed. At any rate, the devastation, or threat of devastation, of a substantial proportion of the cultivated area of North America, through erosion and drought, following upon years of intensive cropping, suggests that the cheap food which these territories have supplied to the world may not, in the end, turn out to have been as cheap as appeared at the time. For, in so far as overseas primary producers have been supplying cheap food by, as it were, mining the fertility out of their land, they have been using up capital assets and, in industrial phraseology, failing to make sufficient allowance for depreciation in the price of the product. The British farmer can have legitimate cause for complaint if he is expected to compete in price with production obtained on this basis, while at the same time putting back into the land what he takes out.

The position must be faced, therefore, that the home consumer must be supplied, in the interests of industrial and social progress, with a sufficient quantity and variety of cheap and nutritious foods; that a prosperous home agriculture is desirable for social and strategic reasons; and that a flourishing import trade in foodstuffs must be maintained from some of our best export customers. It is too often assumed that the first and third of these requirements are entirely incompatible with the second. This is not necessarily so. There is a place both for the home producer and for the overseas producer. What needs to be encouraged, in other words, is not rigid specialisation as between British industry and overseas agriculture, but a better specialisation and division of function within agriculture the world over. In this respect, the economic problem of agriculture is no different from the economic problem of industry which has been fully discussed in other chapters of this report. Fulfilment of this objective will require from British farmers a reorientation of policy both in the technical and in the economic field, with the ultimate aim of producing in this country on an economic basis the foods for which our soil and climate is most suited, and importing those which are more economically produced elsewhere. The outcome should be a higher standard of life for the British consumer, the restoration of British agriculture to a position of reasonable prosperity, and the maintenance of a large and perhaps increasing import of foodstuffs from primary producing customers overseas.

Changing Structure of World Agriculture

All over the world far-reaching structural changes have been taking place in agriculture and are still going on. One of the main effects of these changes has been greatly to reduce in certain products the amount of human labour needed for a given quantity of production. Had there been a very large increase in the world consumption of agricultural produce, the resulting displacement of farm populations might have been at least partially offset. This has not happened, however. One reason is that technical progress in utilisation, packing, transport and storage have reduced the element of waste, and brought successfully to the consumer a larger proportion of what is produced on the farm. Another reason is that the rate of population increase over a large part of the world is slackening, and in some of the most important consuming centres is coming to an end. A third reason is the dislocation of international trade and the checks arising out of the war. A fourth reason is the rapid increase not only in the populations but in the material standards of life of great cities. All these and other factors have tended to push or pull very large numbers of agricultural workers, including farmers, outside the industry in Western countries, especially in those countries where average real incomes have been rising. This process is older than the recent agricultural depression, which has for a time retarded rather than advanced it. In fact, the more prosperous agriculture becomes in future, the fewer people are likely to be able to keep a foothold on the land and the more sub-marginal land is likely to fall out of cultivation. The pursuit of a higher material standard of life is leading to a feverish pace of industrial activity in the towns and to more and more intensive competition between farmers of different areas for markets, while agriculture as a whole must contest with more and more rival claimants the use of land, rural labour and credit. The result has been to produce increasing dissatisfaction arising out of rural feelings of

frustration or inferiority on the one hand, and the emotional starvation of most urban life on the other.

The displacement of rural inhabitants in Europe is one of the greatest that has ever occurred, and naturally almost every nation has attempted to cushion the impact by one means or another. Tariffs, quotas, subsidies, credits, agrarian and land settlement measures, or even sheer coercion have been and are being employed in order to stem the almost universal flight from the land. In the long run, it can hardly prove possible on the one hand to enjoy at all fully the fruits of modern technical industrialism, and on the other to keep on the land a large stable population which must necessarily, in order to avoid labour displacement, be chained to traditional methods of production which are wasteful and irksome. The world will probably have to choose eventually between the two, but at present a large part of it is resolutely attempting to choose both. The long-term significance of many of the current difficulties besetting international trade will be missed if we overlook the existence of this vast and world-wide army of now redundant farmers and farm workers who cannot remain on the land without increasingly substantial State intervention to keep them there. Until some sort of equilibrium is reached between agriculture and other occupations, it is hopeless to expect a relaxation of the political, social and economic pressure which lends force to international trade restrictions.

The Process of Adjustment

This does not mean that nothing can be done. On the contrary, if the problem of the agricultural populations is appreciated it becomes possible to make the transition stage very much easier for all concerned. In the first place, the measures which we have already suggested in Chapter V and elsewhere for facilitating the development of secondary industries in countries at present mainly given over to primary production, would help to relieve the strain by creating growing openings of alternative industrial and commercial employment, such as already exist in the United Kingdom and the United States, for example. Even more important is the development of the trade and financial mechanism for placing surplus agricultural products on external markets, at a reasonable return. It must be remembered that even primary producing countries need certain primary products which they cannot themselves supply, either for agricultural use (such as the pedigree livestock which Great Britain exports to other stock-raising countries, or the store cattle and feeding stuffs imported for the home livestock industry), or else to fill gaps in home production for the industrial or retail market. In this, as in other ways, it is becoming increasingly misleading to think in terms of primary producing countries on the one hand, and industrial countries on the other. To-day almost all countries have both industrial and agricultural interests, neither of which can be treated as insignificant. Even Great Britain, the classic example of an industrialised country, is a larger primary producer than is often appreciated. For one small commodity, hops, England was actually in 1936 the largest producing country, accounting for nearly a quarter of the world supply. England and Wales have nearly four times as many sheep as Germany, and nearly twice as many as France: more pigs than Denmark, and more than twice as many as Holland. Great Britain has recently ranked fourth among European oats growers, and fifth among European potato growers, with a potato crop equal to nearly half that of the United States.

Even in the case of wheat, during 1930-34 Great Britain's average annual production of 51,000 bushels about equalled that of such wheat-growing countries as Czechoslovakia and Bulgaria, and was half as great as the Roumanian crop, although only one-seventh of the Canadian total. The annual value of all agricultural production in England and Wales in recent years has amounted to approximately £200 millions per year. This is about the same as the agricultural income of Canada in recent years and compares with approximately £150 millions in Australia, £40 to £45 millions in New Zealand, £1,600 millions in the United States, and £900 millions in Germany. The German figure is very probably an over-estimate. The number of persons employed on the land in Great Britain (including owner-occupiers) is approximately 1,100,000. This compares with about 1,150,000 in Canada, 575,000 in Australia, and something over 100,000 in New Zealand. Germany and the United States have respectively 9 and 10 million persons on the land.

The Aims of British Agricultural Policy

We do not in this report subscribe to the view that British agriculture is so important a potential market for British industry as to justify special measures for its development on that account. It is, however, suggested that the arguments in favour of giving all possible opportunities for secondary industries overseas are also valid in the case of home agriculture.

The aims to be kept in mind in agricultural policy may be stated as:

(*a*) To maximise the real national income of the United Kingdom.

(*b*) To raise the real incomes of British farmers by methods which will not injuriously affect other British incomes.

(*c*) To assure ample supplies of cheap good food to the British consumer.

(*d*) To make the best use of the land and keep it up to the highest pitch of economic productivity.

(*e*) To insure so far as possible against the dangers which arise in war and slump from putting too many eggs in one basket.

There is no clash between (*a*) and (*b*) so long as it is remembered that farm incomes should and can be raised without depressing other incomes. Methods which do depress other incomes are prejudicial to (*a*) and must eventually react on (*b*).

Raising Farm Incomes

Farm income, and therefore the farmer's standard of life and ability to command other goods and services, depend not on the volume but on the value of his products at the farm gates. Value per unit may be raised by improving quality, by improved grading, processing, packing and distribution. Total value may also be raised by increasing the number of units sold, through methods which do not unduly depress the unit value.

It follows, therefore, that in order to raise real farm incomes and to make the best use of the land, our general agricultural policy must be to concentrate upon products which

must be consumed fresh and are usually of high unit value, such as milk and cream, eggs, fruit and vegetables, poultry, fish and meat, importing products where freshness is less important (or which are out of season here). It is possible, taking a purely economic standpoint, to say that all of certain home demands (such as that for fresh milk) should be met by home supply, while certain others should be met entirely from overseas sources. In the case, say, of bananas and oranges, the point is obvious. In the marginal cases of wheat and sugar, however, although on purely economic grounds there may be no justification for any home production, a practical use for it may appear when we take into account the need for insurance (especially against war risks of food shortage) and certain technical agricultural factors such as rotation and by-products. For instance, it is doubtful if anyone would deliberately produce cheap cow beef in England on its own account, but milk production involves killing off old cows whose beef is a by-product which cannot be wasted.

Considerations of National Defence

The defence approach emphasises the nearness of Great Britain to starvation during the 1917 submarine campaign, and the risk of acute shortage in the event of a future war. It is pointed out that we import at present from overseas over three-quarters of our needs of wheat, about half our beef, 58 per cent of our mutton and lamb, 69 per cent of our bacon and ham, 44 per cent of our eggs, 86 per cent of our wool, over 90 per cent of our butter, and at least two-thirds of our sugar. In addition, a large part of home production is in turn dependent on imported cattle feed, fertilisers, and so forth. The assumption is sometimes made that we can and should greatly diminish, and in some instances actually terminate, this dependence upon sea-borne supplies and upon the small food stocks, sufficient in the case of many products for only a few weeks' requirements, at present kept in this country.

There can be no question that in case of a European war the national food supply would be a source of great difficulty and anxiety. The search for insurance against these risks raises, however, a complex set of questions. What we require is (*a*) the maximum practicable stock of essential foods in order to guard against risk of being starved out by cutting off of overseas supplies; (*b*) the maximum practicable reserve capacity for making up stocks indefinitely as they may be drawn upon in case of need; and (*c*) the safest, cheapest and most convenient means of storing and distributing supplies between the time when they leave the farm and their ultimate consumption. As regards (*b*) there can be no question that in the event of overseas transport being stopped or dislocated in war, while internal transport remained reasonably unhampered, it would be an immense advantage to be self-sufficient, or more nearly self-sufficient, in essential foodstuffs. In so far as self-sufficiency were attained before the outbreak of war, this advantage would be realised from the outset, but if it were necessary to effect a large increase in food production or to switch over from dairying to, say, grain, meat and sugar, a period of at least eighteen months would be necessary before results could be expected. A sudden and complete stoppage of shipping would, however, entail starvation within a short period unless the stocks of food held safely in readiness in the United Kingdom were very greatly increased. No amount of capacity for developing or switching over home food production would

therefore avail against a breakdown of overseas transport in the first eighteen months of a war. Even if maximum home production of essential foodstuffs were to be reached and maintained regardless of cost and inconvenience in time of peace, the position would become little less precarious without an enormous increase of storage capacity in order to carry over the supply evenly, regardless of seasonal production, and also to provide a reserve against the heavy natural fluctuations in year to year crop yields. Even on the extreme assumption of a total interruption of shipping and no interruption of internal transport, the advantage of a great increase of home production would therefore be limited except in the case of a very long war, on these terms, or except in so far as it would give certain reserves, such as additional livestock, which could be slaughtered.

The primary difficulty, and in many possible contingencies the only difficulty, is storage capacity, and given storage capacity it would almost certainly be cheaper to hold reserves of food bought from overseas rather than reserves of food produced at home. If we assume the risk of an intensely destructive war of more than eighteen months' duration, in which case agricultural self-sufficiency would offer great advantages, the questions arise whether the additional protection could be afforded, and if so whether spending the huge sum involved on home production of wheat, meat, sugar, and so forth would be more advantageous than spending it on, say, an immensely stronger air force to minimise the risk of attack, a strong navy to guarantee supplies, or even on large overseas investment designed to revive world trade and relieve the pressure towards desperate adventures on the part of other nations. It must not be overlooked that even to maintain existing production on existing lines requires very heavy imports of feeding stuffs and fertilisers requiring a large tonnage of shipping. The question of use of man power would also have to be considered, for any agricultural policy dependent on the efforts of a large force of able-bodied men would hamper military and industrial mobilisation, and it does not follow that peace time production would be maintained, let alone increased under war conditions. Whatever the merits of the defence argument for expanding agriculture, it is therefore one which can only be seriously considered with full regard to defence policy as a whole. Obviously, however, in the event of trouble a well-organised and efficient agricultural industry is an asset.

Transition to High-grade Agricultural Products

Subject to these qualifications, British agricultural policy should aim at producing more and better high-grade, high-value products for which the climate is suited, and less of other products. In this way—

(*a*) British farm incomes can be raised.

(*b*) A minimum of interference is required with the entry of cheap food supplies from abroad.

(*c*) The best use can be made of the land.

We cannot deal here with the methods of improving agricultural production and distributive processes, of reducing costs and widening markets in some directions and at

the same time getting higher prices for special products by better grading, marketing and so forth. These problems are being dealt with by another P E P Group and it must suffice to say that there is very great scope for raising British farm incomes—

(*a*) By increased volume of production per person employed, through cutting out manual drudgery and improved management of processes.

(*b*) By better grading and weeding out of inferior produce, thus concentrating supply in the quality market which yields the highest prices.

(*c*) By fuller development of producer-controlled processing in order to dispose of gluts, or to extend seasonal markets.

(*d*) By reducing distribution costs and by securing for the farmer a greater share in what the consumer pays.

A reconciliation of the long-term interests of the British consumer and of home and overseas producers depends on the development in home agriculture of an emphasis on quality and a willingness to discard relatively unsuccessful lines, comparable with the policy which has proved of value where it has been applied in the case of British export industries. In this connection it is of the highest importance to get away from misleading general descriptions such as "beef," and to distinguish between what are in effect different commodities with different markets—frozen beef, chilled beef, cow beef, baby beef and high-grade home-killed beef. It should be the government policy to prevent a clash between home farmers and home consumers on the one hand, and between export industries and home farmers on the other hand, by using all the the resources of leadership, propaganda, education, research, trade pact negotiations, tariffs and quotas, levies and subsidies, with the object of persuading and compelling the British farmer to transfer his attention as rapidly and completely as possible to those products and combinations of products which he is best fitted to produce on competitive terms. The aim should be to leave the low income consumer as free as possible of tariff and other interferences which may make him pay more for his food and therefore consume less, or consume lower qualities all round. By this means the sterling purchasing power of overseas primary producers, and consequently British exports, will be assisted, and rises in the standard of life facilitated, while concentration on quality in home production and efficient marketing will assure the home farmer an expanding market at higher average prices than low-grade products could yield. It can safely be assumed that groups of consumers with a rising standard of living will buy a rising proportion of home-grown foods, without any pressure through tariffs or other restrictions, provided that these foods are produced and marketed efficiently.

Qualifying Factors

It is not proposed here to enter into the technical question how far, in order to keep the land in good heart, it may be necessary to grow certain crops which might not be grown from the point of view of their economic realisation value. This is a qualifying factor, but no more.

The same may be said of the dangers arising from putting too many eggs in one basket. These are of two types—those due to war (which have already been discussed), and those due to slump.

As regards risks of slump, short-term adjustments due to gluts and seasonal fluctuations can be dealt with by organised marketing arrangements such as the Agricultural Marketing Schemes have endeavoured to provide. Long-term depressions due, for instance, to a major financial crisis, cannot be obviated by measures confined to agriculture, but even so their impact can be very much softened by pooling arrangements and by adequate study of market trends, if the results of such study are translated into practice.

Even the imperfect national and international pooling and regulative mechanisms built up since 1930 can, if wisely directed, help to protect farmers in all countries against uncontrolled fluctuations and to adjust production to economically effective demand by less abrupt and wasteful methods than have operated in the past. It is the common interest of home and overseas farmers and of consumers that price fluctuations should, as far as possible, be evened out over as long periods as possible, instead of being allowed to upset calculations and cause constant unsettlement by violent and unnecessary oscillations. The fear of dumped surpluses is even more real in agriculture than in factory industry, and provision for preventing sudden gluts from breaking the market is as vital to the producer as provision for preventing scarcity and high prices is vital to the consumer.

Increased Consumption of Foodstuffs in all Industrial Countries

There is some reason to believe that in the artificial conditions of the past few years, when the United Kingdom proved almost the only remaining import market for many products, supplies have sometimes been obtained at uneconomically low prices. In so far as this has occurred, the British primary producer, inside and outside the United Kingdom, has a vital interest in reopening alternative markets in other industrial countries, and the elimination of any element of weak selling in primary products.

Methods by which this may be achieved have been discussed elsewhere in this report. Broadly speaking, the most promising lines seem to consist of:

(*a*) Improvements in the mechanism of world trade designed to find, develop and stabilise conditions in new markets;

(*b*) the creation of stronger incentives to overcome trade restrictions, by means of propaganda and education for improved nutrition and higher standards of living.

While (*a*) has been elaborated in Chapter V, and earlier, (*b*) requires some explanation. The coincidence of the adolescence of the war generation with a tremendous economic depression caused a general upsetting of values, in which demagogic ideals were able to oust to some extent the desire for material advancement. This process was aided by the failure of the leading industrial nations to cope with their economic problems, and by the failure of economic advisers in general to take adequate account of the new psychological, social and political factors which will be discussed in Chapter IX. Given

economic recovery in the democratic nations, and given a greater appreciation of non-economic factors, the tendency must be for peoples who have temporarily been fascinated by illusions to shake them off and return to sanity. This process may be accelerated by such propagandist and educational movements as the international nutrition campaign, which in the short time since it began has already captured popular imagination in certain countries and has markedly affected opinion over a wider area. If energetically pursued, this movement may build up the new outlook required to enable the strength of economic nationalism in agricultural policy to be modified by appreciation of the consumer's needs. And if the obvious social demand for increased consumption of foodstuffs and a higher material standard of life the world over, can, by improving political goodwill and the mechanism of trade, be translated into effective economic demand, not only would most of the existing world problems of agricultural over-production be solved at a stroke, but a fresh expansion in productive capacity would probably become necessary.

IX. THE INFLUENCE OF POLITICS ON INTERNATIONAL TRADE

Summary

(i) This chapter is different from the rest of the Report, and serves as a background for it. Justification for its inclusion is the increasing influence of politics on economic activity, which is now culminating in rearmament programmes radically affecting the economic future of nations. The chapter confines itself to an examination of the facts and elucidation of the motives underlying them; no attempt is made to justify any theory.

(ii) The consequence of the war was to remove, temporarily, the influence of a number of nations and to leave the world reconstruction to Great Britain, France, the United States, and Japan. At the same time, the newly reaffirmed principle of national self-determination gave the impetus to the new smaller nations to begin building up their national structure (often based on the peasant farmer).

(iii) The victorious powers reacted variously to the new conditions. The United States proceeded to lend prodigally, but refused to afford means of repayment through goods and services. France set to work to build up a rigid politico-economic structure in Europe to perpetuate her "security" against Germany. Great Britain realised how valuable was her island position and how immensely valuable in a crisis was the Empire, and proceeded to consolidate and develop the latter. Italy, first, mishandled opportunities and then became preoccupied with the internal phase of Fascist development. When she began to turn to world affairs, her attempts at exercising influence were abrupt and opportunist, and created many points of friction. Japan tried to establish herself as premier nation in the Far East, but encountered the collaboration in the matter of naval limitation of Great Britain and the United States—both in search of peace—and interpreted this as a menace to herself.

The League of Nations was set up as an admirable piece of politico-economic machinery, but with the fatal weakness of no executive authority—with the result that fundamental differences were never faced.

(iv) Of the defeated powers, Germany set herself to cultivate commercially those areas where Germans were accepted. This was carried out by the export of goods, services and brains. Germany also built up relations with Russia, which was regarded by her as the rich "hinterland" to serve as a basis for German economic and military reconstruction. Russia, at first, concentrated on fomenting world revolution, and when this proved a failure, turned to building up her internal economic structure, and to establishing spheres of influence in the neighbouring small countries.

(v) On the eve of the depression, the nations of the world seemed to fall into four main groups: the victorious powers who wished to pursue peace and tranquil evolution (Great Britain, the United States, France); the victorious powers who were discontented (Italy, Japan); the victims of the war, then reviving; the semi-developed countries, where national self-assertion was stirring (Near East, China, etc.). Some of the factors which restrict world trade to-day were, certainly, implicit in the post-war settlement, but were being accentuated during this phase and others were created. Increasing pressure and friction were being felt and the well-meaning attempts to solve fundamental problems by linking political appeasement with economic reconstruction were neither sufficiently bold nor timely: neither the United States nor Great Britain nor France seemed able to appreciate fully their responsibilities, or to realise that factors were gathering force which soon could no longer be controlled.

(vi) The slump exposed the unsoundness of the world economic structure, and deprived the United States and Great Britain of the means of controlling world events. The nations were thrown back on their own resources, crisis measures overwhelmed conventional methods, confidence was undermined, and exclusive political creeds arose. Measures taken, first, to alleviate a crisis became established as social and political principles, and the increasing encroachment of the State into economics resulted in the breaking down of the ordinary methods and standards of commercial intercourse. Under the combined pressure of all these factors, all sense of proportion was lost, and the last vestiges of any moral order in politics and economics were destroyed.

(vii) In this welter of crisis measures, two events seem to stand out as shaping profoundly the future trend: the invasion by Japan of Manchuria, and the Ottawa Agreements and the change in British colonial policy. Whatever the motives or explanation of the invasion of Manchuria, the event showed conclusively that war was still the ultimate instrument of national policy. The League of Nations hesitated and finally could do nothing, while an opportunity of bringing the United States into world affairs as a beneficial influence was missed by Great Britain.

The Ottawa Agreements (and the abandonment of the Open Door policy which followed them) were, in the light of circumstances, inevitable, but they gave ground for the argument that Great Britain was using political authority to achieve economic results. Thus there arose the doctrines of "Hungry Nations" and of the "Economics of War."

(viii) The creators of the Ottawa Agreements did not regard them as ends in themselves, but as a starting point for negotiations for a series of other treaties. The results, however, served mainly to stabilise the competitive position of the United Kingdom during a period of crisis and contributed little to general reconstruction. The World Economic Conference was a half-hearted attempt at the latter, and its failure must be attributed as much to American scepticism and to British short-sightedness as to any other single cause. But even before the Conference the clash between internal politics and foreign policy in the United States had a profound influence on world events. The Hoover Moratorium might have been the starting

point for constructive statesmanship, had the American administration been able thereafter to play its part in world events. At the Conference the British Government failed to modify its newly adopted attitude of protectionism and freedom of sterling, and therefore the two economic leaders of the world, under the pressure of crisis events, were obliged to give up that leadership. The main world issues were left untouched, and various crisis measures which had been adopted as expedients now began to be used as weapons for political ends by the new powerful and unscrupulous forces which had arisen.

(ix) Simultaneously with the arrest of progress of Japan in the Far East when confronted by the rapidly growing power of Russia, there occurred the National-Socialist revolution in Germany. Herr Hitler at first was too preoccupied with internal affairs to reject the idea of an equitable agreement of a politico-economic nature with the other Powers. But French intransigence and excessive British caution resulted in opportunities being missed. Meanwhile, economic difficulties and the pressure of rearmament drove Germany further towards arbitrary measures of politico-economic control, culminating in the Four-Year Plan, which is the most perfect manifestation so far seen of the "Economics of War".

Of the several areas, politico-economic domination of which would seem to be advantageous to Germany, penetration to the South East, with ultimate emergence into the Mediterranean basin, seems to offer most prospects of success. German policy in that region as well as elsewhere—e.g. in Spain—can best be explained as aimed at ensuring safety of supplies and assistance in an emergency.

(x) The position of Italy and Italian aspirations seems to be similar. Italian policy in the Eastern Mediterranean, and probably also in the West, seems to be aimed at establishing politico-economic control over wide areas and lines of communication, which would render impossible a successful application of economic pressure such as seemed likely during the Abyssinian war. Thus the politico-economic aims of Italy coincide with those of Germany in certain areas, with the result that if both countries vigorously pursue their objectives their policies may sooner or later come into conflict. But on the short view, the Rome-Berlin axis must rest on political factors, because it is increasingly weak economically.

(xi) In the Far East, Japan's acquisition by force of Manchukuo did not give her the economic advantages expected, and has involved further military adventures. Russia, however, is now immensely stronger than five years ago, and is extending and strengthening her political and economic influence in Inner Mongolia and some of the Chinese provinces. At the same time, China, as a result of Japan's aggressive policy and Russian penetration, is experiencing a remarkable process of internal consolidation, a phenomenon which nothing else could have brought about.

In Russia the development of the new nationalist phase of Bolshevism and the growth of Russian industry, and especially gold production, are making Russia

into a world factor again. Russian economic resources are so great that use of them must profoundly affect the world situation—for instance, through the medium of gold sales on the world market.

(xii) With revival in trade, the effect of finance on political alignments is once more becoming emphasised. This has always been the French policy, and France has recently tried to reaffirm it by granting large credits to Poland; but whereas France requires tranquillity and freedom of communications and economic intercourse, her undue insistence on political and military factors is, in this sense, short-sighted.

(xiii) As the United States are a dominant factor in world affairs, the latest developments there in connection with the neutrality legislation may well prove decisive in the event of a crisis. Both in the Manchurian affairs and in the Abyssinian war, America took steps which, if exploited properly, might have resulted in constructive collaboration with the rest of the world. American opinion, however, received what it considered to be a rebuff, with the result that the United States have now adopted an attitude which can still be exploited constructively by other peace-loving nations, but which, in the event of the outbreak of war, must inevitably place America in a dilemma of choosing between maintaining absolute neutrality—thus renouncing all rights—and interfering, thus destroying the whole elaborate fabric of absolute neutrality. The United States, therefore, will have to work out with further precision the implications of being one of the dominating economic factors in a world ridden by politics. Great Britain, for its own part, cannot long continue to maintain a contradiction between some of the principles underlying the present development of Empire economic relations and those put forward by other nations with legitimate or imaginary grievances, or even by British statesmen in the international field. Neglect or postponement of these issues are dangerous, because they encourage the use of force and involve Great Britain in the economics of war, which, in view of her highly complex structure and vulnerability and the scattered possessions of the British Commonwealth, is a very great disadvantage.

(xiv) The half-hearted attempts at prevention of aggression taken by the other nations served to show the aggressor nations that complete economic self-sufficiency was absolutely necessary to ensure safety in case of a really effective application of economic blockade. The external and internal effects of the economics of war are different. Externally, more and more high-handed methods must be employed to secure the supply of essential materials, and this makes deeper the cleavage between the "haves" and the "have nots." Internally, the economics of war impose a process of forced saving on the community, and the limit is only the resistance of the community to an indefinite decline in standards of life. The economics of war thus introduce a new phase into world development, and their failure would probably mean the total collapse of the regimes advocating them and heavy damage to the economic and social structures of the nations concerned. It is possible that to avert this end these nations might resort to war as an outlet, and it is therefore imprudent for the other nations to ignore this possibility. But the economics of war are also forcing other nations, and particularly Great Britain, to use their pros-

perity for the wrong ends. The question therefore arises whether appreciation of significant events has not been too tardy and whether there has not been overmuch hesitation in following out the implications.

(xv) The world has too recently suffered the horrors of prolonged deflation to be able to face it again, but if competitive rearmament is allowed to proceed unchecked and economic co-operation is not re-established, a swift deflation will occur, followed inevitably by another collapse. The world's present social and economic structure can hardly survive such another shock. But there are certain welcome signs. The revival of activity has heartened the smaller nations and enabled them to make moves independent of the Great Powers towards co-operation. The recent steps taken by the Oslo Powers, and—even more significant—the tendency towards economic consolidation of the Danube Basin, are extremely important, because their development and consolidation would more than compensate for the gradual withdrawal of the nations wedded to the economics of war, through participation in the normal economic intercourse of the world—a trend which, for the present, seems certain to continue. But however energetic the efforts of the smaller nations, real and lasting progress cannot be achieved without first the active support of the chief trading powers, and then their assumption of the initiative again. The caution and suspicion which characterise at present the attitude of Great Britain, the United States and France towards each other, and towards any approaches from the outside, are now largely out of place. And such arguments may already be too late, because events are demanding a regional solution, and nations anxious for such a solution are no longer prepared to argue about formulæ. If so, the risks involved by a new and determined effort to grapple with the growth of menacing forces are less than those inherent in obstinate persistence with obsolete methods. The key to the solution must lie in co-operation between Great Britain and the United States, because in the end the two premier economic powers, to whom lasting peace is essential, influence too profoundly the course of world events to be able to afford to be at cross-purposes, or even not to work in concert. There are signs that the Empire countries, which perhaps can appreciate the American outlook better than Whitehall, are realising the urgency. In the light of the above, M. Van Zeeland's mission contains promise of really fruitful results, provided it is not regarded as a means of postponing the issue. At present official pronouncements do not go beyond well-meaning generalisations, thus leaving the mass of the political and business community largely in the dark. This is unfortunate, because for a real revival of economic activity, consultation and co-operation with those directly engaged in it must be secured at the outset. The outstanding advantage of democratic government is that it can enlist the criticism and co-operation of all the varied elements in a country. This is an advantage to be exploited. The primary conclusion, therefore, is that valuable time should not be lost, as world economic and social reconstruction can only take place during revived prosperity, and forces are now at work which might cause a collapse, the political, economic and social consequences of which would make any reconstruction thereafter immensely more difficult.

Introduction

This chapter must be regarded as different from the rest of this Report, and is intended to serve as a background against which the arguments and suggestions of the other chapters may be considered. Our reason for adding it is that international trade is inextricably bound up with internal, and especially foreign politics, so that it is futile to make any analysis or to outline constructive measures without taking into account the incidence of political factors. We have seen how the rearmament programme arising out of the political developments of the last few years has profoundly affected the economic structure and future of this country. Also, how political groupings and movements throughout the world are influencing the course of trade and the future of territories which are potential centres of economic activity. We therefore considered it imperative to make a survey of the main events and trends in politics over the post-war period. We have endeavoured to show them as they appear in the light of various world events, and to trace what seem to be the motives and consequences of them. In doing so, we have endeavoured to concentrate on what is evident and to avoid hypotheses or prophecies. We are not interested, in this Report, with the rights or wrongs of any particular policy, or the theory underlying it. Our sole object is to elucidate the political factors affecting world economic intercourse and to put forward suggestions for its beneficial development in the social interest.

The Politico-Economic Background of Post-War Reconstruction

The close connection between economics and politics follows from the results of the War and the developments of the post-war period in the first phase—the phase of reconstruction—which lasted down to 1930 or 1931. The powerful economic units of Russia, Germany, and the Austrian Empire, which influenced the economic development of wide areas and played an increasingly important part in the course of world trade, were broken up, and world recovery was inevitably left to the United States, Great Britain and France in the West, and to Japan in the East. At the same time, the principle of national self-determination, which was the basis of the Treaty of Versailles and of the League of Nations, began to permeate more and more strongly the newly-created smaller nations, who thereupon set to work to build up their own national economies. This was assisted and indeed made possible by the vast loans which the United States poured into Europe to enable the latter to buy American goods from industries which had developed rapidly during the War. Thus the United States, by purely economic means, acquired immense political power—a fact which Americans refused to realise at first, but which became almost catastrophically plain when the world depression arrived.

The spread of newly acquired nationalism also became gradually a psychological deterrent against large emigration. This, in any case, was beginning to be discouraged by countries which had hitherto taken large contingents of immigrants. This check, together with the famine and destruction following on the War, led to a concentration on the land to build up again supplies of elementary requirements. The agricultural classes of Europe therefore re-emerged with a renewed importance and, partly from ethnographical and partly from economic reasons, became the backbone of the reconstructed nations. Politically, also, during a period of revolutionary unrest, the satisfied peasant was regarded

by all governments as a stable element. He thus acquired almost a mystical value. A veritable "green revolution" had quietly taken place, and the peasant farmer consequently felt his importance.

The decline of migration has also stimulated a radical development of another sort. Restrictions to the free flow of population and increasing interference with the free movement of personal capital have infinitely complicated the position of discontented or oppressed minorities, and have built up powerful centres of unrest. This has been most evident in the case of the large Jewish communities in many European countries —not merely in Germany, but in other territories also, such as Poland and Roumania. Where these communities are predominantly engaged in trade, as is the case with the Jewish minorities, the economic pressure of the growth of State trading has been added to the more obvious pressure of political discrimination. But in the absence of free opportunities for migration, there has been no alternative for these unfortunate peoples except to submit—with a growing resentment.

The Policy of the Victorious Powers

The victorious Powers reacted variously to the new conditions. The United States, having become a creditor nation, and the most industrially advanced, continued to lend prodigally, but at the same time increasingly refused either to participate rationally in world activities or to allow debtors to discharge their debts in goods and services. The economic disequilibrium built up by the War was thus being gradually accentuated. France, apprehensive for the future of a stationary population and a strained economy, felt convinced that her security depended on the maintenance of the politico-economic structure created in Europe after the War, and therefore built up a chain of alliances and financed the industries of the smaller European Powers, thereby laying—no doubt unconsciously—the first foundations of what was to prove a new war economy. Furthermore, by the consistency of her attitude towards Germany, France shaped the nature and direction of future German politico-economic development.

Great Britain emerged from the War with part of her overseas investments gone, and with a clear picture of the dangers which an island situation involved. At the same time, the tremendous value of the British Empire had been emphasised, and British policy henceforth, in part consciously and in part intuitively, became directed towards the creation of a more comprehensive structure for this Empire. The War had also taught Britain the economic importance, from the point of view both of supplies and of communications, of the Near and Middle East, where new nations had now been created. British policy therefore became inevitably bent towards building up a politico-economic structure in those areas, the value of which the War had made clear. Little by little, the British Empire has begun to shape itself with a centre of gravity shifting towards the Indian Ocean, but with two immensely important outlying groups of islands in the north-west and the south-east—i.e. the United Kingdom and Australasia. The size and importance of the United States and the close economic relations which exist with that country must henceforth influence Canadian policy in some degree.

At the same time, the financial, political and military centre still remains in the United Kingdom, and this fact must of course exercise a profound influence for the future.

The financial losses sustained in Russia and the political dangers which that country seemed to be breeding, made Britain realise that the Empire had to be built on political tranquillity and economic prosperity. This was therefore the keynote of British policy, which henceforth was to be bent on removing causes of friction throughout the world within certain clearly defined limits. In this, Great Britain was helped by the absence for a relatively long period of any possible active rivalry between the bigger nations.

Italy, though she had acquired much territory, yet through lack of experience and internal instability did not participate in the more important streams of post-war development. With the arrival of Fascism, Italy was forced to concentrate primarily on internal reconstruction, and except in a few isolated and apparently minor instances, which, however, were highly significant in the light of subsequent events, Italy did not at first play a large part in the international sphere. In the Far East, Japan, with Germany's and Russia's temporary eclipse and British preoccupation elsewhere, had no rival, and proceeded to establish an economic foothold on the Asiatic mainland and islands, as well as to push migration under pressure of increasing population. Great Britain, Holland, and especially the United States, all saw danger on the horizon. An Anglo-American *rapprochement* followed in the shape of the first post-war naval agreement. This, Japan never forgave. From the economic point of view, the American standpoint was clear. The United States had extensive interests in the Pacific which, if not of vital political significance, were of great economic importance. The United States had, moreover, to safeguard its national commerce and the South American market to which Americans had begun to look more and more. The huge loans given by the United States to these countries after the War have already been mentioned. Holland had a vast and rich empire, vital to her existence, almost unprotected. Great Britain had extensive trade interests in the Far East and Australasia, and a long and vulnerable line of Imperial communications to maintain. British trade, moreover, was deeply concerned with the products of the Dutch East Indies. The War had eliminated German and Russian rivalry in the Far East, and Russia, because of the activities of the Comintern, could not now count on the support of any other powerful State. All this pointed to the need for friendship between Great Britain and the United States, if only because, while in a certain sense trade rivals, they were both primarily interested in normal economic development and political tranquillity. The need for such a new policy in the East was thus logical. Unfortunately, care was not taken at the outset to develop the constructive aspect and to avoid anything which might be interpreted by other nations as provocative, with the result that this policy was never rationally developed and its first symptoms, immediately after the Washington Naval Treaty, were more provocative and less practical than they should have been. For lack of preliminary research and co-operation in a thorough study of all the political and economic factors involved, the Washington Naval Treaty looked too much like an emergency insurance policy and sowed the seeds of provocation and antagonism which soon bore unfortunate fruit.

The political difficulties of the Far East have been further aggravated by the emergence of a new economic factor—the clash of Eastern and Western industrialism. The consequences of the conflict of two systems built up against entirely different social backgrounds and concepts of the standard of living have been profound, and no solution has yet been found to this troublesome economic problem.

The Position of the League of Nations

The League of Nations was to be the instrument of the post-war reconstruction and undoubtedly, through its various economic and social branches, carried out much useful work. Unfortunately, its political responsibilities were differently regarded by what might be described as the British and French groups of nations, with the result that vital political questions were inevitably postponed or slurred over and fundamental economic and social issues were never faced. The availability of essential materials to the world at large, for instance, was never even seriously discussed.

The primary explanation of the failure of the League to deal effectively with really fundamental questions must lie in the absence of any executive authority. The admirably equipped machinery at Geneva for research and co-ordination worked hard and efficiently, but instructions and decisions had always to emanate from a collection of independent representatives of sovereign States who felt themselves primarily responsible, not for the peace and prosperity of the world, but for maintaining the position of their own governments. These, naturally, avoided anything but generalised formulæ, so as to eliminate any risk of revealing fundamental differences which no one had the courage to face, but which were soon to stand revealed.

The Revival of the Defeated Powers

The revival of the nations which had lost the War came later. Germany, whatever may have been the secret activities of militarist elements, realised that the German position could only be re-established by economic reconstruction and expansion. This realisation was no doubt partly due to the pressure of reparations and debts. Germany steadfastly developed industry and rebuilt shipping, and also created efficient international air services—a potent form of penetration in the modern world. In foreign markets the post-war Germany was helped by those Germans who had settled abroad before the War. Germany also deliberately set to work to export brains, so as to establish centres of influence in areas where, for political reasons, Germans were not resented. Thus, in the Far East, certain parts of the Middle East, South-Eastern Europe, Russia and the Scandinavian countries, as well as South America, increasing outlets were being found for the brands "made in Germany" or "built by Germany." Russia was regarded by the Germans as a rich hinterland, on the basis of which Germany was to become powerful again. This connection was both economic and military, and it was probably partly at Germany's instigation that the Soviet attitude gradually changed from militant revolutionary propaganda for its own sake to the building up of a powerful Soviet State.

Soviet Russia at first concentrated on fomenting world revolution. The chief result of this was only to arouse intense hostility in the countries affected. Russian trade policy, too, was at first mainly a vehicle for propaganda, particularly in the East, where the countries bordering on China and India were to become the focal points of Communist activity. Later, Russia decided to build up her own internal economy—a perfectly rational decision for a country which possesses nearly all the raw materials of modern industry. Russian trade policy then came to be dictated by the need to obtain foreign currency, in order to obtain capital equipment, and was therefore directed towards forcing Russian exports on

world markets at almost any cost. The dislocation thus created was not Russia's main objective, even though it may have served to help in creating political unrest—but must be attributed largely to lack of experience and organisation. Parallel with this, however, Russia began systematically to develop trade relations with neighbouring countries, mostly in the East, on a politico-economic basis, and to become established as the economic protector of these countries, thus creating a sphere of Russian influence to serve as a shock-absorber in case of trouble, and, if need be, as the next stage in implementing the Soviet doctrines.

Italy, where developments at first were not dissimilar from those in the defeated countries, was, at this time, slowly coming back into world affairs under the drive of dictatorship, but finding it difficult, owing to lack of technical equipment and adequate finance, to play any important part. Italy accordingly made attempts at different times to establish relations of a politico-economic nature in turn with Great Britain, Turkey, Russia, Roumania and Germany, as well as to feel her way gradually into the Near East. But most of these attempts were dictated by immediate circumstances and were not part of a comprehensive plan. They therefore gave the impression of opportunism, were executed somewhat abruptly and not properly followed up, so that beneficial results were scanty and numerous points of friction were created.

The Politico-Economic Background on the Eve of Depression

About 1930 or 1931 the first phase of post-war reconstruction comes imperceptibly to an end and merges with the second phase, which must be called the phase of economic depression, and persisted at least up to the end of 1933. On the eve of the depression, the world seemed to fall into four main groups. The countries who were victorious in the War, or were not involved in a military sense, whose main interest was reconstruction and economic development of the world, with the elimination of war. These were the British Empire, the United States, France and the democratic Powers of North-Western Europe, and many of the primary-producing countries elsewhere. France, however, was obsessed by fears, and built up a military system to buttress her own and her dependents' position. The second group consisted of those countries which, though not vanquished in the War, were discontented and in these expansionist or self-assertive movements were stirring. The chief examples were Japan and Italy. The third group contained the nations who had suffered worst in the War, and who were recreating themselves, such as Germany and Russia. Finally, there were the undeveloped nations whose national consciousness was awakening, and who thus became first pawns and then formidable independent factors in the future interplay of world affairs. These countries, apart from India and China, were mostly situated in the Near and Middle East, and in North Africa.

It is well to ask ourselves at this stage whether the tendencies of world trade which became acute during the depression in the shape of tariffs, restrictions, economic nationalism, were implicit in the post-war structure and would have developed in any case even if real political appeasement had taken place and the depression had not occurred. It is perfectly true to say that a number of them had begun to emerge at an

early stage after the War, and probably the economic and political self-determination which was such an essential feature of the post-war settlement made some such development inevitable. But, as we have shown earlier, many of these factors were the outcome of crisis measures, which for various reasons have become permanent, and it is probably fair to say that the acuteness of the crisis and the persistence of the measures when the crisis had passed are to a great extent due to the failure to eliminate the political strains which have gradually been intensified since the War.

The Failure to Remove Points of Friction

At the beginning of the depression, certain points of friction were becoming defined. France, through her Central and East European connections, was pressing on Germany and tending to shut out Italy from certain lucrative fields. Germany was making her economic influence felt by France and Great Britain in colonial and overseas territories. Russian influence was appearing through Iran and Turkey in the Mediterranean and the Indian Ocean. Japanese pressure was being strongly felt in the Far East by the United States, Holland and Great Britain, and in the colonial empires. Japan was also coming more and more into contact with Russia in the Chinese Northern and Eastern provinces. Both the United States and Great Britain felt all the above influences chiefly from the trade aspect, so that as long as they were financially and commercially the two strongest Powers, they had the ability to preserve the equilibrium and keep control of the situation if they chose to use it. Certain well-meaning attempts were made, such as the Dawes Plan, followed by the Young Plan, to link economic reconstruction with political appeasement, but world events were already moving too fast, and these attempts were neither sufficiently far-reaching nor timely. The incompleteness and tardiness of these attempts were disastrous, because there was both willingness and ability on the part of the German leaders at that time to join in world co-operation, as soon as the immediate task of German reconstruction was completed. The German people would have welcomed a whole-hearted policy to that end, the success of which would have been a powerful antidote against the internal disintegration which was rapidly setting in.

The United States was not sufficiently conscious of the intricacies of international politics or experienced in the new economic role of a creditor power to understand that the most powerful industrial country and premier creditor nation must profoundly influence the world's economic life, and cannot safely adopt a policy based mainly on contradictory internal factors. Great Britain was dangerously preoccupied by internal economic and financial troubles which were obstinately refusing to be cured. Thus these two nations failed to exercise at the right moment a decisive influence on world affairs. France continued to maintain an attitude based solely on the negative principle of keeping Germany down, and as France was politically the most active Power in Europe this became a permanent policy in the world. Meanwhile, the factors making for a world slump were gathering force, and certain undesirable features of economic nationalism—the fostering of uneconomic industries, prohibitive tariffs, subsidies—were growing fast. The world depression, by depriving the United States and Great Britain of their means of guiding world events and by unleashing certain uncontrollable forces, completely upset the existing equilibrium.

Crisis Measures

The depression exposed the unsoundness not only of the economic structure which had been built up after the War, but of its political basis as well, and caused economic distress and political friction to coalesce. At the same time it became clear that world development depended on the active circulation of goods, services and population, and this stopped when the United States and Great Britain ceased to lend. The international lending of the period 1926-30 had, however, only served the dubiously beneficial purpose of covering up and perpetuating fundamental maladjustments, and was all the time sowing the seeds of its own downfall. There then followed the depreciation of sterling which for the time being destroyed confidence in London as the world's monetary centre and rendered the United Kingdom temporarily incapable of guiding world affairs. The world was thus thrown back on its own resources. The collapse of the structure which had been built up, together with the new political and economic trends which were arising, created a new set of forces which entirely changed the situation. We must at this stage emphasise the importance of psychological factors in influencing world affairs at all times, and particularly at times when the tendency towards political or economic disintegration is strong, as it was at the outset of the depression. The attempts, generally half-hearted and often ill-prepared, of the economically and politically powerful nations to build up the world through the machinery of conferences had apparently failed. Conventional economic and monetary theories lost a great deal of support. New and exclusive political creeds arose and naturally aroused their own opposites. Once again the feeling of solidarity, which had been increasing, was undermined, and when the sanctity of treaties with its rejection of war as an instrument of policy was violated, the last vestiges of a moral order in politics and economics were gone. We do not mean to imply by this that such an order had been in existence. On the contrary, delay in its establishment was one of the fundamental features of the post-war period, but the elements of it were undoubtedly there during the years 1925-29, and have now disappeared because expectancy has given way first to a feeling of insecurity, and finally to fear. This psychological background is of the utmost importance if we are to understand the motives governing the present actions of nations. The depression threw them on their own resources and made them adopt methods of alleviation, the political and economic consequences of which were ignored in the prevailing state of *sauve qui peut*. The sudden cessation of lending and emigration forced many nations back on to agriculture at a time when the falling prices of raw materials still further depressed that industry. What was primarily an economic problem rapidly became an ethical and social one, so that the new creed of economic nationalism which was expressed in the development of self-sufficiency in industry and public works was elevated into a principle of national ethics, under which the status of agriculture became something good in itself and symbolical of a sturdy nation. This outlook happened to blend well with the political aspirations and grievances which were simmering everywhere. At the same time, countries which subsisted on the export of primary commodities found themselves without resources, markets, or the means to purchase, borrow, or pay debts. The resulting economic distress resurrected those revolutionary forces which had sprung up in the chaos at the end of the War, but by this time there were also in existence new counter-forces equally strong. Thus for the first time the issue of "have" versus "have not" arose as a political doctrine, not only between classes but also between nations. The economic

aspect of political creeds became not only an internal issue but an international one. Economic disintegration had thus shifted the balance from politics being used for economic development to economics becoming the instrument of politics. This was inevitable since ordinary business methods were breaking down and the State had more and more to step in to take over economic functions. In this process, ordinary standards of business conduct were undermined and the foundations laid for the wholesale breaking of agreements and the establishment of only one criterion—the immediate individual need or will.

The Significance of the Manchurian Invasion

In this welter of crisis measures two events seem to stand out in retrospect as shaping profoundly the future course of world history—the invasion by Japan of Manchuria, and Great Britain's decision to exploit the political aspect of the British Empire through the Ottawa Agreements and the abandonment of tariff equality or the "open door" in the Colonial Empire.

Japan, under pressure of a growing population, and meeting with fear and hostility because of her militant trade policy, seized the opportunity of world preoccupation with the depression to invade and annex part of China. It is arguable how far this annexation was intended to serve as an outlet for surplus population and how far for economic development. Both motives were probably present. This act was but a logical development of the policy which was behind the annexation of Korea, and is typical of the long-term views on politics and economics which have dominated Japan for the past fifty years. Whatever the motives, the result was that the world was suddenly faced with the fact that in spite of pacts, covenants, and multi-Power treaties—war was again (or still) the ultimate instrument of a dynamic national policy. It is immaterial to argue here how far Japan was justified by pressure of events and how far the world system in existence was ineffective in redressing or exorcising grievances—real or imaginary. The actual event made all these considerations obsolete, because a new situation had come into existence. There followed immediately a number of consequences, the effects of which we are experiencing in 1937.

The United States made a prompt move to safeguard the position in the Pacific and to enforce the sanctity of treaties. In this, the American Administration appears to have made attempts to obtain British collaboration, but without success. It is not our object to try and discover the reasons for this, but merely to record the events and, where possible, to indicate the apparent causes. Probably both Britain and the United States did not sufficiently appreciate each other's point of view and motives, and the desired collaboration did not materialise.

What did happen, however, was that the United States received what was considered to be a severe rebuff, and withdrew again into that politico-economic isolation which had already profoundly influenced the course of world events and was to have disastrous results in the next few years. Had Great Britain taken this opportunity of bringing the United States into world affairs at this time, the basis of future collaboration might well have been established, which might have led, on the one hand, to a concerted monetary and economic policy, and, on the other, to such a powerful influence for enlightened

peace as to allay at the outset the fears which were rapidly rising. Opponents of this view argue that nothing practical was on the horizon, and that in any case the difficulties of the United States Administration are such in relation to the wide variety of American public opinion that a consistent foreign policy could not be followed. The answer is that the United States is a tremendous and increasing power in the world, without being in any sense aggressive, and therefore that the psychological atmosphere in the relations between America and other nations must be even more important than that between individuals or classes within any given nation. The opportunity was missed, however, and the League of Nations, lacking a lead from Britain, was placed in the impossible position of having to call itself a League but of knowing that it could not function as a League in this critical situation. Nothing was done beyond mentioning the possibility of economic pressure, but this was not proceeded with, whether because mercantile interests in Great Britain and France short-sightedly thought that they would profit by the situation and therefore applied political pressure on their governments, or for other reasons. Japan was merely antagonised and resolved to continue the policy, while at the same time realising clearly that an economic blockade, had it been applied, would have wrecked the Japanese plans and might even have destroyed the country. Japan therefore set to work to build up a position which would make her self-sufficient in an emergency. This was done by creating a powerful military machine and extending political domination over territories and seas which could be made to supply the necessary material. From this emerged for the first time two factors which are dominating the world to-day: the doctrine of so-called "Hungry Nations" and the "Economics of War." Other countries have not been slow to adopt and improve upon the lessons first taught by Japan.

Political and Economic Repercussions of Ottawa

The Ottawa Agreements were the natural outcome of a new conception of Empire as a group of interdependent units bound together by economic and political self-interest in a time of acute depression. They made clear to the world that the political ties which bound the Empire countries were to be the dominant factor in economic relationships. The contention that all the pacts arrived at at Ottawa were bilateral and achieved only by hard bargaining, and also that the Dominions were independent States under the Statute of Westminster does not adequately meet the argument that the very existence of that Statute and the formulation of the standard M-F-N Clause, so as not to affect the Dominions—as has been pointed out earlier—establish a political factor in the Empire's economic ties. This argument may, perhaps, be weakened, but is not wholly disposed of, by the fact that some of the Dominions interpreted certain of the provisions of Ottawa in a way not advantageous to the Mother Country, and carried out subsequently independent actions not in the least desirable to her.

The Colonial Empire admittedly received a "raw deal" at Ottawa and subsequently had to submit to the reversal of the policy of the Open Door. It is doubtful whether the colonies benefited by this at all, or if the advantage to the Mother Country was as great as expected. Certainly, however, the introduction of discrimination in the Crown Colonies had an immediate deterrent effect on world trade, although it is true that this measure could be, and was, used as a bargaining point in negotiating commercial treaties.

The economic effects of these measures have already been analysed. But these are not the only, nor indeed, the main effects. The psychological influence on the world was wider, more profound and more lasting. Any short-term economic advantage can hardly compensate for the lasting impression on certain foreign nations that Great Britain was henceforward to use political authority in the Empire for her own ends and not in the interests of world economic development as a whole. It is immaterial whether this accusation is wholly justified: what is important is that it exists and has been, for the last few years, repeated and drilled into the peoples of the world with profound psychological results. The Ottawa Agreements and subsequent colonial policy showed the world again that by the successful use of political power, self-sufficiency in raw materials could be achieved with a far-flung empire. They aroused intense envy among the "have-nots," and drew attention to the great vulnerability of the long lines of communications upon which Great Britain's very existence would depend in any sudden emergency. Thus the division of the world into "haves" and "have nots" became once more reformulated, and this doctrine was to dominate world politics for the next phase.

The Failure of the World Economic Conference

It should not be assumed that the Ottawa Agreements were meant either to be exclusive or part of an imperialist policy—as some have tried to make out—or that the unsatisfied nations quickly made up their minds that an active policy against the imperialism of the satisfied nations must henceforward be pursued. Certainly Great Britain and France, and probably some of the unsatisfied nations, hoped that progress could be achieved by other means. Unfortunately, the process of normal development by agreement was delayed and impeded, and meanwhile the hitherto isolated and extravagant political ideas mentioned earlier were allowed to crystallise and to gather force, until they became highly developed instruments in the hands of individuals or organisations. The British Government undoubtedly regarded the Ottawa Agreements as a first stage and proceeded to negotiate a series of other treaties on a bilateral basis with a number of foreign countries situated mainly in North Western Europe. These certainly helped to stabilise the competitive position of the United Kingdom, but inasmuch as they were aimed primarily at arresting the crisis, they resulted mostly in the diversion of trade and contributed little to general reconstruction. The World Economic Conference was a half-hearted attempt at the latter. Its failure must be attributed as much to American scepticism and British short-sightedness as to any other single cause. In view of the fact that President Roosevelt had only just assumed office and was grappling with a financial and social crisis of unparalleled magnitude, it was not surprising that the American administration should have adopted an opportunist attitude. But even before the London Conference, the clash between internal politics and foreign policy in the United States had a profound influence on world events. The Hoover moratorium, put forward partly as a last minute effort to arrest what appeared to be an impending collapse of the Old World (America's debtor and important market), and partly as a genuine gesture of progress, created an opportunity for constructive statesmanship in the politico-economic field which was seized at the Lausanne Conference. The next step lay with the United States. But internal politics in that country, aggravated by the rapidly deepening crisis and

the impending presidential election, made it impossible for the American administration to play its part in world events. What was probably the last chance of saving Germany and Europe from dictatorship and militarism was lost. The prospects of the World Economic Conference, which opened immediately after the devaluation of the dollar, were wrecked at the outset by lack of preliminary agreement between the two countries, which had to agree if the door was to be opened to any constructive development or action by anyone else. President Roosevelt was unable or unwilling to state clearly the United States' attitude, and refused to consider any form of currency agreement, thereby making it impossible to discuss any plan whatsoever of world economic or financial reconstruction. At the same time, Mr. Chamberlain, on behalf of Great Britain, refused to modify any part of the new British protection policy and was reluctant to abandon the freedom of sterling. Thus, the two economic leaders of the world, under the pressure of crisis events and their own internal public opinion, found themselves obliged to give up that leadership, and instead of controlling the political future of the world through economic measures (which, at a time of economic depression, would have been sufficient), subordinated their actions to policies dictated by purely internal factors.

It has often been said that the Conference failed because of insufficient preliminary preparation, and that in future a Conference must not be summoned without adequate preparatory work. Such a statement is misleading, because it does not reveal that the technical preparation was, in fact, largely adequate. What was lacking was proper formulation of, and the will to face, the fundamental contradictions which had existed for some time, and which have now become increasingly revealed. All that the Conference could do, therefore, was to try to "paper over the cracks," and so it took refuge in vague generalities which had neither meaning nor a practical future. It did, however, succeed in setting on foot enquiries into the possibility of regulating the output of certain raw materials which later matured into schemes that have been not unhelpful in rescuing primary producing countries from the worst excesses of the commodity slump.

The world thus began to feel that comprehensive schemes inadequately prepared were useless, and that piecemeal arrangements—pursued with some success by Great Britain and later by the United States—were the best mechanism. While alleviating the problems of individual nations, this process left the main international problems untouched and allowed the new political forces to gather strength and to reduce the economic mechanism to a position of subordination. The inability of the United States to grasp the implications of being the premier world economic factor is illustrated by other events. The silver policy of President Roosevelt, for instance, framed as ancillary to his monetary policy and to suit American silver producing interests, had a violent effect on the Far East, and though eventually modified, gave a clear illustration of how America is constantly, through her economic power, exercising great political influence on the world. This influence the American Administration is then unable to use properly. Moreover, when the Administration does deliberately adopt a political attitude, it often cannot or will not follow out its economic implications. As financial deterioration and growing economic difficulties in many parts of the world set in—unaffected as yet by recovery in the sterling group, which was felt too late to arrest wholly certain trends—new weapons were created such as blocked currencies and the control of imports. These were, in many cases, merely

crisis measures, but in more powerful and unscrupulous hands could and did become instruments for political ends. At the same time, the need for external assistance, which could no longer be obtained in the form of free exchange or loans, caused the smaller nations to regroup themselves round those bigger nations which could help them—the terms of assistance being now based on the more direct ties of complementary interests. Thus Italy began to create a sphere of influence in the Upper Danube valley.

The Significance of Nazi Foreign Policy

At this stage begins the third phase of post-war politico-economic development, the phase marked by the growth of the "Economics of War." There now occurred the National Socialist revolution in Germany, and this coincided with the arrest of the progress of Japan in the Far East when confronted by the rapidly-growing power of Russia.

Whatever may have been the original intentions of the National Socialist Party and their nationalist and militarist allies about the re-creation of German political power, Hitler had, in the earlier stages, sufficient internal difficulties to contend with to be genuinely keen to make an equitable agreement of a politico-economic nature with the Western European Powers. There is evidence that the purely political aspect of the colonial question was not originally of such paramount importance as to prevent attempts at its solution on purely economic lines. Any opportunity which may have existed was not taken—because of the inherent cautiousness of the British authorities and their consequent reluctance to commit themselves in a set of circumstances the outcome of which was obscure. France also rejected concrete efforts at political agreement, and Germany set out on a totalitarian course in which politics and economics, at home and abroad, were to be closely knit into a single whole. But this process is gradual, and even now the pattern of it may not yet be irrevocably cast. The conception of Russia as the economic background for German expansion—reference to which was made earlier—may not have been completely rejected in spite of evident political antagonism, and may still be part of the schemes of military and heavy industry opinion. Certainly, German credits to Russia have not been stopped—and have even been extended. But quite apart from any plan, such as the above, which would, of course, make Germany largely independent of other countries, Dr. Schacht certainly has never abandoned the idea of bringing Germany back into the orbit of normal economic intercourse as and when circumstances would be favourable. In this, however, he has been opposed by the more Socialist and isolationist school of National Socialist thought. Meanwhile, however, his direct methods have, admittedly, been extremely high-handed, as they must be in order to be effective in a drastic economic situation which is full of contradictions and absurdities.

Dr. Schacht's economic plans have been based on bilateralism of the more rigid type. As political friction did not decrease, while internal pressure, due to greater radicalism, grew and the over-riding requirements of rearmament rapidly expanded, he has been increasingly forced into measures more and more arbitrary and further removed from ordinary economic intercourse. In this he has approached nearer to the system of strategic necessity which the military authorities and some of the more extreme political chiefs were working to create. This system no doubt was partly a compromise between the markedly

divergent views of various ruling elements in Germany, and it has now resolved itself into the Four Year Plan, which is the most perfect manifestation so far seen of the "Economics of War." We have already mentioned in earlier chapters the methods adopted for securing the necessary minimum of foreign trade, as well as the widespread antagonism which these have tended to arouse, thus defeating their own ends. If they are to be regarded merely as short-term attempts to establish an immediate political lien on certain countries —if only by making these countries dependent on Germany for military equipment, transport, etc.—then the technique adopted is understandable in the light of German political aspirations. The obvious shortcomings are probably mainly due to that congenital lack of finesse which was so evident in German policy before the War.

Two main aspects of German policy may be distinguished, of which the first is favourable and the second detrimental to world economic progress. The first is the development of overseas connections through shipping, air services, contract services, etc., in which barter and similar arrangements play an important but not a predominant part, and which serve to maintain some volume of overseas trade and to "show the flag." The other is a systematic politico-economic consolidation in areas adjacent to, or within easy access of, Germany. It has often been suggested that this will involve ultimate penetration of the Ukraine and, perhaps, the north-east Baltic countries. But such a policy would involve an exceedingly difficult and hazardous military campaign, and secondly, would not give Germany what she really requires. In fact, the development of Russia as Germany's economic "hinterland," which was alluded to earlier, is much more rational and admits by implication the above difficulties. This interpretation is supported by the fact that Herr Hitler's continuous attacks have been directed not so much upon the Soviet Government itself as upon what he feels to be the Jewish domination of it and upon the activities of the Comintern. It is significant that Stalin's recent "clean-up" has been anti-Jewish in effect.

German Penetration of South-Eastern Europe

A more advantageous policy for Germany would seem to be penetration to the south-east, with ultimate emergence into the Mediterranean basin. Such a policy would give Germany access to wheat, timber, meat and fruit in the Danube and Balkan countries, iron ore, copper, zinc, lead, pyrites in Austria, Hungary, Roumania and Yugoslavia, cotton in Egypt and the Sudan, oil in Roumania, Iran and Iraq, as well as the potentially rich markets in the Near and Middle East. The local rivalries of those regions, as well as the jealousies of the other big nations, make gradual political domination feasible—at least theoretically. Certainly the history of the last few years seems to give ample evidence of this: German penetration in Austria and Hungary, continual wooing of Yugoslavia, support of the Fascist Iron Guard Party in Roumania, complete economic control of Bulgaria, increasing influence in Greece, repeated attempts to secure a dominant position in the industrial development of Turkey, are highly significant. Significant also are German attempts to build up a system of communications through South-Eastern Europe by the construction of modern roads. The visits of Dr. Schacht to these areas acquired importance in the light of the above considerations, because the immediate and even

potential economic results seemed an insufficient excuse for them. Lately this policy has been developed in a more frankly political manner: Dr. Schacht's visit to Iran and German activity in Afghanistan cannot possibly be explained by their economic value, which is negligible. They can, however, be explained as steps in the encirclement of Russia, which is becoming rapidly more powerful, and which, through her long-standing friendship with Turkey (as shown by the part Russia plays in Turkish industrialisation and also by the course of the recent Dardanelles negotiations) may, in German opinion, be jeopardising the chance of a Mittel-Europa under the dominance of Germany. The latter would give Germany all she needs for the time being: ample supplies of essential raw materials, strategic position to threaten possible rivals, and, in the last resort, man power in the shape of possible allies. The use of such a situation as a jumping-off place for creating an empire must not be considered fantastic, because such a plan would be in keeping with the whole psychology of National Socialism, which is based on the dynamic idea of the expansion of a virile "race," and on the need to challenge the Ottawa conception of empire as a closed politico-economic corporation. In this connection, the repercussions of recent legislation by the South African Government regarding the South-West African mandate are instructive. So far, Germany has shown much skill in formulating and implementing the major lines of her plans. It is rather in the detailed working out that she has made errors of judgment, thereby antagonising important nations and putting them on the *qui vive* about Germany's ultimate intentions.

The key to the penetration of the south-east is the Danube Valley, and hence the struggle for the effective domination of Austria. With Italy hostile towards the *Anschluss*, Czechoslovakia is the alternative key, and therefore the future of German and perhaps of European policy still depends on Central European events. There are signs, however, that delays and alarms have made it less easy for Germany to develop this policy smoothly, partly because Italy has similar ambitions, partly because Great Britain is becoming awake to the danger, and partly because world economic progress during the last two years is making the smaller nations increasingly reluctant to be dragooned. But the same economic progress, as we have shown in earlier chapters, is making it more difficult for Germany to avoid resorting to force in maintaining economic control. German participation in the Spanish War may be largely regarded in that light. Unable to obtain Swedish iron ore, because she cannot pay for it, Germany has obtained from General Franco ore which usually finds a market in Great Britain. He can also supply Germany with pyrites (the main source of sulphur) and some copper, while a struggle is now in progress for the world's richest mercury mines. Inasmuch as Great Britain to a certain extent and France very greatly, depend on these Spanish raw materials, the strategic importance of the control of Spain by Germany and Italy, if only as a bargaining counter, cannot be over-estimated.

Italian Aspirations

Italian policy is in some respects similar, though it has other aims also and was formerly isolationist, so far as Mussolini himself was concerned. There has been relatively little commercial penetration by Italy except in the Danubian countries and Egypt, and by the development of shipping services. The Fascist system has an avowedly political basis, and the conception of empire built up by "a virile, not only military but warlike

nation" requires acquisition of territories and strategical positions either by force of arms or by threats against possible rivals, before formulating a plan for their economic development. Evidence is now available to show fairly conclusively that control of the Eastern Mediterranean in order to establish an empire there has for some time been the Italian plan. The earlier moves against Greece, the fortification of the Dodecanese (which has always been regarded by Turkey as a direct threat), the control of Albania, are all stages in this plan, as also was the propaganda in Egypt, Palestine, the Red Sea and the Persian Gulf, which had been going on for two or three years leading up to the Abyssinian War.

The Possible Clash of German and Italian Ambitions

Whereas Germany has never openly advocated war as a method of national economic expansion, and in fact has publicly deprecated it, Mussolini has not ceased for some years now to preach war as an instrument of national policy. It is true that partly for this reason he has been singularly unsuccessful in his economic strategy. The Abyssinian War was only won because of the weakness of will and the fears of the major League Powers, and it demonstrated clearly that Italy was in fact helpless in face of a *real* economic siege. This lesson was very much taken to heart by those military countries which could be exposed to economic blockade—i.e. Italy, Germany and Japan—and they immediately intensified their preparations for self-sufficiency. Again the half-hearted action of the non-aggressive Powers served only to give an impetus to the economics of war. By the Abyssinian War, Italy has gained control over territory which will need years of pacification and development and of which the economic value is, to say the least, not proven. But Italy has now a strategic position on the Red Sea, threatening the Sudan and Egypt in the north, and Aden and British Central Africa in the south, and the route to India as well. She has also opened a source of excellent black troops. Italy may consider herself, therefore, as within measurable distance of challenging control of the Near and Middle East. Hence Italian economic aims are not dissimilar to Germany's, and if both countries vigorously pursue their objectives, their policies may sooner or later come into conflict.

But taking the short view, the events of the last twelve months made Italo-German collaboration inevitable, if only to exploit a situation when Britain was militarily unprepared and the smaller countries tended to be demoralised. But growing dangers have stiffened the British and French attitudes, and have made the smaller countries more determined, jointly and severally, to protect their political entity and growing economic independence. The Spanish Civil War has served to accelerate this movement. Thus the Rome-Berlin axis, which is increasingly weak economically, must depend more and more on political factors—which, at root, may not be complementary.

Changes in the Balance of Forces in the Far East

The position in the Far East has developed along not dissimilar lines. Japan, having acquired Manchuria, found it less attractive economically than anticipated. It has proved difficult to control, and she has been obliged to extend military commitments into North China. It must be noted that the initial pressure to acquire territory was largely economic.

But continuous aggression, without any economic or political benefits for the population, has now served to consolidate China as nothing else could have done, so that the position, from Japan's point of view, is definitely less attractive than in 1932. In addition, Russia is now immensely stronger than five years ago, and has extended and strengthened political and economic influence in Inner Mongolia and Chinese Turkestan. Inasmuch as Russia is incomparably stronger than Japan in economic resources, and is becoming much less interested in international Communism as such, Russian influence must be increasingly felt in the future. Thus Japan may be reduced to a scale of economic activity no greater than that which she might have achieved without any military adventure at all, while at the same time the expenditure and the liabilities of this adventure have already been incurred. But the pressure of expanding population in Japan is still present, and the question arises therefore whether an adventure into the Philippines or the Dutch East Indies may not at some stage be contemplated. The three Powers which would be concerned in such an event, however, have now been warned, and their naval and air programmes must make Japan pause. Any reliance she may have placed on the German pact, Japan may have already begun to regret.

The strategic position of the three Powers is, however, complicated by the remoteness of the territories concerned, and it seems probable that the practical problem of protecting their interests can only be met by co-operation in both the political and the economic sphere covering the whole Pacific area.

The Rehabilitation of China

One of the immediate results of the aggressive policy of Japan and the penetration by Russia of Mongolia and Chinese Turkestan, has been the remarkable consolidation of China—a phenomenon which nothing else could have brought about. In spite of foreign wars, internal strife and local revolutions, Chinese politics, by some mysterious dispensation, preserve a form of continuity, while trade and finance not only continue, but have made considerable strides during the last few years. While the idea that China is a limitless market awaiting exploitation must be considered as illusory, undoubted industrial and commercial progress is being made, and significantly, under Chinese auspices, even though help is, in fact, being obtained from abroad. It is probable that financial defaults and political upheavals will continue to occur, but a national industry of considerable and increasing importance is growing up, on the basis of much natural wealth. Chinese development must become a factor in world politico-economic affairs, inasmuch as China has a knack of turning to her own use foreign interference (as in the case of the currency reforms arising out of the Roosevelt silver policy) and is increasingly unwilling to accept foreign control, while welcoming foreign collaboration.

The Consequences of Russian Development

The re-orientation of Russian politico-economic development over the past few years has been radical and reflects the new nationalist phase of Bolshevism. Instead of flooding world markets, Russia now sells high-grade or essential goods at higher prices in selected markets, and is establishing herself as a developed Big Power which wishes to assist

neighbouring semi-developed countries such as Turkey, Iran, Mongolia, Lithuania. Inasmuch as the Russian balance of payments is now positive, and gold production is rapidly increasing, Russia might well soon become a creditor nation, with all the politico-economic influence which this entails. Russian interests, therefore, are obviously long-term ones, and Russia will do her utmost to avoid a war for the time being, thus becoming a factor of stability. But Russia is intent on creating an extending circle of influence, and it must not be forgotten that much territory was lost after the War. Hence Russia may, when once internal reorganisation is more advanced, be driven, like other totalitarian countries, into a dynamic phase of political temper. In any case, the unified political and economic control which the Soviet system gives, and the great potential wealth of the country, are weapons not possessed to anything like the same extent by any other nation.

The rapid increase of gold production amounting to about £50 million in 1936, has given Russia a new politico-economic weapon, the power of which is, at present, incalculable, though, in so far as the present gold output is derived from alluvial sources, it may not be maintained. Inasmuch as the United States is practically the only free buying market, the big Russian sales there during the past few months have caused such pressure on the dollar that serious repercussions throughout the world have taken place. It is obvious that understanding and co-operation between the main gold-producing countries and the world money markets are imperative if the world is to avoid sudden changes in gold policy and price with their cataclysmic effects on commodity prices and economic activity. The immediate causes of the Russian gold sales were probably the need to establish a "war chest" in the United States and, by acquiring sterling against dollars, to provide a "hedge" in London. But experience is being acquired by Russia of the power of this gold supply—which Russia will undoubtedly use when occasion arises.

French Policy in Europe and the Mediterranean

The position of France in the international field is increasingly difficult, although the French have always clearly formulated the close connection between politics and economics and regulated policy accordingly. This, however, was done from the purely financial and military angles—in other words, by advancing money and exploiting the borrower to help in emergencies. France did not realise that money, once lent, is liable to be lost as a lien, unless the resulting economic arrangements are of lasting benefit to the borrower concerned. However, on any short-term view money does purchase services. This has been strikingly demonstrated again by the recent credits to Poland, which are nothing further than a "refresher" for the Franco-Polish military alliance, even though they are being used by Poland to carry out a plan of national development which has existed on paper for some time. In so far as this is so, the French loan must be regarded as being of general benefit to economic progress. In the Western Mediterranean, however, France has carried out and is continuing to do so successfully, a comprehensive politico-economic colonial policy. For this the ability of French colonial administrators is responsible, and in particular the genius of the late Marshal Lyautey. In Algeria, Tunis and Morocco, France has built up a system of trade services and development which can provide many requisites both in peace time and in war, and at the same time does confer

great benefits on the local population. Fortunately, these areas are in a sense complementary to France, and this facilitates the French policy of making all territories under French control or protection gradually feel that they are part of a Greater France. This Greater France may include widely divergent creeds and civilisations, but it is founded upon the ideal of securing the mutual prosperity of all.

France relies on tranquillity, both external and internal, over a wide area in the Mediterranean. Imperialistic penetration by other countries in North Africa or Spain, therefore, is of vital significance to French interests. Russia, on the other hand, being far away, is little feared politically by France, whereas a Franco-Soviet pact might well prove useful in an emergency. Much of French industry depends on supplies from countries with which France has either political agreements or which she wishes to keep out of entanglements—e.g. copper from Yugoslavia, oil from Roumania, pyrites and iron ore from Spain and Africa. The maintenance of political balance of power and freedom of communications therefore are vital to French economic strength as a factor in world affairs: this France realises with great clearness, even if her actions at times seem somewhat short-sighted.

The Influence of the United States in World Affairs

As the United States is a dominant factor in world affairs the latest development there may well prove decisive in the event of a crisis. We must admit at the outset the very great difficulty of assessing the way in which the United States power will be brought to bear, but it is clear that the American Administration has a genuine and sustained desire to play a worthy part, even if internal politics inevitably cause actions to fall short of intentions. It is very little short of disastrous that opportunities of closer collaboration should be allowed to slip by, because sympathetic understanding strengthens the hands of those who feel that the United States has a great part to play, while a rebuff serves to strengthen the already powerful movement in favour of blind isolation. This argument has been reinforced by the sudden realisation that the United States could, by a modification of her gold policy, profoundly affect primary producers, wreck a country like South Africa, and alter the whole trend of world economics. The United States is unlikely to use this power unless all hopes of progress by international agreement are disappointed. But the threat is there, nevertheless.

The United States is the only nation which has honestly attempted to analyse the theory of world politics and to define its own attitude. Unfortunately, internal differences of opinion are so wide that at present American policy tends in effect to be mainly negative, except in the affairs of the American Continent as a whole. Furthermore, the United States has ignored certain economic facts and is thus forced into a dilemma, which is in a sense the same that other nations have to face. Repeated assertions of the evil of war and absolute refusal to engage in it, have now led to the adoption of an attitude of absolute neutrality, in which there is no distinction between the aggressor and the victim, and trade in time of war is only to be done on a "cash and carry" principle. The Administration has, it is true, managed to obtain some power to discriminate, but it is more than probable that it could have gone much further if American opinion had not been antagonised by recent events in the Old World. During the Abyssinian War, a brave attempt was made by President Roosevelt to combine practical trade policy with political idealism: his move to

discourage excessive trade with belligerents and to withdraw protection from the trader dealing with them was in effect a practical step to help the League. It meant that the United States renounced American neutral rights and would not object to ships being stopped or cargoes diverted. Inasmuch as the League Powers controlled the sea, it was tantamount to co-operation with them. This great opportunity of taking a step towards finding and defining a possible practical application of the general American attitude was missed—thus once again, as in the case of Manchuria, pushing the United States further into isolation and making the position more obscure. The United States now refuses in theory to have anything whatever to do with war, but yet is apparently not prepared to take any steps to prevent it or to minimise it. If, therefore, in the event of a war, a belligerent chooses to interfere with the United States' commerce, the United States must either renounce neutrality rights, thereby automatically assisting the side which dominates the sea, or interfere—thus destroying at one blow the whole elaborate fabric of absolute neutrality. It is likely, therefore, that relatively soon the United States will have to work out with greater precision the implications of being one of the dominating factors in a world ridden by politics. In the meantime the Administration has been active in building up a Pan-American politico-economic *entente*, which has much to recommend it, while Canada, too, has shown certain tendencies in sympathy with this idea. It remains to be seen if the close ties which Great Britain has with these countries may not serve to bring her, and with her the other Empire countries, into the same orbit. Economically such a group could assist the peace of the world, but for that the constituents would have to decide exactly how far they were prepared to go.

The Foundations of British Foreign Policy

Great Britain has been increasingly conscious of the importance of the Empire, and has therefore, in spite of adverse factors, deliberately fostered economic relations as the main means available of keeping some form of political coherence. Trade treaties and the London financial market are not the only factors—the development and maintenance of communications, problems of defence and the psychological appeal to the idea of a free Commonwealth of Nations are just as important. Unfortunately, in this policy British authorities appear to have neglected the need to ensure the peace in certain areas of the world which is vital on any long view for the Empire's safety, or to remove those economic grievances (real or imaginary) which so repeatedly lead to political tension. Is it, for instance, a solution of the problem to dismiss, on the one hand, the colonial question as irrelevant to the economic rehabilitation of "poor" countries, and, on the other, to refuse to consider any comprehensive plan of economic reconstruction which might involve a change in policy or an element of risk, or a sacrifice on the part of Great Britain, such as a modification of the M-F-N Clause, abandonment of bilateralism, and increased lending facilities? From the political side, is not the refusal to consider any modification in existing conceptions of sovereignty, when added to the indication that the maintenance of peace and justice in certain areas is of no particular concern to Great Britain, liable to create an unfortunate impression that British policy is henceforth to be framed on reactionary lines—on a determination to preserve the present situation and to abandon for the time being at least, any broader constructive effort? Neglect of these issues would seem to be dangerous because it encourages the use of force, the development of the

economics of war, and at the same time makes Great Britain more and more involved in the latter, to her own great disadvantage in view of the highly complex economic structure and vulnerability of the scattered territories and extensive communications of the British Commonwealth.

The Economics of War

In considering the economics of war, we must distinguish between their internal and external aspects as well as their general influence on the world. Externally they render essential the rigid control of foreign trade and credit, first to enable imports essential to the creation of a military machine to be obtained, and second, to eliminate gradually the need for such imports in the future, thereby reducing risks in time of war. At the same time, labour and industry are conscripted in order to build up a structure whose maximum efficiency can only be achieved in time of war. In this process normal economic relations with other nations and the normal development of national, social, and economic life are destroyed. Germany is a strikingly clear example of this process. There first came Dr. Schacht's various expedients, followed by the rapid implementation of the "guns before butter" policy, the progressive deterioration of foreign trade relations, and the final emergence of the Four Year Plan of self-sufficiency.

Similar processes are taking place in Italy, Japan and Russia, and are now spreading to smaller countries. But this process carries the elements of its own destruction. The deliberate progressive elimination of foreign trade as a natural medium of increasing prosperity only makes deeper the cleavage between "haves" and "have nots," and makes the position of the latter acutely difficult if not catastrophic in time of a world revival and shortage of goods. Those countries fully committed to the economics of war are obliged to secure at all costs certain vital supplies, and at the same time to take steps to prevent rivals from obtaining them. The Spanish War provides an excellent illustration of this.

The internal effects of these new economics are more difficult to elucidate. It is evident that a vast industry is being built up which is only partially productive in peace time and is not based on any rational ideas. At the same time, complete self-sufficiency cannot be achieved, so that a form of foreign trade must be maintained, but at an absolute minimum. It is a fallacy to argue that a nation "cannot afford a vast rearmament programme." As long as it maintains a balance of foreign payments sufficient for its essential imports, and the government has absolute control of the "man-hours" of its population, so as to be able to impose a process of "forced saving" upon the community, the question of costs does not arise in the financial sense. A limit is imposed only by the resistance of the community to an indefinite decline in the standard of life. The only sort of decision which has to be made on the basis of financial costs is whether it is cheaper to employ men in building battleships, naval bases and aeroplanes, in order to keep communications free, or to divert this effort to the building up of a "substitute" industry.

The Dangers of War Economy

But if on the short view such a system is possible, it has very great dangers. A rise in world prices can completely upset the foreign trade calculations, and exhaustion of foreign

credit reserves makes any actual assistance in an emergency impossible. There are at present unmistakable signs that such an emergency is in fact threatening not only Germany, but also Italy, and to a smaller extent Japan. But though perhaps slow in maturing, the really driving feature of the economics of war is the internal situation: this can be forced to an earlier crisis by external circumstances, but essentially it depends on the extent to which the man-hours of the population can be diverted to unproductive efforts at the expense of the nation's standard of life. In the end, the resources for investment in rearmament can be obtained only at the expense of normal productive activities and investment, and hence by depressing the standard of living and curtailing liberty. The lengths to which this process can be pushed, obviously varies with each nation. It is almost impossible to estimate the total real expenditure of Germany and Italy on armaments—but industry, agriculture and the whole population are known to have been mobilised primarily for that end. Russia spends one-third of her total Budget, which, of course, covers all industry—and inasmuch as her national income may be taken as equal to the estimated retail turnover (131,000 million roubles), about 18 per cent of the national income appears to be spent for military purposes. When we consider that the British rearmament programme represents only 6½ per cent of the national income, that there is as yet no complete mobilisation of industry and population, and yet how profound an effect it has on our economic structure, it is clear how close to the danger limit—if not beyond it—the totalitarian countries have gone. The economics of war introduce a new phase in world development, and their failure would probably mean the total collapse of the regimes advocating them and heavy damage to the peculiar economic and social structures of the nations concerned. The extent of such effects cannot be calculated, but the knowledge that they cannot be risked must be dominant in the minds of those responsible for such regimes. We cannot know, therefore, whether, to save themselves, any of these nations will resort to war as an outlet: certainly there have been signs to that effect, and it would be imprudent for the other nations to ignore them. The impact of this development on Great Britain is both political and economic. Politically, Britain and the Empire are drawing closer together in order to build up a common system of defence. This is, perhaps, inevitable, but it will profoundly affect such questions as the position of Mandates and defer for a long time, if not for ever, any question of a modification in the sovereignty of territories or international control. Opinion is hardening throughout the Empire, so that any mention of concessions might have a disruptive psychological effect, and will therefore probably not be made, even though it might be advisable and just, subject to adequate political safeguards.

The economics of war are forcing us to use our prosperity for the wrong ends, and to mortgage, if not jeopardise, our future. Even if there is no choice for the moment, should we not take care to ascertain whether the principles underlying present economic policy are calculated to remove friction in the future? The indications are that there is too tardy an appreciation of the significance of events, and overmuch hesitation in following out the implications in practice, even though certain principles are admitted as desirable. These events during the past year have become more pressing. The world has too recently suffered the horrors of prolonged deflation to be able to face it again. But if competitive rearmament is allowed to proceed unchecked and economic co-operation is not re-established, a swift inflation will occur, followed inevitably by another collapse. The world's present socio-political structure can hardly survive such another shock.

Opportunities for Fresh Reconstruction.

But in the meantime, the revival of activity has created conditions which have enabled many nations not only to assert their independence—because their resources are no longer absorbed by crisis measures—but also to make definite moves of a constructive nature. In this they have not only been actuated by a feeling that such economic measures are right and the time opportune, but also by the pressing fear of powerful political neighbours and the realisation that only close co-operation in the solution of economic problems can save them. To this extent, it is possible to hope that the factors making for the spread of the economics of war are weakening and that the world is entering upon a fourth politico-economic phase—a phase of renewed reconstruction and economic and political appeasement.

The recent move of the Oslo Powers must be regarded in this light—with, perhaps, greater emphasis on the need to consolidate economic recovery. Even more significant—and indicative of the growing importance of the security incentive—is the more recent move towards the economic consolidation of the Danube Basin—a consolidation which is overriding old political antagonisms and which should materially assist in removing them. Progress is being made along a number of lines, and extremely significant is the appeal recently voiced in Hungary for the preferential treatment of certain categories of each other's goods by the Danubian countries—reference being made to the example of the British Empire.

The above symptoms are healthy in that they indicate the determination of the smaller nations to take the lead in rebuilding the world economy, instead of waiting upon and becoming attached to this or that Great Power, and in spite of a simultaneous movement in favour of closer regional economic groups. This movement is beneficent in that it may simplify and strengthen the world's economic structure by breaking down numerous barriers, adjusting currencies, and removing points of friction which are not all important in themselves, but capable of forming nuclei of discontent round which trouble may start. By this means, increasing areas of prosperity could be formed, the constituents of which would have every interest in eliminating the economics of war and in preserving political peace. This development would more than counterbalance the increasing withdrawal of the nations which are wedded to the economics of war from participation in normal economic intercourse. Such nations would soon find themselves surrounded with areas of growing prosperity and tranquillity. This tendency might, in spite of propaganda and a close censorship, and barring a sudden cataclysm, exercise a new and increasing influence for peace on their own populations.

The Need for a Progressive British Policy

But however energetic the efforts of the smaller nations, real and lasting progress cannot be achieved without, first, the active support of the chief trading Powers and then, their resumption of the lead. But, in examining the possibility of this, we must be prepared to ask ourselves certain pertinent questions. The salient issue, for instance, of the co-operative movement among smaller nations is the desire for more particular economic

collaboration between those nations which are linked by geography or economics. Would it be possible for Great Britain once again to refuse recognition to this movement, in face of the much wider and firmer demand for it, seeing that it has also the sympathetic support of France and the United States and significantly, invokes the British Empire as an example? And what would be the political repercussions of such a refusal? Would, for instance, the other nations, with a growing sense of their responsibilities, accept the somewhat arbitrary allocation by the British Government of blame for the existence of restrictions to world trade? Can the argument that the "open door" in the Colonies would be harmful to colonial fiscal autonomy and would dislocate trade, be safely sustained in face of the strong impression that political power is being used to our own economic advantage?—and is it worth it? Above all, is not the caution now largely out of place which arises from suspicion that behind any new approach by this or that nation may lurk a sinister scheme to obtain an unfair advantage? May not all such arguments be too late, because events are demanding a more radical solution; because nations are genuinely anxious for a solution and no longer prepared to argue about formulæ? If so, the risks involved by a new determination to grapple with the growth of menacing forces are much less than those inherent in obstinate devotion to obsolete methods.

Anglo-American Co-operation

The need for clear and rapid thinking, and above all for the accurate perception and formulation of the inter-action of economics and politics, is now imperative for the bigger nations, but in particular for Great Britain and the United States. Whatever (and perhaps because of) misunderstandings in the past, similarity of ideals and the exigencies of the present situation inevitably compel these two countries to draw closer together. It is no secret that the United States neutrality legislation has caused official and unofficial moves from British interests to see if security of supplies in case of emergency could be assured. At the same time, President Roosevelt's often expressed desire to promote peace and co-operation—together with moves in that direction—cannot be left in mid-air. If the United States Administration is faced with difficulties arising from internal political factors, in following out all the lines of development which it has tentatively put forward, then even more should Britain appreciate that whatever may be the differences of practice or formula, an overriding factor exists—that the two premier economic Powers, to whom lasting peace is essential, cannot afford to be at cross-purposes or even not to work in concert. If the nations now bent upon war economy are to be gradually wooed from that course, then world prosperity and progress can only be achieved by welding the remainder into an economic whole. This requires the joint efforts of Britain and the United States. There are signs that the Dominions, which perhaps can appreciate the American outlook better than Whitehall and are apprehensive of delays, are realising the urgency. The repeated contacts of Dominion statesmen on the one hand with the American Administration, and on the other hand with each other and London, may be the prelude to a more comprehensive forward policy, with which the French Government is wholeheartedly in sympathy and of which the Currency Agreement of September 1936 gave the first hint.

This agreement, followed as it was by the efforts of the smaller countries of North-Western Europe and the Danubian area, when viewed in conjunction with the expressed

wishes of the United States and France for greater international co-operation, holds out a promise of real economic reconstruction and political appeasement. In the light of the above considerations, the mission undertaken by M. Van Zeeland, in his search for constructive opportunities, contains promise of really fruitful results—provided that it is not regarded as a means of postponing decisions and of avoiding facing the issues by those who should do so. At present there is little indication of the methods which are to be employed, or the range of contacts to be made—because official pronouncements do not go beyond well-meaning generalisations, on the one hand, and the reiteration of a somewhat negative goodwill, on the other. This leaves the mass of the political and business community largely in the dark and may lead to disaster, because if real revival of economic activity is to be achieved, full consultations and co-operations with those engaged in such activity must be ensured at the outset. Evidence is ample and rapidly increasing—from the utterances of individuals and resolutions of corporate bodies—that many traders anxious to trade are prepared to examine critically principles and methods and are no longer content with pious hopes. They must be given every encouragement—and we may well ask ourselves whether enquiries and missions confined to the officials of governments will achieve the desired results. Uninformative explanations in Parliament, make it difficult, if not impossible, in the absence of precise data, for the issues to be thoroughly debated. Yet one of the outstanding advantages of democratic government is that it can enlist the criticism and co-operation of all the varied elements in a country and in times like this such an advantage should be exploited. Whatever the merits claimed for the totalitarian form of government, it has contributed nothing so far to the task of general world economic reconstruction.

The primary necessity is that invaluable time should not be lost, because world economic reconstruction can only take place during rising prosperity, and there are forces now at work which might cause a collapse, the political consequences of which would be such as to dislocate, perhaps beyond repair, the process of reconstruction thereafter.

APPENDICES

NOTE.—*The statistics used in these Appendices have, except where otherwise stated, been compiled from official sources, viz.: the trade returns of the United Kingdom, the British Dominions and foreign countries, and the publications of the Imperial Economic Committee.*

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APPENDIX I—STATISTICS

TABLE 1.—WORLD TRADE
(League of Nations : Review of World Trade)

	1929	1930	1931	1932	1933	1934	1935	1936
Value in mn. gold $.	68,622	55,555	39,704	26,857	24,175	23,288	23,550	27,200*
Value in £mn. .	14,101	11,416	8,755	7,660	7,295	7,748	8,095	—
% movement, gold	100	81.0	57.9	39.1	35.2	33.9	34.8	37.8
% movement, £ .	100	81.0	62.1	54.3	51.7	54.9	57.8	—
Quantum .	100	93.0	85.5	74.5	75.5	78.5	82.3	85.6
Price, gold	100	87.0	67.5	52.5	46.5	43.0	42.0	44.0
Price, Sterling .	100	87.0	73.0	73.0	69.0	70.0	71.0	—

* Preliminary estimate.

TABLE 2.—DISTRIBUTION OF WORLD TRADE BY COMMODITY GROUPS
(League of Nations: Review of World Trade)

	1929	1932	1933	1934	1935
By Gold Value—					
Foodstuffs . . .	25.0	30.0	27.5	25.5	25.0
Raw Materials and Semis .	35.5	32.5	35.5	36.5	37.5
Manufactured Articles .	39.5	37.5	37.0	38.0	37.5
	100.0	100.0	100.0	100.0	100.0
% Movement by Gold Value—					
Foodstuffs . . .	100	47.0	38.5	34.5	34.5
Raw Materials and Semis.	100	36.0	35.3	35.0	36.5
Manufactured Articles .	100	37.0	33.0	32.5	33.0
	100	39.1	35.2	33.9	34.8
Price Movement, Gold—					
Foodstuffs . . .	100	52.0	45.5	41.0	40.0
Raw Materials and Semis .	100	44.0	40.5	39.0	39.0
Manufactured Articles .	100	64.0	55.5	49.5	48.0
	100	52.5	46.5	43.0	42.0
Quantum—					
Foodstuffs . . .	100	90.5	84.5	84.0	86.0
Raw Materials and Semis .	100	82.0	87.5	89.5	93.5
Manufactured Articles .	100	58.0	59.5	65.5	68.5
	100	74.5	75.5	78.5	82.3

Table 3.—Trade in Capital Goods

(League of Nations: Review of World Trade)

Based on Trade of 24 countries accounting for 73 per cent of Total World Trade

	1932	1934	1935
Percentage Movement of Gold Value			
Capital Goods . .	100	101.9	107.2
Other Goods . .	100	81.1	81.2
Total . .	100	85.1	86.2
Percentage Share in Total Trade			
Capital Goods . .	19.2	23.0	23.9
Other Goods . .	80.8	77.0	76.1
Total . .	100.0	100.0	100.0

Table 4.—Germany's Trade Balance with Certain Groups

+ surplus of exports. — surplus of imports.
(million Rm.)

	Average 1927–29	1932	1933	1934	1935
Clearing Countries:					
Europe	+1,450.2	+1,394.2	+1,226.4	+452.3	+398.9
Overseas . . .	−664.0	−193.4	−79.1	−141.8	−160.6
Great Britain . . .	+315.5	+187.5	+167.2	+177.2	+118.7
Other Countries:					
Europe	+35.1	+164.2	+152.2	+91.7	+86.6
Overseas . . .	−2,830.2	−849.4	−664.2	−761.4	−307.7

TABLE 5.—DISTRIBUTION OF GERMAN FOREIGN TRADE

	IMPORTS					EXPORTS				
	Average 1927–29	1932	1933	1934	1935	Average 1927–29	1932	1933	1934	1935
Percentage Movement 1927–29=100										
Clearing Countries:										
Europe	100	35.3	31.6	35.8	36.7	100	47.9	42.5	34.9	34.8
Overseas	100	28.0	23.3	27.9	36.3	100	27.1	33.9	34.0	47.5
TOTAL	100	33.9	30.0	34.2	36.6	100	45.9	41.7	34.8	35.9
Great Britain	100	28.5	26.3	22.7	28.2	100	36.6	33.2	31.4	30.7
Other Countries:										
Europe	100	32.3	30.3	33.4	25.5	100	58.1	55.5	46.9	38.6
Overseas	100	33.2	28.4	28.4	22.4	100	37.0	34.2	30.3	35.9
TOTAL	100	33.1	28.6	28.9	22.7	100	41.2	38.1	33.4	36.4
All Countries	100	33.2	29.1	31.2	30.1	100	43.7	39.9	34.1	35.5
Percentage Distribution										
Clearing Countries:										
Europe	40.8	43.3	44.3	46.9	49.6	58.7	64.2	62.5	60.0	57.4
Overseas	10.1	8.5	8.1	9.0	12.2	6.0	3.7	5.1	5.9	8.0
TOTAL	50.9	51.9	52.4	55.9	61.8	64.7	67.9	67.6	65.9	65.4
Great Britain	6.6	5.7	6.0	4.8	6.2	10.2	8.5	8.5	9.4	8.8
Non-clearing Countries:										
Europe	4.1	4.0	4.2	4.4	3.4	4.9	6.6	6.7	6.8	5.4
Overseas	38.4	38.4	37.4	35.0	28.5	20.2	17.0	17.2	17.9	20.4
TOTAL	42.5	42.4	41.6	39.4	31.9	25.1	23.6	23.9	24.7	25.8
All Countries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 6.—TRADE OF THE THREE PRINCIPAL EMPIRES

(mn. Gold $)

	1929	1932	1934	1935
(a) BRITISH EMPIRE TRADE				
Total, British Empire	19,156	7,386	6,792	7,070
Total, less United Kingdom	10,200	3,831	3,559	3,789
% Movement Total	100	38.6	35.5	36.9
Total, less United Kingdom	100	37.6	34.9	37.1
Share of World Trade	27.9	27.5	29.2	30.0
(b) FRENCH EMPIRE TRADE				
Total	5,513	2,739	2,298	2,079
Total, less France	1,267	794	693	651
% Movement Total	100	49.7	41.7	37.7
Total, less France	100	62.7	54.7	51.4
Share of World Trade	8.0	10.2	9.9	8.8
(c) NETHERLANDS EMPIRE TRADE				
Total	3,212	1,375	1,147	1,078
Total, less Netherlands	1,306	510	444	431
% Movement Total	100	42.8	35.7	33.6
Total, less Netherlands	100	39.1	34.0	33.0
Share of World Trade	4.7	5.1	4.9	4.6
(d) IMPERIAL TRADE COMPARED WITH WORLD TRADE				
British Empire	27.9	27.5	29.2	30.0
French Empire	8.0	10.2	9.9	8.8
Netherlands Empire	4.7	5.1	4.9	4.6
Total	40.6	42.8	44.0	43.4
Rest of World:				
U.S.A.	13.8	10.8	9.6	10.8
Other Countries	45.6	46.4	46.4	45.8
Total	59.4	57.2	56.0	56.6
GRAND TOTAL	100.0	100.0	100.0	100.0

TABLE 7.—BRITISH EMPIRE TRADE

(£ millions)

	1929*	1931	1932	1933	1934	1935
Trade between British Countries and Foreign Countries:						
Imports	1,414	932	717	679	763	798
Exports	924	468	407	427	452	471
Re-Exports	123	94	84	77	84	91
TOTAL TRADE	2,461	1,494	1,208	1,183	1,299	1,361
Trade between United Kingdom and other British Countries:						
Imports†	369	250	249	250	273	287
Exports	325	171	166	163	186	204
Re-Exports	23	16	12	10	11	11
Trade between British Countries other than United Kingdom:						
Imports	134	80	70	71	79	91
TOTAL INTER-IMPERIAL TRADE	851	517	497	494	549	593
GRAND TOTAL	3,312	2,011	1,705	1,677	1,848	1,953
Percentage Proportion of Grand Total represented by:						
Trade with Foreign Countries	74.3	74.3	70.9	70.5	70.3	69.6
Inter-Imperial Trade	25.7	25.7	29.1	29.5	29.7	30.4

* Trade figures are not available for Hong Kong in 1929, so that the trade of Hong Kong with foreign countries is necessarily excluded. The inclusion of Hong Kong from 1931 onwards increases the proportion of Empire trade with foreign countries and decreases the proportion of inter-imperial trade by 0.6 per cent in 1931, by 0.9 per cent in 1932, and by 0.7 per cent in 1933 and 1934.

† Includes imports of diamonds from South Africa and the Gold Coast.

TABLE 8.—DISTRIBUTION OF THE OVERSEAS TRADE OF THE UNITED KINGDOM

	1929	1931	1932	1933	1934	1935	1936
IMPORTS							
European Countries:							
£000 . . .	465,583	367,397	251,165	241,014	255,860	264,432	290,275
% of Total . .	38.2	42.7	36.0	35.7	35.0	35.0	34.2
1929=100 . .	100.0	79.0	55.0	53.0	56.0	57.0	62.0
Foreign Countries outside Europe:							
£000 . . .	396,340	246,439	199,382	184,868	204,271	207,051	226,081
% of Total . .	32.4	28.6	28.5	27.4	27.9	27.4	26.6
1929=100 . .	100.0	62.3	50.0	47.0	51.5	52.0	57.0
British Countries:							
£000 . . .	358,842	247,416	248,137	249,137	271,285	284,558	332,580
% of Total . .	29.4	28.7	35.5	36.9	37.1	37.6	39.2
1929=100 . .	100.0	69.0	69.0	69.5	75.5	79.5	93.0
TOTAL:							
£000 . . .	1,220,765	861,252	698,684	675,019	731,416	756,041	848,936
1929=100 . .	100.0	70.6	57.25	55.25	59.9	62.0	69.4
EXPORTS							
European Countries:							
£000 . . .	233,305	133,530	133,098	130,322	135,925	141,342	137,572
% of Total . .	32.0	34.2	36.5	35.4	34.3	33.2	31.2
1929=100 . .	100.0	57.3	57.0	56.0	58.5	60.5	59.0
Foreign Countries outside Europe:							
£000 . . .	171,592	86,419	66,420	74,068	74,487	80,126	86,220
% of Total . .	23.5	22.1	18.2	20.2	18.8	18.8	19.6
1929=100 . .	100.0	50.5	38.5	43.0	43.5	47.5	50.2
British Countries:							
£000 . . .	324,451	170,673	165,512	163,517	185,573	204,345	216,927
% of Total . .	44.5	43.7	45.3	44.4	46.9	48.0	49.2
1929=100 . .	100.0	52.5	51.0	50.5	57.0	63.0	69.0
TOTAL:							
£000 . . .	729,348	390,622	365,030	367,907	395,985	425,813	440,719
1929=100 . .	100.0	53.6	50.0	50.5	54.3	58.5	60.5

TABLE 9.—INDEX NUMBERS (VOLUME) OF BRITISH FOOD IMPORTS, 1925–35

(1927–29 = 100)

Year	Total Food Imports			Meat			Dairy Products			Wheat and Flour			Eggs			Vegetables			Fruit		
	Tot.	Emp.	For.	Tot.	Emp.	For.	Tot.	Emp.	For.	Tot.	Emp.	For.	Tot.	Emp.	For.	Tot.	Emp.	For.	Tot.	Emp.	For.
1925	95	110	85	96	114	88	97	114	81	90	108	73	87	90	86	113	92	119	92	104	86
1926	96	103	91	96	109	91	96	99	93	91	100	83	90	90	90	94	99	92	130	124	132
1927	99	99	99	101	98	102	96	94	98	103	109	98	96	97	96	88	86	89	105	80	115
1928	100	105	97	101	103	100	100	103	98	95	108	84	103	102	104	116	116	116	96	126	84
1929	101	96	104	98	99	98	104	103	104	102	84	119	101	102	100	96	98	96	99	94	101
1930	105	107	104	106	110	105	109	115	104	99	90	107	107	101	109	101	99	101	99	160	73
1931	117	117	116	117	117	117	123	135	112	110	106	114	104	106	104	156	102	172	120	133	115
1932	111	123	99	112	109	114	127	147	109	96	142	56	84	104	80	142	106	154	118	164	99
1933	107	141	87	101	114	95	133	157	110	103	149	63	76	104	68	87	134	75	107	244	49
1934	104	137	84	94	123	81	142	171	114	95	116	76	81	100	77	81	123	70	88	196	43
1935	103	137	82	92	130	73	137	170	107	92	111	75	84	83	85	88	131	77	111	205	71
1936	105	152	75	92	138	70	139	163	116	92	165	29	103	81	107	100	127	92	88	186	47

From "The Planning of Britain's Food Imports," by K. A. H. Murray and Ruth L. Cohen, of the Oxford University Agricultural Economics Research Institute, 1934, 3s. 6d., and Supplement, 1936.

TABLE 10.—(a) IMPORTS OF COTTON PIECE GOODS* INTO CEYLON DURING 1934, 1935 AND 1936

As explained on page 75, this and the following table show the contrast between Crown Colonies under the quota (Ceylon and Malaya) and territory exempted from it by the Congo Basin treaties.

	1934		1935		1936	
	000 yards	000 rupees	000 yards	000 rupees	000 yards	000 rupees
Bleached:						
Total Imports . .	19,512	3,551	17,007	3,849	18,165	4,126
of which from:						
United Kingdom .	5,083	1,540	13,498	3,156	13,179	3,086
British Possessions .	636	121	1,846	275	2,495	345
Japan . . .	13,721	1,846	1,424	291	2,082	457
Dyed:						
Total Imports . .	35,223	6,610	24,892	6,687	30,249	7,544
of which from:						
United Kingdom .	2,286	864	6,991	2,356	8,221	2,380
British Possessions .	10,763	2,346	16,048	3,763	19,694	4,393
Japan . . .	21,605	3,278	1,413	397	2,058	618
Grey:						
Total Imports . .	5,055	759	2,884	595	2,565	489
of which from:						
United Kingdom .	676	182	1,170	299	820	186
British Possessions .	469	158	1,291	189	1,214	179
Japan . . .	3,564	440	158	37	262	50
U.S.A. . . .	293	74	265	70	269	73
Printed:						
Total Imports . .	17,874	3,097	10,353	2,740	15,346	4,617
of which from:						
United Kingdom .	3,634	1,187	6,786	2,043	9,314	2,704
British Possessions .	348	43	60	9	7	2
Japan . . .	13,812	1,845	3,473	671	5,946	1,255

* Excluding small quantities of muslin and other classes.

(b) IMPORTS OF COTTON PIECE-GOODS INTO KENYA AND UGANDA (000 yards)

	1934	1935	1936‡
Unbleached . .	18,690	23,649	22,742
Coloured . . .	12,385	11,558	12,135
Other* . . .	21,493	24,220	25,673
TOTAL . . .	52,568	59,427	60,550
From Japan . .	44,855	53,063	54,086
From United Kingdom	4,958	4,841	3,770
From India . .	1,181	972	840
Other Countries† .	1,462	449	1,854

* Includes bleached, dyed, printed Khangas and other prints.
† Holland, U.S.A., China, Belgium, Italy and Germany in that order of quantities.
‡ Estimate based on 10 months' figures.

(c) Imports of Cotton Piece-Goods into Malaya during 1933, 1934 and 1935

	1933		1934		1935	
	1,000 yards	1,000 $	1,000 yards	1,000 $	1,000 yards	1,000 $
Grey, Unbleached:						
Total Imports . .	7,860	646	15,313	1,147	12,370	1,097
of which from:						
United Kingdom .	1,782	178	2,945	274	3,236	376
Russia . . .	377	22	945	62	173	14
China . . .	1,403	128	899	80	692	71
Japan . . .	4,017	282	10,313	704	6,871	480
White, Bleached:						
Total Imports . .	38,064	4,479	32,449	4,135	26,473	3,616
of which from:						
United Kingdom .	11,366	1,823	11,800	2,028	12,771	2,173
Netherlands . .	902	155	1,185	205	1,081	166
Japan . . .	22,495	2,128	18,602	1,750	11,318	1,042
Dyed in the Piece:						
Total Imports . .	44,282	5,774	52,190	6,396	35,727	4,763
of which from:						
United Kingdom .	7,606	1,718	7,300	1,644	6,279	1,488
British India . .	519	118	550	124	1,004	201
Hong Kong . .	1,234	152	1,045	147	298	58
Japan . . .	26,201	2,685	34,751	3,548	20,843	2,162
China . . .	8,270	1,024	8,206	861	6,445	652
Printed:						
Total Imports . .	54,782	5,335	37,656	4,456	21,444	2,976
of which from:						
United Kingdom .	4,679	1,144	5,873	1,278	7,565	1,635
Hong Kong . .	215	38	238	38	30	5
Russia . . .	2,708	210	734	59	739	50
Japan . . .	46,470	3,823	30,610	3,040	12,310	1,179
Woven Coloured Cottons:						
Total Imports . .	916	142	6,795	761	7,634	1,037
of which from:						
United Kingdom .	444	77	1,089	164	3,511	579
Japan . . .	283	35	4,963	470	2,416	213
China . . .	128	25	217	47	—	—
Grand Total Imports	145,902	16,376	144,404	16,894	103,643	13,483

TABLE 11.—TRADE* OF THE U.S.A. WITH THE BRITISH EMPIRE

IMPORTS (million $)

Imported from	1913	Average 1927-31	1932	1933	1934	1935	1936
United Kingdom	295.6	276.3	74.6	111.2	115.3	155.3	200.4
Irish Free State	—	3.0	0.3	0.5	0.7	0.6	1.0
Canada	120.6	427.3	174.1	185.1	231.7	286.4	375.9
British Malaya	116.2†	189.7	34.8	59.9	105.5	131.6	168.0
India		118.4	33.2	43.8	55.1	62.0	70.3
Australia	15.4	26.4	4.6	7.7	8.5	14.7	22.9
New Zealand		13.9	2.2	4.8	5.6	10.4	11.6
British S. Africa	3.3	7.8	2.4	4.1	3.2	4.3	7.5
British E. Africa	0.7‡	2.2	1.1	1.0	1.9	2.4	5.0
British W. Africa	0.4‡	21.8	8.9	9.3	9.1	13.9	18.0
British W. Indies	0.6‡	19.8	8.2	4.0	6.7	6.5	7.6
TOTAL BRITISH	564.8	1,106.6	344.4	431.4	543.3	688.1	888.2
TOTAL ALL COUNTRIES	1,813.0	3,565.4	1,322.8	1,449.2	1,655.1	2,047.5	2,419.2
British Trade as % of Total	30.6	31.0	26.0	29.7	32.8	33.6	36.5

EXPORTS (million $)

Exported to	1913	Average 1927-31	1932	1933	1934	1935	1936
United Kingdom	597.1	733.9	288.3	311.7	382.8	433.4	439.6
Irish Free State	—	11.8	4.5	4.1	7.2	7.3	7.4
Canada	415.4	751.1	241.4	210.5	302.4	323.2	384.0
British Malaya	15.1†	10.9	2.5	2.4	4.2	4.5	5.6
India		50.8	24.9	19.9	27.4	31.4	26.8
Australia	52.7	110.8	26.8	26.3	43.2	57.1	58.5
New Zealand		36.2	9.2	8.2	13.0	15.6	19.5
British S. Africa	14.5	48.6	16.0	22.4	46.3	53.6	71.2
British E. Africa	1.1‡	4.3	1.8	1.6	2.5	2.5	3.0
British W. Africa	3.3‡	16.8	3.8	3.4	3.8	5.4	7.5
British W. Indies	12.8‡	23.8	9.7	9.2	12.7	13.6	15.1
TOTAL BRITISH	1,112.0	1,787.0	627.9	619.7	845.5	947.6	1,037.9
TOTAL ALL COUNTRIES	2,465.9	4,300.5	1,611.0	1,675.0	2,132.8	2,282.9	2,453.5
British Trade as % of Total	45.1	41.5	38.9	36.9	39.7	41.6	42.3

* General Trade. † British East Indies. ‡ Year ended June 30th, 1913.

TABLE 12.—TRADE OF FRANCE WITH THE BRITISH EMPIRE

IMPORTS (million Francs)

Imported from	Average 1909-13	Average 1927-31	1932	1933	1934	1935	1936
United Kingdom	995	5,290	2,457	1,894	1,643	1,579	1,798
India . .	356	2,167	790	792	523	611	780
Canada . .	12	700	542	370	259	334	321
Australia . .	259	1,870	489	752	638	658	615
Union of S. Africa				337	260		
British W. and E. Africa . .	39	898	598	200	—	228	274
Other British .	—	104	42	241	...	...	...
TOTAL BRITISH .	1,661	11,029	4,918	4,586	3,323*	3,410*	3,788*
TOTAL ALL COUNTRIES .	7,627	51,915	29,808	28,431	23,097	20,974	25,398
British Trade as % of Total .	21.8	21.2	16.5	16.1	15.9*	16.3*	14.9*

EXPORTS (million Francs)

Exported to	Average 1909-13	Average 1927-31	1932	1933	1934	1935	1936
United Kingdom	1,303	7,468	1,962	1,678	1,612	1,544	1,912
India . .	37	429	166	112	90	69	67
Canada . .	25	552	159	110	90	84	83
Australia . .	11	218	98	68	54	44	48
Union of S. Africa							
British W. and E. Africa .	12	222	97	45	45	45	46
Other British .	—	137	92	126	...	...	...
TOTAL BRITISH .	1,388	9,026	2,574	2,139	1,891*	1,854*	2,156*
TOTAL ALL COUNTRIES .	6,324	46,142	19,705	18,474	17,850	15,496	10,454
British Trade as % of Total .	22.0	19.6	13.3	11.6	10.6*	12.0*	20.6*

* Excluding "Other British."

Table 13.—Trade of Germany with the British Empire

IMPORTS (million Reichsmarks)

Imported from	1913	Average 1927-31	1932	1933	1934	1935	1936
United Kingdom	876.0	762.9	258.5	238.4	205.7	256.2	263.7
Canada . .	64.0	259.2	64.9	79.2	62.8	13.3	18.8
Australia . .	296.0	260.8	92.4	103.7	105.4	35.1	42.7
New Zealand .	10.1	22.7	16.5	25.0	35.7	4.4	6.7
South Africa* .	70.0	131.5	50.1	52.4	60.6	68.4	59.2
West Africa .	135.0	162.2	70.6	59.1	57.7	52.2	80.3
India . .	541.8	513.8	158.8	153.9	134.7	121.3	142.1
Other British .	90.1	146.7	93.9	68.7	80.3	67.1	94.6
Total British .	2,083.0	2,259.8	805.7	780.4	742.9	618.0	708.1
Total All Countries .	10,770.0	11,769.3	4,666.5	4,203.6	4,451.0	4,158.7	4,217.9
British Trade as % of Total .	19.3	19.2	17.3	18.6	16.7	14.9	16.8

EXPORTS (million Reichsmarks)

Exported to	1913	Average 1927-31	1932	1933	1934	1935	1936
United Kingdom	1,438.0	1,203.1	446.0	405.6	382.9	374.9	405.8
Canada . .	61.0	66.7	33.3	28.0	21.7	22.9	35.1
Australia . .	88.5	58.2	20.2	20.6	21.5	25.5	34.7
New Zealand .	10.7	10.1	3.6	3.5	3.4	3.9	5.5
South Africa* .	47.0	87.2	41.6	40.2	45.8	42.2	57.4
West Africa .	17.0	24.9	6.3	6.4	4.5	10.1	16.1
India . .	150.7	205.2	109.3	86.8	94.4	111.3	121.6
Other British .	146.7	69.6	35.5	44.1	55.6	56.2	66.4
Total British .	1,959.6	1,725.0	695.8	635.2	629.8	647.0	742.6
Total All Countries .	10,097.0	11,594.0	5,739.0	4,871.0	4,166.9	4,269.7	4,768.2
British Trade as % of Total .	19.4	14.9	12.1	13.0	15.1	15.2	15.6

* Including Rhodesia.

TABLE 14.—TRADE OF JAPAN WITH THE BRITISH EMPIRE

IMPORTS (million Yen)

Imported from	1913	Average 1927-31	1932	1933	1934	1935	1936
United Kingdom	122.7	125.5	78.8	82.6	70.0	82.2	72.9
Canada . .	1.8	54.5	39.5	46.9	54.1	52.5	73.2
Straits Settlements	5.2	33.0	25.3	38.8	63.3	40.6	41.2
India and Ceylon	173.2	227.4	116.9	204.7	292.0	308.4	374.6
Australia . .	14.9	118.7	134.3	204.6	197.8	235.1	181.9
Hong Kong .	1.3	1.1	1.0	2.1	1.5	2.8	3.3
South Africa .	...	1.4	2.6	4.3	8.2	4.8	22.6
East Africa .	...	6.5	3.4	14.4	15.2	3.0	29.9
New Zealand .	...	0.7	1.5	2.4	11.6	6.4	22.0
British Malaya .	...	...	...	...	...	28.5	39.1
British Borneo .	...	3.8*	3.6	5.8	7.3	9.8	15.7
TOTAL BRITISH .	319.1	572.6	406.9	606.6	721.0	774.1	876.4
TOTAL ALL COUNTRIES .	834.6	1,874.7	1,431.5	1,917.2	2,282.6	2,472.2	2,763.7
British Trade as % of Total .	38.2	30.5	28.4	31.7	31.5	31.3	31.7

EXPORTS (million Yen)

Exported to	1913	Average 1927-31	1932	1933	1934	1935	1936
United Kingdom	32.9	60.2	60.5	87.8	109.3	119.5	147.3
Canada . .	5.1	22.5	8.6	6.6	8.7	8.0	14.6
Straits Settlements	10.1	26.2	25.5	46.1	63.3	48.5	58.8
India and Ceylon	29.9	150.3	192.5	205.2	258.0	287.5	272.9
Australia . .	8.6	36.3	36.9	51.4	64.5	74.8	68.8
Hong Kong .	33.6	55.2	18.0	23.4	33.5	32.8	41.5
South Africa .	0.5	14.0	16.4	26.7	29.5	25.1	30.6
East Africa .	...	10.3	15.8	23.2	22.3	49.7	58.4
New Zealand .	...	3.1	3.0	6.5	8.6	11.3	16.7
British Malaya .	...	...	...	...	...	2.4	2.4
British Borneo .	...	0.1*	0.1	0.1	0.3	0.5	0.5
TOTAL BRITISH .	120.7	378.2	377.3	477.0	598.0	660.1	712.5
TOTAL ALL COUNTRIES .	729.05	1,746.0	1,410.0	1,861.0	2,171.9	2,499.1	2,693.0
British Trade as % of Total .	16.5	21.5	26.8	25.7	27.6	26.7	26.6

* Average for 1930-31 as figures for previous years are not available.

Table 15.—Exports of Canada

(Years ended 31st March.)

A=Percentage Analysis of trade by commodities. B=Percentage Distribution by markets of trade in commodities.

Commodity and Markets	1928/29 A	1928/29 B	1929/30 A	1929/30 B	1930/31 A	1930/31 B	1931/32 A	1931/32 B	1933/34 A	1933/34 B	1934/35 A	1934/35 B	1935/36 A	1935/36 B	1936† A	1936† B
Wheat	30		19		22		20		20.5		20.1		19.4		22.6	
Wheat Flour	6		4		4		3		3.4		2.8		2.5		2.0	
Other Agricultural and Vegetable Products	13		9		10		12		11.6		11.4		9.8		8.2	
Total Agricultural and Vegetable Products	49		32		36		35		35.5		34.3		31.7		32.8	
United Kingdom		50		49		48		48		54.6		56.5		63.6		55.4
Rest of Empire		6		8		9		9		7.2		7.5		6.2		5.0
United States		9		13		9		5		10.9		19.1		18.4		21.0
Europe (†)		16		15		13		25		14.7		7.9		5.1		4.4
Japan		3		2		2		2		1.8		1.5		1.1		1.7
Other Countries		16		13		19		11		10.8		7.5		5.6		12.5
Animals and Animal Produce (including Fish and Dairy Produce)	12		12		10		12		13.0		13.2		13.2		12.2	
United Kingdom		30		31		37		46		59.6		62.8		54.2		54.7
Rest of Empire		11		8		9		7		6.4		6.7		6.7		4.8
United States		56		50		41		33		24.6		22.9		33.7		38.1
Other Countries		3		11		13		14		9.4		7.6		5.4		2.4
Wood Pulp and Paper	21		26		28		31		24.7		24.3		23.7		21.9	
United Kingdom		8		7		8		8		14.0		15.8		15.8		16.2
Rest of Empire		4		4		4		4		6.3		7.3		7.4		7.6
United States		82		82		82		80		71.3		67.5		69.0		68.1
Japan		3		3		3		4		2.8		3.9		2.3		2.6
Other Countries		3		4		3		4		5.6		5.5		5.5		4.5
Iron and Steel Products	6		7		5		3		4.6		6.2		6.8		5.0	
United Kingdom		11		9		10		25		19.6		24.6		21.3		21.9
Australia		13		8		4		2		15.1		16.6		20.2		18.3
South Africa		6		6		9		13		13.2		13.9		14.2		15.1
India		7		4		8		4		6.0		4.8		4.2		2.7
Rest of Empire		15		17		25		14		15.8		16.6		18.3		18.2
United States		13		14		16		20		16.3		6.7		10.3		12.5
Argentine		10		14		9		6		1.2		3.2		2.5		1.8
Other Countries		25		28		19		16		12.8		13.6		9.0		9.5
Non-ferrous Metals‡	8		14		12		12		14.1		14.3		17.1		20.9	
United Kingdom		15		10		18		25		43.8		49.0		45.8		37.6
Rest of Empire		4		4		5		4		3.6		3.9		2.2		1.8
United States		57		66		62		52		27.4		26.6		31.8		47.2
Holland and Germany		9		6		2		5		10.8		5.6		5.8		2.6
Japan		6		6		5		4		5.0		5.5		4.3		4.0
Other Countries		9		8		8		10		9.4		9.4		10.1		6.8
% of Exports§ Analysed	96		91		91		92		91.9		92.3		92.5		92.8	
Value of Exports§	£280.22m.		£230.19m.		£164.33m.		£118.43m.		£119.9m.		£133.6m.		£154.0m.		£97.8m.	

* April-Sept. † Holland, Belgium, Germany and Italy. ‡ Excluding bullion and specie. § Domestic produce only; includes bullion and specie.

Table 16.—Exports of India

(Years ending 31st March.)

A=Percentage Analysis of trade by commodities. B=Percentage Distribution by markets of trade in commodities.

Commodity and Markets	1928/29		1929/30		1930/31		1931/32		1933/34		1934/35		1935/36	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Rice (not in husk)	8		10		11.5		11.5		7.2		6.6		6.7	
United Kingdom		2.0		1.5		2.5		2.0		4.0		5.2		4.5
Ceylon		25.5		20.5		22.0		20.5		25.6		27.0		31.9
Straits Settlements		9.0		9.5		11.0		9.0		8.3		8.1		9.9
Rest of Empire		14.5		14.5		14.5		15.0		17.7		20.5		25.0
Germany		11.0		16.0		6.0		10.0		13.1		8.6		5.0
China		2.5		9.0		19.0		15.0		8.8		9.5		4.5
Dutch East Indies		7.5		12.0		7.5		6.0		3.9		5.4		4.7
Other Countries		28.0		17.0		17.5		22.5		18.6		15.7		14.5
Seeds (all forms)	9		8.5		8		9.5		9.3		6.8		6.3	
United Kingdom		14.0		16.5		15.0		13.0		23.8		32.5		20.3
Rest of Empire		4.5		3.0		3.0		2.5		3.2		2.6		2.0
Europe *		72.5		68.5		59.0		70.5		58.6				
U.S.A.		4.0		4.0		3.5		4.0		10.7				
Other Countries		5.0		8.0		19.5		10.0		3.7				
Tea (black and green)	8		8.5		10.5		12.5		13.6		13.0		12.1	
United Kingdom		84.0		85.0		84.5		87.5		88.5		90.2		89.3
Rest of Empire		7.0		7.0		6.5		6.0		7.2		5.8		6.1
U.S.A.		2.0		2.5		2.5		2.5		2.3		2.2		1.8
Other Countries		7.0		5.5		6.5		4.0		2.0		1.8		2.8
Cotton (raw)	20		21		21.5		15		18.2		22.5		20.5	
United Kingdom		6.5		6.5		6.5		6.5		12.7		9.8		13.3
Europe *		33.5		31.0		26.5		21.5		30.0				24.0
Japan		44.0		42.0		45.0		47.0		39.6		61.6		54.2
China		11.5		14.5		16.0		19.5		12.1		3.5		3.1
Other Countries		4.5		6.0		6.0		5.5		5.6				5.4
Jute (raw)	10		8.5		6		7		7.5		7		8.3	
United Kingdom		23.5		24.5		17.5		28.0		23.3		21.6		21.6
Europe *		53.5		53.0		56.5		46.0		54.2				40.8
U.S.A.		10.5		9.5		8.0		8.0		6.9		7.0		10.0
Other Countries		12.5		13.0		18.0		18.0		15.6				27.6
Jute (manufactures)	17		16.5		14.5		14		14.6		13.7		14.2	
United Kingdom		5.0		6.0		5.5		8.5		7.5		7.3		8.7
Australia		10.5		8.0		11.0		11.0		11.4		9.3		9.4
U.S.A.		35.5		36.0		34.5		32.0		31.7		28.7		32.4
Argentine		13.0		13.0		14.0		6.5		9.9		11.9		8.3
Other Countries		36.0		37.0		35.0		42.0		39.5		42.8		41.2
Hides and Skins	6		5		5.5		5.5		6.8		5.5		5.9	
United Kingdom		44.0		46.0		52.5		60.0		63.1		65.5		62.1
Europe *		20.0		16.0		14.5		10.5		13.1		11.2		9.3
Japan		2.0		2.0		3.0		3.0		2.5		2.8		2.0
U.S.A.		27.0		28.0		23.0		20.5		16.7		13.2		18.3
Other Countries		7.0		8.0		7.0		6.0		4.6		7.3		8.3
Percentage of Exports† Analysed	78		78		77.5		75		77.2		75.1		74.0	
Value of Exports†	£248.25m.		£234.00m.		£165.75m.		£117.36m.		£109.8m.		£116.6m.		£124.2m.	

* Germany, France, Holland, Belgium, Italy. † Domestic produce only.

Table 17.—Exports of South Africa

A=Percentage Analysis of trade by commodities. B=Percentage Distribution by markets of trade in commodities.

Commodity and Markets	1928 A	1928 B	1929 A	1929 B	1930 A	1930 B	1931 A	1931 B	1933 A	1933 B	1934 A	1934 B	1935 A	1935 B	1936 A	1936 B
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Sheep's Wool	33.5		29.5		26.0		23.5		36.2		32.5		32.1		36.8	
United Kingdom		43.5		40.5		42.0		31.0		35.4		24.1		25.0		
France		21.5		22.0		23.0		29.0		22.8		22.9		23.2		
Germany		20.0		19.5		17.5		20.5		20.2		21.4		34.0		
Belgium		8.0		8.0		7.0		8.5		11.2		11.7		7.7		
Other Countries		7.0		10.0		10.5		11.0		10.4		19.9		10.1		
Sheep Skins	4.0		3.0		3.0		2.5		4.2		3.1		2.7		3.8	
United Kingdom		34.0		26.5		27.0		20.0		26.5		29.0		23.3		
France		35.0		37.5		35.0		46.5		37.2		27.2		32.2		
United States		26.0		28.5		27.0		23.5		30.6		30.9		25.0		
Other Countries		5.0		7.5		11.0		10.0		5.7		12.9		19.5		
Diamonds (uncut)	17.5		22.5		12.0		11.5		4.1		7.7		7.1		9.4	
United Kingdom		75.5		75.0		68.0		75.5		9.1		70.0		68.8		
Holland		6.5		2.5		6.0		4.5		35.5		15.9		10.5		
Belgium		15.0		20.5		23.0		14.5		40.4		9.7		16.8		
United States		3.0		2.0		3.0		5.5		14.9		4.4		3.9		
Diamonds (cut)	...		2.5		4.0		3.5		4.7		3.6		3.0		3.0	
Belgium		...		51.5		41.5		57.5		35.0		73.9		76.9		
Holland		...		31.0		35.0		30.5		22.9		19.4		17.3		
Other Countries		...		17.5		23.5		12.0		2.1		6.7		5.8		
Oranges	.05		1.5		2.5		3.0		4.0		4.4		3.5		} 10.2	
Other Fresh Fruit	1.0		0.5		1.5		1.5		4.2		4.7		3.2			
Sugar	2.0		2.5		4.5		6.0		6.5		4.0		6.0		4.4	
Other Foodstuffs	10.5		8.5		13.5		9.5		7.9		9.6		13.8		8.6	
Foodstuffs (all kinds)	14.0		13.0		22.0		20.0		22.6		22.7		26.5		23.2	
United Kingdom		69.0		72.5		68.5		68.5		66.8		75.3		69.5		
Canada		—		2.0		6.0		15.0		18.4		12.6		9.0		
Rest of Empire		2.5		2.5		3.0		1.5		1.0		1.1		3.9		
Italy		4.0		4.0		2.5		3.0		4.4		1.5		0.6		
France		7.0		5.0		6.5		5.0		5.4		2.8		2.4		
Other Countries		17.5		14.0		13.5		7.0		4.0		6.9		14.6		
Wattle Bark and Extract	2.0		1.5		2.5		2.5		2.2		2.2	1.2	2.6		2.9	
United Kingdom		25.0		27.0		32.0		36.5		32.2		34.7		29.9		
Germany		12.5		20.0		19.6		19.5		15.1		16.0		15.8		
Japan		9.5		10.5		10.0		11.5		11.5		10.1		7.9		
Other Countries		53.0		42.5		39.0		32.5		41.2		39.2		46.4		
Hides and Skins (Ox)	4.5		2.0		2.0		1.5		1.8		2.0		1.6		2.5	
United Kingdom		62.0		55.5		43.0		26.0		28.8		37.3		22.7		
Europe		35.5		39.5		54.0		71.5		65.5		59.2		72.2		
Other Countries		2.5		5.0		3.0		2.5		5.6		3.5		5.1		
Percentage of Total Exports Analysed	75.5		74.0		71.5		65.0		75.8		73.8		75.6		81.6	
Value of Exports	£50.16m.		£49.27m.		£34.09m.		£24.45m.		£24.38m.		£24.87m.		£29.60m.		£26.65m.	
Gold Bars excluded from above	£25.79m.		£35.88m.		£37.08m.		£38.96m.		£46.41m.		£34.57m.		£42.74m.		...	

TABLE 18.—EXPORTS OF AUSTRALIA. (Years ending 31st June.)

A=Percentage Analysis of trade by commodities. B=Percentage Distribution by markets of trade in commodities.

Commodity and Markets	1928/29		1929/30		1930/31		1931/32		1932/33		1933/34		1934/35		1935/36		1936*	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Butter	5		7		9		10		9.2		7.8		9.4		7.4		6.5	
United Kingdom		85		85		89		91		92.8		92.5		93.0		91.3		90.0
Other Countries		15		15		11		9		7.7		7.5		7.0		8.7		10.0
Wheat	15		11		17		20		18.3		7.9		11.4		11.5		9.6	
United Kingdom		25		54		33		38		42.6		74.3		54.8		48.9		63.0
India		33		19		9		—		1.4		0.5		0.2		0.9		—
South Africa		5		4		1		—		0.02		0.08		0.04		0.5		—
Italy		5		7		12		7		3.2		1.0		0.03		—		8.1
Japan		5		7		15		18		15.3		11.7		19.6		13.7		0.4
China		3				21		23		27.8		2.3		17.9		6.2		0.7
Other Countries		24		9		9		14		9.7		10.1		7.4		29.8		—
Flour	4		5		4		4		4.2		2.9		4.5		3.7		4.6	
United Kingdom		10		18		24		30		18.5		25.0		13.7		20.5		31.2
Dutch E. Indies		15		18		15		14		11.8		15.6		11.9		13.5		12.9
China	}	—		—		—		1		25.8		13.5		0.1		0.2		0.2
Manchuria	}													34.7		7.2		0.0
Hong Kong		—		—		—		—		8.0		5.2		7.4		7.1		7.7
Egypt		42		26		26		16		4.3		4.7		3.6		3.5		7.9
British Malaya		10		11		9		7		7.0		9.7		8.9		9.0		10.8
Other Countries		23		27		26		32		24.6		26.3		19.7		39.0		29.3
Beef	2		3		3		2		1.9		1.8		2.5		2.0		2.7	
United Kingdom		56		50		64		80		80.5		86.2		90.5		85.3		90.7
Belgium		14		15		13		10		4.4		1.7		0.4		0.2		—
Egypt		—		—		—		—		3.9		3.4		2.4		5.5		3.8
Other Countries		30		35		23		10		11.2		8.7		6.7		9.0		—
Mutton and Lamb	2		3		2		3		2.8		3.2		4.4		3.7		5.4	
United Kingdom		87		88		84		97		97.0		98.0		98.1		97.9		98.7
Other Countries		13		12		16		3		3.0		2.0		1.9		2.1		1.3
Wool	46		39		37		34		37.5		50.7		38.6		42.8		57.0	
United Kingdom		32		35		32		37		31.5		31.1		40.7		35.7		44.6
Europe†		47		49		43		33		42.6		42.9		28.8		24.7		34.7
Japan		14		12		20		23		21.9		21.2		22.1		27.9		0.05
Other Countries		7		4		5		7		4.0		4.8		8.4		11.7		20.65
Fruit (all forms)	3		4		5		5		5.5		5.0		4.9		2.3		2.1	
United Kingdom		73		73		72		70		79.6		71.5		74.3		...		...
Canada		7		4		10		12		8.4		10.0		11.7		...		...
Germany		8		8		5		2		3.5		5.4		1.4		...		...
Other Countries		12		15		13		16		8.5		12.9		12.6		...		...
Sheep Skins	3		3		2		1		1.4		2.3		1.8		2.3		3.4	
France		52		51		53		48		69.0		64.3		61.4		...		...
United Kingdom		25		27		29		26		21.1		22.6		16.2		...		...
United States		14		15		11		15		2.9		7.9		3.9		...		...
Other Countries		9		7		7		11		6.4		5.2		18.5		...		...
Non-ferrous Metals	5		7		6		4		4		3.4		3.2		4.1		4.9	
United Kingdom		50		52		59		69		80		78.7		84.0		...		...
Europe		21		26		22		14		8		9.8		1.1		...		...
India		13		12		10		7		2		—		—		...		...
Other Countries		16		10		9		10		10		11.5		15.0		...		...
% of Exports† Analysed	85		82		85		83		84.8		84.5		80.7		78.3		96.2	
Value of Exports‡	£135.58m.		£95.75m.		£75.16m.		£74.12m.		£77.7m.		£89.9m.		£81.9m.		£97.8m.		£42.8m.	

* July-Dec. † France, Germany, Italy, Belgium. ‡ Domestic produce only (including silver).

Table 19.—Exports of New Zealand

A = Percentage Analysis of trade by commodities. B = Percentage Distribution by markets of trade in commodities.

	1929		1930		1931		1932		1933		1934		1935		1936†
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Butter	24.1		26.7		31.0		31.0		29.4		21.2		29.4		27.0
United Kingdom		76.3		81.3		98.5		98.5		98.4		97.8		96.7	
Canada		20.5		16.7		0.2		0.3		0.3		0.2		0.1	
Rest of Empire		0.3		0.3		0.3		0.3		0.4		0.7		0.5	
Other Countries		2.9		1.7		1.0		0.9		0.9		1.3		2.7	
Cheese	12.8		14.5		13.0		14.4		12.0		9.9		9.4		9.0
United Kingdom		99.6		99.8		99.9		99.9		99.9		99.9		99.8	
Other Countries		0.4		0.2		0.1		0.1		0.1		0.1		0.2	
Meat (including Poultry and Game)	19.4		25.0		26.4		24.8		25.1		25.4		27.9		29.2
United Kingdom		89.2		97.8		99.0		99.3		99.3		99.5		99.1	
Rest of Empire		3.5		1.3		0.6		0.6		0.5		0.4		0.4	
Other Countries		7.5		0.9		0.4		0.1		0.2		0.1		0.5	
Hides, Skins and Furs (undressed)	5.4		5.0		3.7		2.9		4.7		4.7		5.2		5.8
United Kingdom		23.8		30.4		42.7		45.4		27.6		33.1		27.8	
Australia		10.4		7.1		7.4		14.7		7.0		11.9		8.7	
Canada		2.2		2.3		2.0		4.5		10.5		7.0		6.7	
U.S.A.		55.8		48.0		34.8		27.9		38.7		30.1		42.0	
France and Germany		5.6		6.1		5.6		5.6		11.2		10.4		8.0	
Other Countries		2.2		6.1		7.5		1.9		5.0		7.5		6.8	
Raw Wool	28.0		17.3		16.0		16.7		18.7		26.4		15.2		23.5
United Kingdom		69.5		80.4		76.8		76.5		73.8		65.2		68.8	
Rest of Empire		3.7		3.4		4.1		3.1		4.4		5.1		7.6	
U.S.A.		4.3		3.5		0.7		0.6		1.2		0.8		4.3	
France		11.0		5.8		6.7		7.4		7.4		8.4		5.1	
Germany		6.5		3.0		4.6		3.8		3.8		6.3		1.3	
Japan		2.2		1.0		3.2		3.2		3.1		5.5		3.4	
Other Countries		2.8		2.9		3.9		5.4		6.3		8.7		9.5	
Percentage of Total Analysed	87.7		88.5		90.1		89.8		89.9		87.1		87.6		94.5
Total Value of Exports*	£54.55m.		£43.80m.		£31.42m.		£31.40m.		£32.01m.		£38.01m.		£37.50m.		£47.00m.

* Excluding exports of gold and silver bullion and coin.

† Figures for trade by countries are not available for 1936.

TABLE 20.—WOOL: WORLD PRODUCTION AND TRADE

(a) **WORLD PRODUCTION OF WOOL**

(million lbs., Years ending June 30th.)

Countries	1927/28	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35	1935/36
1A. British Empire:									
Australia	888.1	968.2	937.6	912.1	1,006.6	1,062.6	995.9	1,021.3	963.0
New Zealand	262.2	272.0	272.9	271.1	282.8	288.4	300.5	276.0	272.0
Union of South Africa	278.0	290.0	309.0	302.0	314.0	330.0	284.0	222.0	250.0
United Kingdom	114.0	114.0	112.0	111.0	113.0	119.0	120.0	115.0	109.0
Canada	18.7	19.6	20.3	21.0	20.4	20.5	19.3	19.5	19.4
Irish Free State	17.8	18.0	18.6	18.9	19.3	19.6	19.6	17.0	16.5
TOTAL (excluding India and Colonial Empire)	1,578.8	1,681.8	1,670.4	1,636.1	1,756.1	1,840.1	1,739.3	1,670.8	1,629.9
1B. Certain Foreign Countries:									
United States	356.7	383.8	400.3	432.8	464.4	440.5	459.8	451.0	452.7
Argentina	339.0	347.0	353.0	361.0	378.0	388.0	385.0	376.0	360.0
Uruguay	140.0	138.0	160.0	162.0	104.0	112.0	95.0	117.0	117.0
France	59.4	58.9	57.6	57.6	56.0	54.3	53.8	53.6	52.7
Roumania	45.5	44.0	43.9	43.5	42.8	43.3	43.3	43.0	42.9
Algeria	36.4	36.8	47.2	49.3	28.1	39.3	39.0	41.0	43.0
Turkey	47.6	42.4	35.4	36.8	41.3	41.3	38.7	37.5	43.5
Germany	35.3	33.6	32.2	32.4	32.4	31.5	31.3	32.2	36.3
Italy	56.0	52.0	50.0	48.0	44.0	42.0	41.0	36.0	*
Yugoslavia	27.8	27.1	27.0	27.1	27.8	29.5	29.8	30.1	31.0
French Morocco	27.0	28.1	31.0	27.9	23.1	26.4	27.6	28.3	32.5
Chile	34.8	33.6	29.4	26.7	28.5	33.7	27.9	*	*
TOTAL of above	1,205.5	1,225.3	1,267.0	1,305.1	1,270.4	1,281.8	1,271.6	1,273.6	1,275.5
2. Other Empire Countries†	124.0	124.5	125.4	121.2	121.9	124.3	123.5	117.7	121.9
Other Foreign Countries:									
Europe	177.4	179.1	174.4	182.7	182.3	181.5	183.4	180.0	176.4
Africa	17.8	19.7	21.4	18.9	18.0	17.6	19.7	21.9	21.9
America	59.6	61.7	61.5	64.8	65.4	64.1	65.7	69.0	69.4
Asia‡	200.7	203.3	201.2	210.4	213.5	210.1	205.5	206.1	206.4
Soviet Russia	370.0	392.0	394.0	302.0	218.0	143.0	136.0	141.0	167.0
TOTAL	949.5	980.3	977.9	900.0	819.1	740.6	733.8	736.4	763.0
GRAND TOTAL	3,733.8	3,887.4	3,915.3	3,847.0	3,845.6	3,862.5	3,744.7	3,680.8	3,668.4

* Not yet available. Assumed same as previous year in total.
† Including wool production in India, estimated at a constant figure of 100 million lbs.
‡ Including wool production in China, estimated at a constant figure of 110 million lbs.

(b) DOMINION EXPORTS OF WOOL—AUSTRALIA

(million lbs.)

Exported to	1928	1929	1930	1931	1932	1933	1934	1935	1936
Greasy:									
United Kingdom . .	177.5	215.9	246.4	240.9	231.7	264.3	201.6	294.493	286.4
France	138.4	163.2	180.6	116.1	131.5	90.8	59.8	80.303	73.9
Germany	86.9	92.2	113.2	85.2	95.5	119.7	59.4	27.381	33.4
Japan	100.0	88.5	113.6	181.5	190.5	203.1	139.1	234.475	122.9
Belgium	82.6	94.9	78.4	68.3	71.9	104.6	86.2	129.586	124.0
Italy	37.3	34.3	44.7	46.0	55.1	66.7	34.6	10.481	16.3
United States . . .	22.0	18.5	24.1	17.6	3.5	7.8	3.7	10.036	58.9
Sweden	0.9	1.5	1.3	1.5	2.0	1.2	2.1	—	1.3
Netherlands . . .	—	0.7	0.6	1.0	0.8	3.4	10.4	18.872	12.5
Other Countries . .	20.7	10.1	3.7	2.5	9.0	15.5	15.4	—	—
TOTAL . . .	666.3	719.8	808.6	760.6	791.5	877.1	612.3	844.573	763.6
Scoured and Washed:									
United Kingdom . .	21.4	25.7	26.0	29.0	32.0	33.0	31.2	34.493	33.4
France	7.1	5.0	7.2	5.3	7.3	8.3	5.9	12.541	8.1
Germany	3.8	3.3	5.2	4.6	6.4	11.7	5.4	4.230	3.4
Japan	0.9	1.6	0.8	2.7	4.0	3.2	0.6	.786	1.1
Belgium	6.3	6.4	4.4	6.4	6.4	15.1	10.2	12.397	9.6
Other Countries . .	9.3	3.0	2.1	4.2	4.2	8.6	6.5	9.251	11.1
TOTAL	48.8	45.0	45.7	52.2	60.3	79.9	59.8	73.698	66.7
GRAND TOTAL . . .	715.1	764.8	852.3	812.8	851.8	957.0	672.1	918.271	830.3
GRAND TOTAL (estimated greasy equivalent)* .	772.0	817.3	905.6	873.7	922.2	1,050.2	741.8	1,001.8	905.9

* The conversion factor used is: 1 lb. scoured and washed=2⅛ lbs. greasy (see Official Year Book of the Commonwealth of Australia).

(c) DOMINION EXPORTS OF WOOL—NEW ZEALAND

(million lbs.)

Exported to	1928	1929	1930	1931	1932	1933	1934	1935	1936*
Greasy:									
United Kingdom	121.5	128.8	119.1	121.1	135.6	162.7	129.9	107.7	157.0
France	24.1	27.9	13.1	15.7	18.2	19.7	17.9	11.6	31.9
Germany	13.8	14.8	5.7	9.9	8.1	9.7	14.3	2.8	...
United States	7.0	6.8	2.8	0.9	0.2	0.7	1.8	7.5	...
Netherlands	0.2	1.6	1.6	0.6	1.6	0.7	1.3	—	...
Belgium	2.6	2.9	2.9	3.7	6.6	13.6	11.9	18.0	11.1
Japan	7.9	6.3	2.5	6.2	7.5	9.1	12.1	8.3	19.0
Italy	2.6	2.0	1.1	1.0	2.8	2.7	3.0	0.3	...
Canada	2.7	1.9	1.5	1.9	1.5	2.2	4.2	—	...
Other Countries	7.0	5.4	3.9	4.5	4.6	8.5	13.2	17.7	...
TOTAL	189.4	198.4	154.2	165.5	186.7	229.6	209.6	173.9	300.6
Sliped:									
United Kingdom	23.8	21.8	27.3	33.7	35.3	33.1	27.6	28.0	...
United States	1.6	1.4	2.5	0.5	0.8	1.6	0.5	2.0	...
Canada	0.3	0.3	0.2	0.2	0.8	1.7	1.2	—	...
Other Countries	0.7	0.3	0.4	0.8	‡	0.2	0.4	0.1	...
TOTAL	26.4	23.8	30.4	35.2	36.9	36.6	29.7	31.0	...
Scoured:†									
United Kingdom	9.6	11.7	12.1	10.6	13.7	17.7	13.6	13.2	...
Other Countries	1.4	1.1	0.5	0.4	0.8	2.5	2.8	2.5	...
TOTAL	11.0	12.8	12.6	11.0	14.5	20.2	16.4	15.7	...
GRAND TOTAL:									
Actual Weight	226.8	235.0	197.2	211.7	238.1	286.4	255.8	220.6	300.6
Greasy Basis§	246.6	255.7	219.9	234.4	264.9	318.8	282.2	246.7	...

* 1936 figures apply to raw wool, all kinds, as separate figures for greasy, scoured and sliped are not available.
† Including small quantities of fleece-washed wool.
‡ Less than 50,000 lbs.
§ The conversion factors employed are: 1 lb. scoured=2 lbs. greasy; 1lb. sliped=1¼ lbs. greasy.

(d) DOMINION EXPORTS OF WOOL—SOUTH AFRICA

(million lbs., actual weight.)

Exported to	1928	1929	1930	1931	1932	1933	1934	1935	1936
France	55.3	67.3	67.7	72.3	109.5	65.3	49.5	65.32	50.9
United Kingdom	109.5	115.5	111.8	67.7	99.5	81.7	37.5	55.98	41.0
Germany	49.0	57.2	47.1	48.8	75.0	53.2	32.7	81.00	36.9
Belgium	24.6	25.5	23.3	23.1	38.8	34.7	24.0	23.07	21.4
Italy	10.0	14.1	17.3	16.9	37.3	23.7	22.8	12.81	7.0
United States	3.5	3.0	4.4	3.1	0.7	1.5	0.4	1.59	4.4
Other Countries	1.6	4.3	3.5	4.7	11.9	12.3	22.8	19.90	52.5
TOTAL	253.5	286.9	275.1	236.6	372.7	272.4	189.7	259.665	214.1

(c) EXPORTS—ARGENTINE

(Years ending September 30th: million lbs., actual weight.)

Exported to	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35	1935/36
United Kingdom	53.2	61.6	90.4	91.8	84.9	89.1	82.5	77.4
Germany	68.9	61.9	64.5	38.3	43.0	42.2	63.4	40.9
France	49.6	48.2	50.4	57.4	72.2	46.9	45.9	51.9
Italy	23.0	18.8	14.5	28.4	40.7	33.4	38.4	11.0
United States	33.8	28.8	28.3	12.8	40.8	17.5	38.1	48.8
Belgium	53.4	45.0	41.7	32.0	41.5	19.1	14.4	18.2
Netherlands	1.6	1.8	3.3	3.5	3.6	5.0	2.8	2.4
Sweden	2.3	1.2	0.5	0.7	1.1	3.8	0.4	*
Spain	0.7	0.9	2.6	2.6	2.4	1.2	2.5	*
Japan	*	*	*	*	*	9.6	0.9	4.1
Poland	*	*	*	*	*	4.6	8.9	7.5
Other Countries	4.9	5.2	7.4	7.6	14.6	2.5	3.6	9.3
TOTAL	291.4	273.4	303.6	275.1	344.8	274.9	301.8	271.5

* Included, if any, in "Other Countries."

(f) BRITISH IMPORTS AND RE-EXPORTS OF WOOL

(million lbs.)

Countries	1928	1929	1930	1931	1932	1933	1934	1935	1936
Imports from:									
Australia	222.9	269.9	257.0	290.0	302.0	308.7	255.8	359.0	338.5
New Zealand	182.3	194.0	174.7	188.4	201.1	243.7	216.5	171.6	232.7
Union of South Africa	162.4	167.5	158.2	131.0	211.3	174.1	106.7	118.5	108.9
Argentina	49.4	51.8	60.1	94.3	90.4	81.1	86.2	80.7	81.5
British India	55.1	53.9	34.3	35.8	34.6	40.6	37.8	37.9	42.1
Chile	25.4	16.0	30.1	25.2	24.8	21.0	23.0	12.9	9.6
Uruguay	27.4	9.2	31.4	38.5	16.2	25.3	16.5	16.4	18.0
France	20.6	18.9	15.8	19.0	12.9	23.5	15.7	14.1	21.5
Irish Free State	9.9	9.1	5.8	7.5	5.9	10.8	8.0	9.9	11.7
Other Countries	23.9	24.1	14.9	18.5	19.1	23.2	22.6	43.9	49.7
TOTAL	779.3	813.9	782.3	848.2	918.3	952.0	788.8	864.1	914.2
Re-Exports to:									
Germany	118.8	106.8	98.2	107.0	116.4	115.3	80.7	44.9	36.5
France	110.0	116.7	112.5	86.0	110.8	118.3	81.1	82.7	98.6
Belgium	58.8	54.2	45.0	38.7	57.1	72.5	50.1	61.9	55.1
United States	34.2	33.5	14.1	12.4	5.8	17.0	5.7	11.2	12.8
Netherlands	5.7	7.7	8.6	7.0	8.0	8.5	10.0	8.5	10.6
Italy	2.5	2.7	1.6	2.2	3.1	3.4	1.8	1.0	0.3
Switzerland	2.3	1.7	1.3	2.3	2.9	2.9	6.2	7.9	8.5
Canada	1.9	1.6	1.3	1.6	2.1	3.7	2.7	2.6	2.7
Other Countries	4.6	5.7	5.6	7.1	11.9	9.5	20.6	38.5	39.5
TOTAL	338.8	330.6	288.2	264.3	318.1	351.1	259.8	259.0	265.0
Exports of Imported Wool, treated in U. Kingdom, to:									
Germany	4.4	4.5	2.9	2.6	2.3	3.7	4.4	17.9	5.9
Other Countries	4.1	7.7	5.0	5.0	4.0	5.3	4.6	6.3	6.2
TOTAL*	8.5	12.2	7.9	7.6	6.3	9.0	9.0	24.2	12.1
Imported Wool retained in United Kingdom	432.0	471.1	486.2	576.3	593.9	591.9	520.0	580.9	637.5

* Includes small quantities of wool pulled from imported skins.

(g) PRICES OF WOOL

Average of four quarterly quotations, London Priced per lb. clean basis

	Merino Greasy 66's	Half-bred Greasy 56/58's	Crossbred Greasy 46's
1928	50¾	39¾	25½
1929	40½	29½	21¼
1930	26	18	12¾
1931	21	15¾	9
1932	19½	16½	7½
1933	24¾	20	8½
1934	28¼	23	10
1935	25½	18½	9¾
1936			
Jan.	30½	23	11¾
Feb.	31	23	12
Mar.	33	23½	11½
April	33	23½	11½
May	31	22	11½
June	29½	19	11
July	30½	21½	12½
Aug.	31½	22	13½
Sept.	30½	21½	13¾
Oct.	31	22	14
Nov.	35	25½	18
Dec.	38	28	19½
1937			
Jan.	35	28	21½

TABLE 21.—WHEAT: WORLD PRODUCTION AND TRADE

(a) **WORLD PRODUCTION OF WHEAT**

NORTHERN HEMISPHERE

(Thousand centals, 100,000 lbs.)

	Average 1927/31	1932	1933	1934	1935	1936
England & Wales	26,844	24,752	35,258	39,155	36,355	30,867
Germany . .	81,594	110,299	123,554	99,926	102,894	101,909
Spain . .	84,342	110,526	79,164	112,103	94,793	72,896
France . .	166,429	200,117	203,202	203,110	170,973	146,612
Hungary . .	48,963	38,678	54,088	38,895	50,535	52,046
Italy. . .	136,684	166,155	178,582	139,840	169,658	134,566
Poland . .	42,206	29,684	41,006	45,865	44,331	46,959
Roumania. .	69,373	33,322	71,443	45,933	57,864	77,231
Czechoslovakia .	29,377	32,242	43,738	30,009	37,257	33,350
Yugoslavia .	52,078	32,067	57,950	40,998	43,861	64,454
Others . .	120,903	142,162	166,228	132,754	139,516	126,332
Total Europe .	831,949	895,252	1,018,955	928,588	944,236	887,322
U.S.S.R. . .	493,008	446,438	611,273	670,428	679,683	—
Canada . .	251,149	273,000	161,837	165,509	169,161	137,531
United States .	531,804	446,445	316,448	298,157	375,806	375,977
Mexico . .	7,431	5,795	7,052	6,570	6,167	7,796
Total N. America	790,384	725,240	485,337	470,236	551,134	521,204
India . .	201,824	202,138	211,725	210,874	217,907	211,344
Turkey . .	48,827	42,682	48,502	59,828	55,585	48,170
Others . .	31,939*	29,857*	35,571*	56,299	7,667	8,629
Total Asia. .	282,590*	274,677*	295,798*	327,001	281,159	267,143
Total N. Africa .	66,695	76,563	63,326	80,718	67,996	57,861

SOUTHERN HEMISPHERE

(Thousand centals, 100,000 lbs.)

	Average 1927/28—1931/32	1932/33	1933/34	1934/35	1935/36	1936/37
Argentina . .	149,511	141,228	153,707	144,403	84,614	149,915
Uruguay . .	7,138	3,147	8,206	6,403	9,058	6,301
Union of S. Africa	5,586	6,376	5,722	9,206	12,117	8,728
Australia . .	97,078	127,973	96,000	80,659	85,559	80,509

* Excluding Manchuria.

(b) UNITED KINGDOM—IMPORTS AND RE-EXPORTS OF WHEAT

(Nearest 000 cwts.)

IMPORTS

Countries	1930	1931	1932	1933	1934	1935	1936
British India	3,342	482	—	—	166	159	3,258
Australia	12,713	23,230	24,116	29,283	21,658	17,684	23,274
New Zealand	20	—	5	372	—	—	—
Canada	26,178	27,098	46,853	45,570	35,703	36,894	57,842
Other Empire	194	39	12	20	9	—	45
Total Empire	42,447	50,918	70,986	75,246	57,536	54,737	84,419
U.S.S.R.	18,717	28,931	3,275	5,754	2,095	6,910	167
Poland	170	57	32	66	214	828	—
Germany	326	2,301	4,711	4,443	2,019	175	—
Holland	249	409	188	193	805	923	—
Belgium	457	337	429	476	499	893	—
France	4,107	19	28	361	1,882	7,779	—
Hungary	11	40	20	132	287	—	—
Roumania	458	3,563	488	749	1,584	1,837	4,419
Persia	446	307	151	72	24	96	45
United States	21,036	11,242	4,636	5	131	593	—
Uruguay	203	12	20	8	186	349	—
Argentine	15,189	20,734	20,616	24,702	35,081	22,752	957
Other Foreign	959	549	57	167	281	3,354	10,801
Total Foreign	62,328	68,500	34,651	37,128	45,089	46,488	16,389
TOTAL	104,775	119,418	105,637	112,375	102,625	101,226	100,809
Av. Value per cwt.:							
Empire	8/8	5/5½	6/2½	5/10	6/–	6/8	7/8
Foreign	7/11	4/10	5/11	4/10	4/7	5/2½	6/8

RE-EXPORTS

Irish Free State	648	415	399	458	526	555	460
S. and S.W. Africa	—	56	—	—	—	—	—
Other Empire	9	28	17	35	10	11	14
Total Empire	656	499	416	493	536	565	474
Germany	216	—	—	—	—	—	—
Holland	286	5	4	10	19	9	—
Belgium	—	28	—	—	214	7	—
Spain	—	—	328	—	—	—	—
Greece	—	—	257	—	—	—	—
Egypt	—	—	—	—	126	—	—
Others	23	11	5	7	—	—	—
Total Foreign	524	44	594	17	359	17	317
TOTAL	1,180	542	1,010	510	895	582	791

(c) AUSTRALIA—DOMINION EXPORTS OF WHEAT

(Nearest thousand centals—100,000 lbs.)

(Years ending June 30th).

Exported to	1930/31	1931/32	1932/33	1933/34	1934/35	1935/36
United Kingdom	23,997	29,531	30,564	27,319	24,719	22,355
India	6,118	182	1,063	168	101	405†
Irish Free State	947	2,471	2,163	2,376	1,574	1,787
Malta	293	342	228	152	195	209
New Zealand	62	18	807	4	5	*
Union of South Africa	574	277	12	24	13	196
Other British	180	76	110	87	64	445
Belgium	1,210	1,135	496	22	152	—
China	14,640	18,594	20,244	886	8,198	3,032
Egypt	1,886	984	612	122	963	0.3
France	210	98	—	—	—	—
Germany	116	122	28	—	—	—
Greece	1,124	184	360	—	—	1,522
Italy	7,619	4,917	2,194	420	11	—
Holland	1,295	1,244	316	38	5	—
Norway	132	187	123	164	—	—
Peru	422	790	979	—	—	—
Japan	10,606	12,878	10,738	4,632	9,318	6,626
Syria	—	156	126	—	—	—
Others	102	2,255	572	541	258	—
TOTAL	71,534	76,441	71,734	36,959	45,576	46,196
£000	14,744	19,220	17,805	8,874	11,612	14,019

* Included, if any, in "Other British." † Includes Ceylon.

(d) INDIA—DOMINION EXPORTS OF WHEAT

(Tons)

Exported to	1930	1931	1932	1933	1934	1935	1936
United Kingdom	172,595	19,463	—	—	8,612	6,955	131,285
Holland	400	—	—	—	—	—	—
Belgium	6,359	—	—	—	—	—	—
France	5,266	10	9	—	—	—	—
Arabia	1,906	1,748	1,154	540	760	626	751
Ceylon	*	133	184	209	278	286	329
Straits Settlements	*	312	326	248	217	299	235
Kenya	*	132	118	195	175	238	357
Egypt	—	—	—	—	900	—	56,978†
Others	7,164	1,241	1,055	832	863	998	3,504
TOTAL	193,690	23,048	2,846	2,024	10,905	9,402	193,439
R000	19,346	1,735	454	337	1,046	943	17,381

* Included in "Others." † For "orders cargoes."

(e) CANADA—DOMINION EXPORTS OF WHEAT

(Nearest thousand bushels. 3.6743 bushels=60 lbs.)

Exported to	1930	1931	1932	1933	1934	1935	1936
United Kingdom	131,501	107,388	140,235	121,043	113,959	123,877	165,439
United States	10,248	4,950	52	375	12,813	21,438	23,952
Irish Free State	386	717	735	1,937	2,677	2,336	2,667
British South Africa	2,611	4,247	640	27	1,664	24	12
Malta	260	379	—	138	59	245	40
New Zealand	117	144	137	215	83	72	167
Belgium	9,996	14,167	18,466	14,714	11,538	7,459	21,098
Bolivia	—	—	93	255	172	—	—
Brazil	205	—	—	279	2	—	—
Chile	—	—	37	74	18	2	19
China	3,506	6,433	6,157	3,469	—	37	117
Columbia	596	524	219	140	181	174	218
Denmark	223	733	2,218	2,144	1,552	975	1,098
Finland	—	—	—	191	123	472	384
France	6,698	18,808	17,184	11,262	7,899	1,815	3,484
French Africa	54	497	89	56	83	67	—
Germany	5,210	5,714	7,534	8,798	2,676	281	1,414
Italy	11,789	5,798	3,653	2,132	1,353	123	1,956
Japan	6,902	6,976	6,426	4,185	3,798	2,235	5,002
Netherlands	6,937	9,271	16,024	16,480	5,227	1,847	7,397
Norway	813	1,347	2,172	2,187	1,335	1,708	2,781
Peru	940	514	512	391	227	—	19
Sweden	1,820	1,727	2,462	1,229	328	307	414
Greece	5,956	4,009	618	514	—	—	3,660
Portugal	679	278	161	—	—	—	—
U.S.S.R.	254	—	1,285	—	—	—	—
Spain	—	—	1,096	—	—	—	—
TOTAL	207,761	194,826	228,220	192,275	167,913	165,673	243,042
£000	185,786	117,871	128,386	122,688	131,158	137,153	226,914

TABLE 22.—BUTTER: WORLD TRADE

(a) **IMPORTS INTO UNITED KINGDOM**

(000 cwts.)

Imported from	1929	1930	1931	1932	1933	1934	1935	1936
New Zealand	1,304	1,564	1,926	2,139	2,512	2,677	2,638	2,792
Australia	768	951	1,558	1,795	1,692	2,104	2,113	1,694
Irish Free State	566	522	381	315	379	468	488	468
Canada	—	—	78	19	33	—	63	*
Union of S. Africa	12	25	40	37	25	21	82	75
S.W. Africa Territory	—	1	—	22	6	3		
Kenya	1	6	6	7	5	8	50	107
Other Empire Countries	1	1	1	2	2	3		
Denmark	2,204	2,319	2,466	2,584	2,519	2,486	2,186	2,171
U.S.S.R.	290	165	404	323	563	499	503	415
Sweden	248	280	212	176	227	302	184	149
Netherlands	130	89	96	47	146	301	465	746
Latvia	81	49	39	112	146	156	192	196
Finland	234	234	254	217	134	151	116	160
Lithuania	13	21	40	68	104	141	181	211
Estonia	110	96	125	83	84	123	119	116
Poland	69	65	33	3	—	50	99	190
Hungary	—	—	—	—	32	40	18	†
Austria	—	1	—	—	8	25	18	†
Germany	10	8	8	4	4	4	—	†
Norway	6	2	13	15	3	—	—	†
France	45	7	1	2	1	15	7	†
Belgium	—	—	—	1	2	14	†	†
Argentina	303	414	374	391	202	111	69	143
Other Foreign Countries	2	2	5	2	3	1	15	119
Total Empire Countries	2,652	3,070	3,990	4,336	4,654	5,284	5,435	5,136
Total Foreign Countries	3,745	3,752	4,070	4,028	4,178	4,419	4,133	4,616
TOTAL All Countries	6,397	6,822	8,060	8,364	8,832	9,703	9,568	9,752

† Included in "Other Foreign Countries." * Included, if any, in "Other Empire."

(b) NEW ZEALAND—DOMINION EXPORTS OF BUTTER

(Tons; Years ending July 31st.)

Destination	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35
United Kingdom . .	63,844	70,225	90,363	96,984	123,953	136,940	125,360
Canada	12,251	20,529	1,488	2	615	342	57
United States . . .	—	—	2	—	25	—	2,018
Other Countries . .	1,729	1,633	1,371	1,246	1,480	1,720	2,269
TOTAL . . .	77,824	92,387	93,224	98,232	126,073	139,002	129,704

(c) AUSTRALIA—DOMINION EXPORTS

(Tons; Years ending June 30th.)

Destination	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35	1935/36
United Kingdom . . .	39,237	41,079	66,169	83,973	93,382	101,808	109,674	87,917
Eastern Ports	4,927	5,521	5,106	5,820	5,894	6,024	5,710	6,883
Other Countries . . .	1,657	1,491	2,676	1,293	1,270	1,482	1,661	
TOTAL	45,821	48,091	73,951	91,086	100,546	109,314	117,500	94,800

(d) EXPORTS OF BUTTER FROM PRINCIPAL EXPORTING COUNTRIES

(000 cwts)

Country	1929	1930	1931	1932	1933	1934	1935	1936
Denmark	3,131	3,327	3,379	3,100	2,959	2,949	2,722	2,700
Scandinavian Countries*	826	863	741	572	579	680	604	651
U.S.S.R.	499	207	607	609	732	746	577	395
Netherlands†	931	825	649	401	559	726	922	1,184
Baltic Countries	917	1,015	1,069	832	711	785	896	1,058
I.F.S.	561	525	378	330	404	508	531	518
New Zealand	1,654	1,884	1,989	2,186	2,635	2,615	2,789	2,800
Australia	941	1,130	1,715	2,046	1,889	2,203	2,380	1,656
Argentina	333	443	440	508	274	164	133	202
Eight Other Countries‡	291	272	354	257	241	248	403	463(*a*)
	10,084	10,491	11,321	10,841	10,983	11,625	11,907	12,627

* Norway, Sweden and Finland.
† Estonia, Latvia, Lithuania and Poland.
‡ Canada, U.S.A., Belgium, Austria, Hungary, France, Union of South Africa, and South-West African Territory.
(*a*) Figures not available for Union of South Africa and South-West Africa—1935 figures used in the total.

(e) IMPORTS OF BUTTER INTO PRINCIPAL IMPORTING COUNTRIES

(000 cwts)

Country	1929	1930	1931	1932	1933	1934	1935	1936
United Kingdom*	6,274	6,649	7,709	8,056	8,746	9,596	9,481	9,681
Irish Free State	41	30	30	24	—	—	—	—
Germany	2,645	2,621	1,973	1,368	1,164	1,216	1,398	1,484
Belgium	85	200	371	418	244	184	119	73
France	87	115	365	233	181	86	13	38
Switzerland	149	168	208	73	10	6	3	29
Italy	17	28	55	34	21	30	‡	
Palestine	—	4	7	10	17	35	45	‡
Seven Other Countries†	557	596	339	295	218	200	222	884
	9,855	10,411	11,057	10,511	10,601	11,395	11,312	12,264

* Net imports, i.e. Total Imports less Re-exports.
† Czechoslovakia, Netherlands, Dutch East Indies, Algeria, British India, British Malaya and Canada.
‡ Not available—Figures for the last available year included in the total.

(f) PRICES OF BUTTER

Monthly Averages. London.

	English at Country Markets (per lb.)		Danish Finest (per cwt.)		New Zealand Finest (per cwt.)		Australian Finest Salted (per cwt.)	
	s.	d.	s.	d.	s.	d.	s.	d.
1931	1	5¼	130	0	114	6	110	6
1932	1	4¼	119	3	102	9	99	3
1933	1	2¾	104	3	82	6	81	3
1934	1	2	99	0	73	3	70	9
1935	1	2¼	113	0	91	9	90	3
1936 Jan.	1	3¾	119	6	95	0	94	9
Feb.	1	3¾	129	0	93	9	92	6
Mar.	1	3½	122	6	84	3	84	0
April	1	2¾	106	0	88	3	87	9
May	1	1¼	104	0	94	6	93	3
June	1	0¾	115	6	108	3	107	0
July	1	2	124	6	114	9	113	6
August	1	2¾	127	6	119	6	118	3
Sept.	1	3½	125	3	107	9	107	6
Oct.	1	3¾	122	6	99	9	100	0

TABLE 23.—CHEESE: WORLD TRADE

(a) **IMPORTS OF CHEESE INTO U.K.**

(000 cwts.)

Imported from	1929	1930	1931	1932	1933	1934	1935	19 36
New Zealand	1,801	1,961	1,733	1,849	2,059	2,092	1,763	1,681
Canada	723	678	707	747	630	520	471	603
Australia	50	48	68	74	93	115	134	91
U. of S. Africa and S.W. Africa Trty.	—	16	15	17	13	3	22	31
Irish Free State	2	2	2	2	1	5	9	
Netherlands	196	183	168	170	122	128	199	182
Italy	132	145	132	106	90	94	80	14
Switzerland	40	38	32	14	14	14	15	17
France	26	27	12	9	7	7	8	*
Denmark	6	7	5	6	6	6	10	*
Finland	2	1	3	3	2	2	2	*
Belgium	4	1	2	1	1	—	—	*
Germany	3	1	1	1	—	—	—	*
Norway	—	—	1	2	1	2	1	*
U.S.A.	7	4	4	—	—	—	—	*
Other Foreign Countries	2	—	1	2	1	1	1	58
Total Empire Countries	2,576	2,705	2,525	2,689	2,796	2,735	2,399	2,406
Total Foreign Countries	418	407	361	314	244	254	316	271
Total all Countries	2,994	3,112	2,886	3,003	3,040	2,989	2,714	2,676
Re-exports								
To Empire Countries	23	20	21	21	17	30	29	24
To Foreign Countries	9	10	8	8	7			
Total	32	30	29	29	24	30	29	24
Net Imports	2,962	3,082	2,857	2,974	3,016	2,959	2,685	2,652

* Included in other foreign countries.

(b) NEW ZEALAND—DOMINION EXPORTS OF CHEESE

(Tons; Years ending July 31st)

Exported to	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35
London . .	69,595	75,711	72,471	65,967	78,862	79,537	70,143
U.K. West Coast Ports . .	12,232	9,855	13,324	17,755	20,891	21,770*	19,509
Other . . .	663	254	67	72	123	93	160
TOTAL . .	82,490	85,820	85,862	83,794	99,876	101,400	89,812

* Including 39 tons for Hull.

(c) EXPORTS OF CHEESE FROM PRINCIPAL EXPORTING COUNTRIES

(000 cwts.)

Country	1929	1930	1931	1932	1933	1934	1935	1936
Netherlands . .	1,886	1,846	1,701	1,519	1,258	1,204	1,202	1,120
Italy . . .	641	723	795	593	469	494	†	†
Switzerland . .	618	586	481	387	402	347	359	361
Denmark . .	130	113	84	130	198	124	131	188
Finland . .	43	42	52	65	82	76	84	97
Bulgaria . .	24	22	28	23	23	24	38	38
Canada . .	830	716	757	776	662	546	497	730
New Zealand .	1,779	1,813	1,636	1,790	1,983	1,984	1,728	1,458
Australia . .	65	46	66	79	97	111	137	111
Six Other Countries*	102	119	152	121	139	164	167	‡194
TOTAL . .	6,118	6,026	5,752	5,483	5,313	5,074	4,837	4,891

* Irish Free State, Austria, Norway, Lithuania, Yugoslavia and Argentina.
† Not available, 1934 figures included in total.
‡ Figures not available for Argentina. 1935 figures included in total.

(d) IMPORTS OF CHEESE INTO PRINCIPAL IMPORTING COUNTRIES

(000 cwts.)

Country	1929	1930	1931	1932	1933	1934	1935	1936
United Kingdom .	2,962	3,082	2,857	2,974	3,016	2,958	2,684	2,677
Germany . .	1,309	1,216	1,075	970	812	665	551	550
Belgium . .	415	456	443	408	432	427	453	454
France . .	456	585	739	466	412	314	311	290
U.S.A. . .	682	610	553	497	432	424	437	534
Algeria . .	75	93	100	99	96	101	101	91
Morocco . .	24	25	32	30	32	32	32	†
Egypt . . .	59	67	66	47	55	58	65	65
Six Other Countries*	131	117	99	92	101	101	100	†96
TOTAL . .	6,113	6,251	5,964	5,583	5,388	5,083	4,734	4,789

* Spain, Malta, Dutch East Indies, Syria and Lebanon, India and Tunis.
† Figures not available for Morocco, Spain and Malta. 1935 figures included in total.

(e) CANADA—DOMINION EXPORTS OF CHEESE

(000 short cwts. : 1 cwt. = 100 lbs.)

Exported to	1930	1931	1932	1933	1934	1935	1936
United Kingdom .	743	806	838	707	581	527	678
U.S.A. . . .	33	16	6	11	8	5	115
Others . . .	26	26	25	24	23	25	26
TOTAL . .	802	848	869	742	612	557	819

(f) PRICES OF CHEESE

(Monthly Averages. London)

	Canadian Finest White per cwt.		New Zealand Finest White per cwt.	
	s.	d.	s.	d.
1931 . . .	71	0	59	0
1932 . . .	68	9	60	6
1933 . . .	61	3	47	3
1934 . . .	54	6	46	9
1935 . . .	60	3	49	0
1936 January .	62	0	54	9
February .	62	6	52	6
March .	63	0	50	3
April . .	62	0	53	6
May . .	63	6	57	0
June . .	67	6	59	9
July . .	72	3	61	6
August .	68	9	68	9
September .	71	3	68	9
October .	70	3	70	0

APPENDIX—II

AGREEMENT TO REFRAIN FROM INVOKING THE OBLIGATIONS OF THE MOST-FAVOURED-NATION CLAUSE IN RESPECT OF CERTAIN MULTILATERAL CONVENTIONS

(Deposited for Signature with the Pan-American Union) July 15, 1934

The high contracting parties desirous of encouraging the development of economic relations among the peoples of the world by means of multilateral conventions, the benefits of which ought not to inure to countries which refuse to assume the obligations thereof; and desirous also, while reaffirming as a fundamental doctrine the policy of equality of treatment, to develop such policy in a manner harmonious with the development of general economic rapprochement in which every country shall do its part; have decided to enter into an agreement for those purposes, as set forth in the following articles:

Article I

The high contracting parties, with respect to their relations with one another, will not, except as provided in Article II thereof, invoke the obligations of the M-F-N clause for the purpose of obtaining for parties to multilateral conventions of the type hereinafter stated, the advantages or benefits enjoyed by the parties thereto.

The multilateral economic conventions contemplated in this article are those which are of general applicability, which include a trade area of substantial size, which have as their objective the liberalisation and promotion of international trade or other international economic intercourse, and which are open to adoption by all countries.

Article II

Notwithstanding the stipulation of Article I, any high contracting party may demand, from a State with which it maintains a treaty containing a most-favoured-nation clause, the fulfilment of the clause in so far as such high contracting parties accords in fact to such State the benefits which it claims.

Article III

The present agreement is operative as respects each high contracting party on the date of signature by such party. It shall be open for signature on behalf of any State and shall remain operative indefinitely, but any party may terminate its own obligations hereunder three months after it has given to the Pan-American Union notice of such intention.

Notwithstanding the stipulations of the foregoing paragraph, any State desiring to do so may sign the present agreement *ad referendum*, which agreement in this case shall not take effect, with respect to such State, until after the deposit of the instrument of ratification, in conformation with its constitutional procedure.

Article IV

This agreement is a single document in English, Spanish, Portuguese and French, all of which texts are equally authoritative. It shall be deposited with the Pan-American Union, which is charged with the duty of keeping it open for signature or resignature indefinitely, and with transmitting certified copies, with invitations to become parties, to all the States of the world. In performing this function, the Pan-American Union may invoke the assistance of any of its members signatory hereto.

In witness whereof, the undersigned Plenipotentiaries have signed this agreement on behalf of their respective Governments, and have affixed hereto their seals on the dates appearing opposite their signatures.

Opened for signature by the Pan-American Union, in accordance with a resolution of the Seventh International Conference of American States, this fifteenth day of July 1934, at Washington.

U.S. Department of State,
Treaty Information Bulletin No. 58.
July 31, 1934.

The following countries have since adhered to this agreement:

U.S.A.
Panama
Cuba
Nicaragua
Belgium-Luxembourg
Guatemala
Greece
Colombia

APPENDIX III

THE PROGRESS OF UNITED KINGDOM TRADE UNDER BILATERAL AGREEMENTS

Trade Agreement Policy after Ottawa

Following upon the reorganisation of trade relations within the British Empire, which was carried out by the Ottawa Agreements in 1932, the United Kingdom concluded a number of bilateral trade agreements with foreign countries—notably with Norway, Sweden, Denmark, Finland, the three Baltic States, Argentina, Poland and the Soviet Union. Certain agreements of a less comprehensive nature were also made with France and Germany, and one or two with smaller countries. The agreements with the Scandinavian and Baltic States were all concluded in the course of 1933 or 1934, and were rather similar in pattern. The Polish agreement, which was concluded early in 1935, was also of a fairly straightforward character. The Argentine agreement, however, which was concluded in the middle of 1933 and prolonged with certain modifications at the end of 1936, was of a more complicated nature and, in effect, constituted an exchange and payments agreement. The Russian agreement also contained a novel feature in that it provided for the regulation of Anglo-Russian trade in accordance with certain predetermined ratios.

The United Kingdom was in a strong bargaining position in 1933. Having never pursued a bargaining policy before, the British Government acquired a new and powerful weapon in the shape of the tariffs of 1931 and 1932 and the powers of quantitative regulation for certain agricultural imports. Moreover, in 1932 the United Kingdom imported from the group of countries comprising the Scandinavian and Baltic States, Finland, Argentine and Russia, goods to the value of £150 millions against exports (including re-exports) of £49½ millions. Invisible exports to this group can hardly have made good the deficit on merchandise trade of £100 millions.

Coal Quotas

In the agreements with the Scandinavian and Baltic countries, the most important concessions gained by the United Kingdom were definite quotas for British coal, and certain tariff concessions, particularly on cotton and certain other textiles. Various informal "purchase agreements" to favour the sale of certain British goods were attached to some of the agreements, although the purchase agreements themselves are signed, not by governments, but by private organisations. United Kingdom coal exporters had formerly held a large share of the import market in these countries, but had lost it to Polish and German firms during the coal stoppage of 1926. The trade agreements of 1933

and 1934 went some way towards restoring the position of British coal in these markets, though only, as it was later found, at the cost of diverting Polish and German competition to other markets. The minimum share of each of these markets gained for British coal under these agreements was as follows:

	Per cent		Per cent
Norway	70	Latvia	70
Sweden	47	Lithuania	80
Denmark	80	Estonia	85
Finland	75		

These countries have adhered faithfully to their undertakings to purchase British coal, though there have been complaints concerning the prices which have had to be paid and the ava lability of supplies of the requisite qualities at the right moment.

Tariff Concessions in Scandinavian and Baltic Markets

The tariff conces ions under the Danish agreement involved reductions of duty or additions to the free list in respect of a number of items, of which the most important were pig-iron, coal and coke, certain classes of cotton, woollen and artificial silk textiles and motor cars, and the stabilisation of other duties at the existing level. In addition, certain "puchase agreements" were made as between Danish and British industries, with a view to giving effective preference to British goods. These chiefly affected iron and steel and certain materials ancillary to the curing and packing of bacon for the British market.

The Swedish and Norwegian trade agreements also conceded more favourable tariff treatment or free importation for certain classes of British goods, notably raw wool, tin and nickel, iron and steel sheets, cotton textiles and motor cars, motor cycles and cycles in Sweden, and an approximately similar, though more extensive, list in Norway.

Finland reduced duties on most classes of cotton textiles, wool and silk mixtures, jute and linen, herrings, tinplate, motor cars and spirits; while existing duties were stabilised in the case of cotton and wool yarns, tyres and linoleum. Finland also entered into purchase agreements similar to those concluded by Denmark.

The trade agreements with the Baltic States, which followed on those concluded with the Scandinavian countries, contained, other than the granting of the quotas for coal, a number of concessions for British goods. Lithuania modified or stabilised the tariff treatment of a number of items, including coal, coke, galvanised and other iron and steel sheets, herrings, and certain cotton and woollen textiles, and also undertook to encourage the use of British shipping and generally to favour the purchase of British and British colonial goods. Estonia reduced the tariffs on coal, coke, certain textiles, galvanised sheets and tinplates. Both Lithuania and Estonia agreed to give the United Kingdom a larger share of the market for imported coke. Latvia conceded a large quota for salted herrings from the United Kingdom, and reduced the duties on a number of items—mainly cotton and woollen textiles. In the case of all three countries purchase agreements with United Kingdom organisations were appended to the main agreements.

Tariff Concessions by the United Kingdom

The concessions made by the United Kingdom were not, on the whole, considerable since the bargaining position of the country was favourable at the time when these negotiations took place. Tariff reductions were conceded on various classes of paper, timber and timber products which benefited Norway, Sweden and Finland almost equally. There were also reductions on certain special steels, granite and ball bearings in the Norwegian and Swedish agreements. The reductions in various classes of timber products, such as plywood, were immediately enjoyed by the Baltic States, according to their most-favoured-nation rights, so that the specific new concessions which they afterwards received under their own agreements were negligible in extent.

British Agricultural Import Policy

According to the British agricultural policy of placing the interests of the home farmer first and then favouring the Dominion exporter at the expense of foreign countries, the United Kingdom dealt severely with the trade in dairy products, which is the main item of export of certain of these countries. Some of the Baltic States in particular hoped to obtain quotas for their exports to the United Kingdom. But the United Kingdom did not go further than promising that they should have most-favoured-nation treatment. The type of formula adopted was that the British Government would guarantee an "equitable share" under any scheme that might be imposed. In certain cases, however, a minimum quota was fixed. In the Danish agreement, the United Kingdom undertook not to regulate the quantity of imports of bacon, hams, butter, eggs or cream from Denmark, "except in so far as may be necessary to secure the effective operation of a scheme or schemes for the regulation of the marketing of domestic supplies." In the event of such allocations, the Danish share was to be not less than 62 per cent of the share of bacon imported from *foreign countries*. For butter, a minimum quota of 2,300,000 cwts. and an equitable share of any excess of total imports over 8,100,000 cwts. was conceded. For eggs, a provisional minimum quota of 5½ million great hundreds was fixed, but the United Kingdom had power to reduce this figure by consultation, if the state of the home market should warrant it, provided that Denmark continued to receive 38 per cent of the total import trade. A minimum import quota was also fixed for Danish fish. Similar quotas were fixed under the Norwegian and Swedish treaties. In addition, a quota was fixed for United Kingdom imports of Swedish butter, and Norway received the assurance that her exports of dairy produce and poultry to the United Kingdom, being negligible in proportion to total British imports, would probably be left unregulated in the event of a scheme of quantitative restriction of imports.

The quotas imposed were, for the most part, based on the actual experience of previous years. Nevertheless, the result has been a progressive restriction of the imports of dairy produce from these countries, since the total imports from foreign countries have fallen in accordance with British agricultural policy. Consequently, United Kingdom imports of Danish agricultural produce have fallen more than total imports, in spite of the guaranteed quota. Danish exporters have been partly compensated—it might be said mainly out of the pockets of British consumers—by a rise in the prices received by them,

which has partly offset the fall in the quantity exported. Certain statistics illustrating the trend of Anglo-Danish trade are given at the end of this Appendix, and further figures relating to the trade in dairy produce are contained in Appendix I.

Anglo-Polish Agreement of 1935

The Anglo-Polish trade agreement was concluded in March 1935, and since statistical data of Anglo-Polish trade since its enforcement are not fully available, its effects have been excluded from the statistical analysis of trade agreement policy which will be referred to at a later stage. The agreement, briefly, secured the consolidation of Polish import duties on a range of British goods which included herrings, a number of industrial chemicals, wool tops, yarns and textiles, leather, cotton yarns and textiles, tyres, metal ware, wire, machinery, electrical fittings, and cinematograph films, and on a further list of British Colonial products including asphalt, a minimum quantity of palm oil, certain vegetable extracts and sisal. In return, the United Kingdom agreed to maintain the existing tariff treatment of roundwood logs, pit props, telegraph poles and woodpulp (free entry), sawn wood, softwoods and sleepers, boots and shoes, bacon, hams, eggs and poultry. Moreover, Poland received a guarantee of equitable treatment in any scheme of quantitative regulation for the last four items, and guaranteed to give equitable quota treatment in return for British and Colonial goods, wherever quotas were in force.

Anglo-Argentine Agreements of 1933 and 1936

The Anglo-Argentine agreement of 1933, which was renewed with slight modifications in 1936, was of a different type. The United Kingdom, in the first place, agreed not to restrict imports of Argentine chilled beef below the levels required under the Ottawa Agreements, except in so far as such restriction might become necessary in order to maintain a remunerative level of prices. Reduction was not to take place by more than 10 per cent without an all-round consultation with meat-exporting countries, and any further reduction, if agreed upon, would be shared by the Dominions. Frozen beef, mutton and lamb were not to be restricted below the "Ottawa level" without similar sacrifices by the Dominions.

In the second place, measures were taken to deal with the frozen balances standing to the credit of United Kingdom exporters and shareholders in Argentina, to the amount of approximately £10 millions. The Argentine Government agreed to apply the whole of the sterling proceeds of Argentine exports to Great Britain, less about £3 millions necessary for meeting public external debt obligations elsewhere, to meeting the current requirements of the United Kingdom for trade and interest payments. The Argentine Government set aside about £1¼ millions for the immediate liquidation of the smaller commercial debts; the larger outstanding balances were funded in sterling bonds. The Argentine Government also promised most-favoured-nation treatment in the allocation of exchange for remittances and "benevolent treatment" and "due and legitimate" protection for British enterprises operating in Argentina. Under the exchange agreement, Argentina made available a total of £87,371,000 in sterling over three years for the satisfaction of current claims for the United Kingdom. Although this was not sufficient

to settle all claims, e.g. of investors, it represented practically the whole of the proceeds of Argentine exports to the United Kingdom. Only £7,708,000 was retained for other purposes. It would appear that in practice, the Argentine exchange control has been operated so that United Kingdom exports to Argentina have received a considerably more favourable rate of exchange than some of their chief competitors.

In addition, Argentina agreed to maintain coal and various other items on the free list, and reduced or conventionalised the duties on a fairly long list of goods, including various types of textiles, iron and steel, metals and machinery.

The new agreement modifies the old in certain respects. The Argentine Government has been induced to accept a levy on imports of foreign meat by the United Kingdom, which is not, however, to exceed ¾d. per lb. on chilled beef, ⅜d. per lb. on frozen beef, and 20 per cent *ad valorem* on other meat. No duties will be imposed on mutton, lamb or pork. Imports of chilled beef from Argentina, which the British Government had already restricted by 10 per cent from the 1932 level under its powers in the 1933 agreement, are not to be reduced from the 1935 level by more than 2 per cent in 1937, 4 per cent in 1938 and 5 per cent in 1939. Similar arrangements apply to other meats. In addition, the United Kingdom Government has promised to impose no quotas on wheat or maize, and not to increase the duty on wheat or impose a duty on maize. The Argentine Government in return has reduced the sum withheld from the proceeds of exports to the United Kingdom for external debt service from £3 millions to £1½ millions. The benevolence of the Argentine Government towards British undertakings in Argentine is reiterated, and specific safeguards have been added for meat and shipping companies in British ownership if the Argentine Government should decide in favour of State control of exports.

Anglo-Soviet Agreement of 1934

The agreement with the Soviet Union introduced a novel feature in that the ratio between Russian exports to and imports from the United Kingdom was definitely fixed. Prior to the agreement, which was concluded early in 1934, Russia had enjoyed a highly favourable balance of trade with the United Kingdom. The ratios agreed upon were as follows:

	Ratio of Russian Payments in United Kingdom to Russian Proceeds
1934	1:1.7
1935	1:1.5
1936	1:1.4
1937	1:1.2
Thereafter	1:1.1

In calculating the balance, allowance is made for all payments, not only for goods of United Kingdom manufacture, but for all goods bought in the United Kingdom, and payments for the use of British shipping, and the repayment of credits. For this reason, the agreement has not resulted in the increase in British exports to Russia of manufactured goods which was hoped for at one time. Russia has, rather, implemented her undertaking by purchasing in London increasing quantities of Dominion and foreign

raw materials which figure as re-exports from the United Kingdom. The effect of this is shown in the figures given later of trade with Russia. This agreement has lately been much reinforced by the arrangement under which a substantial sterling credit has been made available to Russia, with the collaboration of the Export Credits Guarantee Department, for expenditure within a relatively short period on British manufactures.

One important feature of the Russian agreement was the provision concerning most-favoured-nation treatment. The Anglo-Russian treaty formerly in existence which ensured M-F-N treatment, had been denounced by the United Kingdom in order to implement its promise to Canada, given at Ottawa, to prevent the importation from any one country of goods that were subsidised or otherwise assisted in order to defeat the intentions of the imperial preference system. In asking this, the Canadians were seeking to mitigate the competition of Russian timber with their own. M-F-N treatment of Russian goods was renewed under the 1934 agreement, but with a special modification which enables either party to give notice that the prices created or maintained by the other for any commodity "are likely to frustrate preferences accorded or detrimentally affect the production of goods." If satisfaction is not forthcoming by negotiation, the injured party may except the goods complained of from M-F-N treatment.

Other important features were the renewal of diplomatic privileges for the Russian trade delegation in the United Kingdom, the admission of exports to Russia as eligible without discrimination for guaranteed credit schemes, and the extension of M-F-N treatment by Russia to such of the Crown Colonies as do not discriminate against Russia.

Changes in United Kingdom Trade with "Trade Agreement Countries"

The effects of these trade agreements upon the volume and direction of British trade cannot be accurately disentangled from all the other forces at work. Taking the group as a whole with which the 1933 and 1934 trade pacts were concluded—that is to say, Norway, Sweden, Denmark, Finland, the Baltic States, Russia and Argentina—there has been a considerable rise in British exports and re-exports since 1932, and a rise in imports which is certainly no larger than could be expected as a result of trade recovery. In fact, the United Kingdom has considerably enlarged the export trade with this group, while tending to cut down the import trade. In 1932, exports to the group amounted to £46 millions and re-exports to £3½ millions. By 1936, exports had increased to £59 millions and re-exports to £12 millions. Imports, on the other hand, fell abruptly from £150 millions in 1932 to £136 millions in 1933, and by 1936 had risen only to £153 millions.

Relation of Changes to Total United Kingdom Trade

Viewed in proportion to the movements in total British overseas trade, however, these changes are of far greater significance on the import than on the export side. This group increased its share of the British export trade only from 12.6 per cent in 1932 to 13.4 per cent in 1936, and of the re-export trade from 6.8 per cent to 20.4 per cent (due almost entirely to the increase in re-exports to Russia). British imports from the group have, however, fallen from 21.4 per cent of the total in 1932 to 18.1 per cent of the total in 1936. This decline has been due mainly to the increasing importance of imports from the Empire, which represented 39.2 per cent of total United Kingdom imports in 1936 against

35.4 per cent in 1932. But the "trade agreement countries" have fared even worse in this respect than other foreign countries whose proportion of the British import trade fell only from 43.2 per cent in 1932 to 42.7 per cent in 1936.

In the export trade, exports to the "trade agreement countries" have risen from £46 millions to £59 millions between 1932 and 1936, while exports to other foreign countries have risen only from £153½ to £164½ millions. It may be, and commonly is, argued that these trends represent irrefutable evidence of the virtue of bilateral trade agreements as a means of expanding export trade. The evidence is not, however, irrefutable. "Concessions" which are obtained under trade agreements are often secured at the direct expense and by the displacement of competitors. Their reaction may be merely to intensify their competition in other markets. There is good reason to believe that this has happened in the case of the coal trade, where the Scandinavian and Baltic markets were secured from Polish and German competitors by the imposition of quotas. It is, perhaps, less likely to happen where the concessions obtained consist of tariff reductions, which tend to become generalised under M-F-N obligations. But "purchase agreements" may have much the same effect in diverting competition as quotas.

Full figures illustrating the course of British overseas trade in recent years with the principal countries with which bilateral pacts have been concluded, are given at the end of this appendix. It will be seen that changes in the import trade of the United Kingdom have not been of great importance except in the case of imports from Finland, Sweden and Lithuania, which have risen appreciably since 1932, and of imports from Denmark and Argentina, which have fallen. British exports have shown a marked increase all round during this period, but the rise has been most striking in exports to Denmark, Argentina, Latvia and Lithuania. The recent history of the re-export trade is dominated by the increase of re-exports to Russia from £3,150,000 in 1933 to £12,336,000 in 1936. In this way, Russia has fulfilled the terms of the 1934 agreement to purchase in the United Kingdom, since exports of United Kingdom goods to Russia have risen only from £3,341,000 in 1933 to £3,493,000 in 1936.

Further tables show the trend in British exports of coal and cotton textiles. Coal exports to the Scandinavian and Baltic countries increased from just over 5 million tons in 1932 to about 9 million tons in 1936. These markets took over 25 per cent of total United Kingdom coal exports in 1936 as against 13.2 per cent in 1932. This increase has been accompanied by a fall in exports to other countries from 33¾ million tons in 1932 to less than 25¾ million tons in 1936, and in total coal exports from 39 to 34½ million tons.

Norway, Sweden, Denmark, Finland and Argentina together took 11.3 per cent by volume and 13.4 per cent by value of United Kingdom cotton goods exports in 1936 against 8.7 per cent and 10.6 per cent respectively in 1932. Exports to this group have risen slightly in yardage and value at a time when the total yardage and value of the cotton trade's exports have been falling.

Taken as a whole, British export trade has made headway in some "trade agreement" markets, but not in others. Denmark, Latvia, Lithuania, Estonia and Argentina have increased the importance of their purchases from Great Britain proportionately as well as absolutely. But in Norway and Finland, British goods had, between 1932 and 1935 actually lost ground.

TABLE 1—DISTRIBUTION OF UNITED KINGDOM OVERSEAS TRADE

I—IMPORTS

(£000)

	1929	1930	1931	1932	1933	1934	1935	1936
(i) *From British Countries:*								
TOTAL	358,842	304,030	247,416	248,137	249,137	271,285	284,558	332,580
Percentage of Total Imports	29.3	29.1	28.8	35.4	36.9	37.2	37.7	39.2
(ii) *From "Trade Agreement Countries":*								
Norway	14,149	11,967	8,630	8,283	6,961	8,359	8,213	8,953
Sweden	25,709	22,581	17,342	13,424	15,938	17,926	17,010	20,632
Denmark	56,178	54,118	46,696	40,570	35,428	32,885	32,038	33,225
Finland	14,945	12,634	11,630	11,733	12,767	15,215	14,915	18,151
Latvia	5,467	4,747	2,928	2,683	2,641	2,715	2,920	3,419
Lithuania	587	791	1,488	1,882	1,967	1,856	2,338	2,989
Estonia	2,497	1,992	1,908	1,260	1,217	1,996	1,825	1,935
Argentina	82,447	56,666	52,744	50,885	41,687	47,030	43,967	45,106
Soviet Union	26,487	34,235	32,285	19,645	17,491	17,327	21,764	18,934
TOTAL	228,466	199,731	175,651	150,365	136,097	145,309	144,990	153,344
Percentage of Total Imports	18.7	19.1	20.4	21.4	20.1	19.8	19.2	18.1
(iii) *From Other Foreign Countries:*								
TOTAL	633,457	540,214	438,186	303,168	289,782	314,820	326,493	363,012
Percentage of Total Imports	52.0	51.8	50.8	43.2	43.0	43.0	43.1	42.7
TOTAL IMPORTS	1,220,765	1,043,975	861,253	701,670	675,016	731,414	756,041	848,936

TABLE 1—DISTRIBUTION OF UNITED KINGDOM OVERSEAS TRADE—(*continued*)

II—EXPORTS

(£ 000)

	1929	1930	1931	1932	1933	1934	1935	1936
(i) *To British Countries:*								
TOTAL	324,451	248,345	170,673	165,512	163,517	185,573	204,345	216,927
Percentage of Total Exports	44.6	43.5	43.7	45.4	44.5	46.9	47.9	49.3
(ii) *To "Trade Agreement Countries":*								
Norway	9,858	12,931	7,559	5,802	5,553	6,292	6,619	7,147
Sweden	10,548	10,068	7,744	6,885	7,175	9,083	9,723	10,388
Denmark	10,670	10,249	8,657	9,853	11,797	13,357	13,759	14,948
Finland	3,363	2,414	1,604	2,263	2,846	3,612	4,153	4,219
Latvia	1,496	1,152	591	591	1,001	1,166	1,121	1,245
Lithuania	380	368	301	396	659	1,070	1,548	1,648
Estonia	464	388	213	359	366	442	680	734
Argentine	29,074	25,234	14,785	10,660	13,073	14,655	15,257	15,271
Soviet Union	3,743	6,772	7,291	9,223	3,341	3,640	3,483	3,493
TOTAL	69,596	69,516	48,745	46,032	45,811	53,317	56,343	59,093
Percentage of Total Exports	9.6	12.4	12.5	12.6	12.5	13.5	13.2	13.4
(iii) *To Other Foreign Countries:*								
TOTAL	335,302	252,834	171,204	153,480	158,581	157,096	265,146	164,699
Percentage of Total Exports	45.8	44.1	43.8	42.0	43.0	39.6	38.9	37.3
TOTAL EXPORTS	729,349	570,755	390,622	365,024	367,909	395,986	425,834	440,719

TABLE 1—DISTRIBUTION OF UNITED KINGDOM OVERSEAS TRADE—(*continued*)

III—RE-EXPORTS

(£ 000)

	1929	1930	1931	1932	1933	1934	1935	1936
(i) *To British Countries:*								
TOTAL	23,062	20,480	16,063	11,531	10,443	11,077	10,962	10,791
Percentage of Total Re-exports	21.0	23.6	25.2	22.6	21.3	21.6	19.8	17.9
(ii) *To "Trade Agreement Countries":*								
Norway	469	342	301	340	261	254	387	252
Sweden	1,156	868	719	667	674	793	819	910
Denmark	829	742	557	499	477	731	777	642
Finland	530	430	170	242	256	387	464	362
Latvia	135	95	31	44	188	229	141	126
Lithuania	14	30	6	16	31	30	53	92
Estonia	236	124	50	61	92	193	221	210
Argentine	603	442	270	202	214	249	344	276
Soviet Union	2,799	2,519	1,912	1,397	957	3,905	6,244	9,466
TOTAL	6,771	5,592	4,016	3,468	3,150	6,771	9,450	12,336
Percentage of Total Re-exports	6.2	6.4	6.3	6.8	6.4	13.2	17.1	20.4
(iii) *To Other Foreign Countries:*								
TOTAL	79,869	60,763	43,789	36,022	35,888	33,395	34,891	37,259
Percentage of Total Re-exports	72.8	70.0	68.5	70.6	72.3	65.2	63.1	61.7
TOTAL RE-EXPORTS	109,702	86,835	63,868	51,021	49,081	51,243	55,303	60,416

TABLE 2—UNITED KINGDOM EXPORTS OF COAL

(000 tons)

	1929	1932	1934	1935	1936
TOTAL EXPORTS	60,267	38,899	39,660	38,714	34,533
Exports to:					
Norway	1,444	868	1,371	1,311	1,327
Sweden	2,336	1,365	2,610	2,527	2,693
Denmark	2,194	2,090	3,088	3,175	3,334
Finland	462	473	831	744	1,063
Latvia	56	236	402	457	450
Lithuania	61	72	185	196	...
Estonia	87	33	4	51	...
TOTAL "QUOTA COUNTRIES"	6,640	5,137	8,511	8,461	8,867
TOTAL OTHER COUNTRIES	53,627	33,762	31,149	30,253	25,666
"Quota Countries" as Percentage of Total	11.0	13.2	21.4	21.8	25.7

TABLE 3—UNITED KINGDOM EXPORTS OF COTTON TEXTILES

	1929	1932	1934	1935	1936
			(000 square yards)		
TOTAL EXPORTS	3,671,857	2,197,471	1,993,520	1,948,431	1,916,752
Exports to:					
Norway	15,856	17,792	18,379	18,513	20,118
Sweden	16,585	19,877	25,348	20,111	22,066
Denmark	26,777	34,791	50,012	46,450	52 557
Finland	4,872	2,613	7,044	6,793	7,186
Argentina	144,152	115,982	161,341	134,203	115,830
TOTAL OF ABOVE	208,242	191,055	262,124	226,070	217,757
Percentage of Total Exports	5.7	8.7	13.1	11.6	11.3
			(£ 000)		
TOTAL EXPORTS	99,264	43,615	39,820	39,532	40,328
Exports to:					
Norway	598	499	536	561	625
Sweden	636	564	658	574	651
Denmark	942	876	1,206	1,151	1,215
Finland	214	89	203	188	205
Argentina	4,930	2,602	3,581	3,012	2,699
TOTAL OF ABOVE	7,320	4,630	6,184	5,486	5,395
Percentage of Total Exports	7.4	10.6	15.5	13.9	13.4

TABLE 4—PERCENTAGE SHARE OF BRITISH GOODS IN CERTAIN FOREIGN MARKETS

Q=Quantity V=Value Percentage of Total Imports

		1929	1932	1934	1935	1936
Norway:						
Coal	Q	61.5	43.8	67.8	63.6	...
Cotton Textiles	Q	32.8	39.1	43.4	43.7	...
All Imports	V	20.6	21.5	22.8	17.9	...
Sweden:						
Coal	Q	47.2	30.5	54.3	47.5	...
Cotton Textiles	Q	43.3	72.1	61.0	50.0	...
All Imports	V	17.3	16.9	19.6	19.3	...
Denmark:						
Coal	Q	54.2	58.3	81.3	82.3	80.0
Iron and Steel	V	17.0	25.8	34.2	29.9	25.0
Cotton Textiles	Q	37.2	67.0	85.5	88.3	...
All Imports	V	14.1	22.3	30.0	36.0	36.5
Finland:						
Coal	Q	48.8	55.6	78.6	75.8	...
Coke	Q	29.8	34.7	28.6	72.0	...
Cotton Textiles	Q	39.9	68.0	65.7	63.7	...
All Imports	V	9.2	26.0	22.8	24.2	21.9
Latvia:						
Coal	Q	10.2	64.5	87.3	80.3	70.6
Herrings	Q	95.0	97.3	100.0	100.0	100.0
All Imports	V	8.4	13.9	22.6	20.4	21.5
Lithuania:						
Coal	Q	15.0	34.6	82.5	88.5	86.5
Coke	Q	18.7	18.2	63.2	95.4	53.0
Cotton Textiles	Q	11.5	15.9	38.3	77.3	67.0
Herrings	Q	82.5	98.5	99.2	99.6	99.1
All Imports	V	8.5	10.8	25.3	37.3	36.5
Estonia:						
Coal	Q	83.3	62.6	65.0	92.7	...
Coke	Q	47.1	—	24.9	38.6	...
Cotton Textiles	Q	24.8	9.2	7.9	30.3	...
All Imports	V	10.0	13.8	16.4	19.0	17.9
Argentina:						
Coal	V	93.3	89.2	80.0	81.0	...
Cotton Textiles	Q	34.4	47.6	47.2	36.7	...
Woollen Textiles	Q	51.0	56.0	70.0	80.0	...
All Imports	V	17.1	21.6	26.3	32.2	32.2*

* First six months.

TABLE 5—UNITED KINGDOM EXPORTS AND RE-EXPORTS TO SOVIET RUSSIA

(£ 000)

	1929	1931	1933	1934	1935	1936
(a) BRITISH EXPORTS						
Machinery	1,737	4,418	1,859	1,012	902	689
Iron and Steel	403	807	433	1,374	951	598
Non-ferrous Metals	82	221	391	705	474	754
Wool	589	287	126	192	222	357
Other Textile Raw Materials	—	—	—	—	—	—
Rubber	—	—	—	—	—	—
Tea	—	—	—	—	—	—
Herrings	22	20	4	94	111	65
Chemicals*	102	190	34	47	72	77
(b) EXPORTS OF IMPORTED MERCHANDISE						
Machinery	—	—	—	—	—	—
Iron and Steel	—	—	—	—	—	—
Non-ferrous Metals	1,353	490	181	827	2,823	4,633
Wool	84	17	—	2	647	—
Other Textile Raw Materials	82	49	10	31	92	—
Rubber	362	767	457	2,483	1,716	2,811
Tea	726	175	194	258	463	568
Herrings	—	—	—	—	—	—
Chemicals*	1	242	28	16	5	4

* Including dyestuffs.

TABLE 6—UNITED KINGDOM IMPORTS OF EGGS, BACON AND DAIRY PRODUCE

	Quantity					Value, £ 000				
	1929	1932	1934	1935	1936	1929	1932	1934	1935	1936
Eggs (thousand great hundreds)										
TOTAL	24,964	19,995	18,734	19,767	24,635	17,856	9,064	7,051	7,768	9,902
From Denmark	5,573	6,892	6,383	6,564	7,987	4,698	2,970	2,436	2,689	3,513
Bacon (thousand tons):										
TOTAL	419	570	380	346	328	43,742	30,189	30,047	27,394	27,267
From Denmark	249	384	214	191	169	27,230	20,941	17,700	15,965	14,955
„ Finland	—	1.9	1.2	1.1	—	—	95	92	85	...
„ Latvia	3.3	0.9	2.2	1.6	1.8	276	46	164	125	145
„ Lithuania	0.2	2.6	1.3	0.8	1.0	23	1,181	926	623	757
„ Estonia	1.3	6.1	2.5	2.3	2.2	126	208	198	175	173
Butter (thousand cwts.):										
TOTAL	6,397	8,364	9,695	9,608	9,752	54,706	41,055	33,272	39,328	44,424
From Sweden	248	176	303	184	149	2,113	892	928	751	688
„ Denmark	2,200	2,580	2,480	2,180	2,180	19,737	13,432	9,557	9,966	10,771
„ Finland	234	217	151	116	160	1,952	1,080	496	486	713
„ Latvia	80	112	156	182	196	650	450	421	697	827
„ Lithuania	13	68	141	181	211	103	263	403	634	884
„ Estonia	110	83	123	119	116	893	338	350	425	493
Cream (tons):										
TOTAL	6,930	6,841	4,770	3,734	3,832	702	531	248	229	255
From Denmark	1,974	3,008	2,238	2,011	1,656	186	197	135	118	113

TABLE 7—UNITED KINGDOM IMPORTS OF TIMBER AND PAPER MAKING MATERIALS
(£ 000)

	1929	1932	1934	1935	1936
Timber:					
TOTAL IMPORTS . .	45,840	25,610	39,497	35,516	43,568
From Norway . . .	1,942	611	617	521	581
„ Sweden . . .	6,542	3,675	5,764	4,287	6,071
„ Finland . . .	7,566	4,234	7,781	7,094	8,634
„ Russia . . .	8,996	6,194	6,567	6,663	6,723
„ Estonia . . .	701	115	794	478	517
„ Latvia . . .	1,424	1,184	1,533	1,087	979
„ Lithuania . .	18	173	197	137	...
Timber Manufactures (including Plywood):					
TOTAL IMPORTS . .	9,684	5,468	5,559	6,173	7,463
From Norway . . .	369	292	69	80	90
„ Sweden . . .	1,444	664	511	485	537
„ Finland . . .	1,377	997	1,037	1,326	1,544
„ Russia . . .	395	647	728	1,001	1,004
„ Estonia . . .	250	161	74	85	100
„ Latvia . . .	533	282	244	280	326
„ Lithuania . .	52	34	85	112	...
Paper-Making Materials:					
TOTAL IMPORTS . .	13,150	9,816	11,110	10,757	11,890
From Norway . . .	2,689	1,839	1,820	1,363	1,429
„ Sweden . . .	4,536	2,013	3,130	2,944	3,110
„ Finland . . .	2,150	3,431	3,676	3,792	4,711
„ Estonia . . .	168	268	147	260	199
„ Lithuania . .	247	127	116	192	167
„ Russia . . .	104	70	47	55	...
„ Latvia . . .	42	9	23	—	...

TABLE 8—UNITED KINGDOM IMPORTS OF BEEF, MUTTON AND LAMB

(000 tons)

	1929	1932	1934	1935	1936
Chilled Beef (excl. Veal):					
Total Imports . .	465	440	413	424	439
From Argentina . .	409	390	347	347	355
Frozen Beef (excl. Veal):					
Total Imports . .	118	128	170	149	144
From Argentina . .	45	33	27	26	29
Mutton and Lamb:					
Total Imports . .	282	347	324	335	315
From Argentina . .	77	69	46	45	45

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REPORT ON THE
BRITISH SOCIAL SERVICES

4

P E P (Political and Economic Planning) is an independent non-party group, consisting of more than a hundred working members who are by vocation industrialists, distributors, officers of central and local government, university teachers, and so forth, and who give part of their spare time to the use of their special training in fact-finding and in suggesting principles and possible advances over a wide range of social and economic activities. By means of the fortnightly broadsheet *PLANNING*, P E P keeps in continuous touch with a large number of men and women interested in social and economic reconstruction. The group has issued more than a hundred broadsheets on a considerable variety of subjects, and has also published full-scale reports on the coal-mining, cotton and iron and steel industries, housing and building, electricity supply, international trade, retirement pensions and continued education from the age of fourteen. Details of these are given inside the back cover.

The present Report is intended to give a bird's-eye view of the scope and administration of the contemporary public social services in Great Britain, to show how they relate to one another and to initiate a review of their underlying principles. Evidently it has to deal with so many different services and aspects that it cannot pretend to be exhaustive upon any one of them, and must content itself with forming a fairly detailed factual summary of the whole subject and a discussion of the principles and problems which are of widest concern. Several of the aspects or activities treated have either already been dealt with in P E P Reports such as *The Entrance to Industry* and *The Exit from Industry*, or are being fully covered in forthcoming reports such as that on the Health Services.

P E P issues this Report not as a plan for the social services, but as a contribution towards the working out of a more balanced approach which cannot evolve until the practice is adopted of looking at the subject as a whole. The Report seeks to put down in an orderly and coherent manner the main facts about the social services and the consensus of informed opinion about the next stages in their development.

P E P welcomes constructive criticism, inquiries and suggestions, which should be addressed to:

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P E P (POLITICAL AND ECONOMIC PLANNING)

REPORT

ON

THE BRITISH SOCIAL SERVICES

A survey of the existing
Public Social Services in Great Britain with proposals
for future development.

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Introduction

As long ago as 1933 the Civic Division of P E P was preoccupied with the confusion and lack of guiding principle in the British public social services. A statement of needs drawn up in February of that year pointed out that "unless a ground plan is made now the confusion will become impossible to handle. For thirty years there has been a haphazard piling up of measures, the form and precise objectives of which have been indicated by temporary circumstances, financial and political considerations and by passing fashions of administrative method." It proved, however, much easier to criticise the existing confusion than to show realistically what could be done about it. In order to give a firm factual basis for an eventual comprehensive survey P E P was compelled to set in hand a series of investigations into employment and unemployment policy, extended education, pensions, health and other aspects of the social services. Not until July 1935 was it felt that this exploratory work had gone far enough to enable a survey of the social services as a whole to be undertaken. It was hoped that the Report could be completed in a few months and that it might be kept down to a modest size, but as work went on it became apparent that the scale and complexity of the task had been underrated. The present Report is therefore larger, and very much later in its appearance than had originally been expected. Even so it has been drastically cut to bring the various parts into scale.

We realise that there are inherent weaknesses in attempting to cover in one volume so vast a range of activities, and we would like to emphasise that several of these will individually be the subject of fuller P E P Reports. For example our Report on the Health Services, now in an advanced stage of drafting, will be of the same order of size as this general Social Services Report and will be able to treat thoroughly many health aspects which have been omitted or very summarily treated. The object of the present Report is to give a bird's-eye view of the social services as a whole and to show how they relate to one another. We would not claim to have formulated anything

so ambitious as a unified plan for the social services. The aim of the group has been rather to analyse the problems which will have to be solved before the future development of these services upon socially and economically sound lines can be assured.

What are the Public Social Services?

There is, unfortunately, no generally accepted view as to what constitutes a public social service. There is no official definition and experts differ as to what services should be included under the general heading. For the purposes of this Report, however, the term Public Social Services will be restricted to those services, provided or financially assisted by the public authorities, which have as their object the enhancement of the personal welfare of individual citizens. Impersonal environmental services such as public sanitation, street lighting, housing and town planning will not be considered. War pensions will also be excluded as they are fundamentally different in character, in spite of superficial similarities, from the main body of public social provision.

The miscellaneous group of public services which are the subject of this Report fall into three broad groups. The first group, to be described as Constructive Community Services, includes education, public health and medical services, the mental health services, the welfare of the blind, and the work of the Ministry of Labour's employment exchanges, training centres and so on. The second group, to be described as Social Insurance Services, includes national health insurance, unemployment insurance and widows', orphans', and old age contributory pensions. Although the Workmen's Compensation Scheme is not a public service in the ordinary sense of the term, it was established by law and is supervised by a government department. It will be considered very briefly together with the three major social insurance schemes. The third group, to be described as Social Assistance Services, includes non-contributory old age pensions, the work of the Unemployment Assistance Board, and the manifold services of local public assistance committees.

Social Service Expenditure

The total expenditure on the public social services included in these three groups amounted to over £400 million, or nearly £9 per head of the population of Great Britain, in 1934. It was equal to about one-tenth of the aggregate national income in the same year. About 71 per cent of this expenditure—some £286 million—was financed out of rates and taxes. Expenditure by the State and the local authorities on these services was between a quarter and a third of the aggregate expenditure of all government authorities—central and local—in 1934. The expenditure on Workmen's Compensation claims, which is not included in the above figures, was about £11 million in 1935—the whole amount being borne by employers of labour.

The importance of these services may also be judged by the fact that some twenty to twenty-five million people benefit from them every year, and that they touch the lives of the great majority of the population at a dozen or more points during the course of a lifetime. Never before have the public services of the State been so continuously and intimately bound up with the family life of ordinary citizens as they have been in recent years.

The Development of the Public Social Services

Most of the public social services are of comparatively recent growth. The relief of the poor throughout Great Britain, and public education in Scotland, go back for more than three centuries, and there has been some public aid for education in England and Wales for over a hundred years. But the rest of the public social services are very largely the product of the last third of a century. Meals for necessitous schoolchildren, non-contributory old age pensions, many of the public medical services, the employment exchange system and unemployment and health insurance were established between 1906 and the outbreak of the war. The development of the maternity and child welfare service and the blind welfare service on a national scale has largely taken place since the war. Widows', orphans', and old age contributory pensions did not come until 1925, whilst the State unemployment assistance service is not yet three years old.

These developments reflect a fundamental change in public opinion concerning the part which should be played by the State in relation to social affairs. During the greater part of the nineteenth century the prevailing social philosophy was generally hostile to any activity of the State which might be held to undermine the independence, self-reliance and initiative of the individual. By the end of the century, however, it had come to be recognised that unless the State was prepared to undertake much wider responsibilities for the individual welfare of ordinary citizens, the poverty problem and the complex of social evils associated with it would never be dealt with effectively. The industrial depressions of the last quarter of the century, the writings of the Fabians, the revelations of social investigators such as Charles Booth, and the pressure of a newly-enfranchised and eager electorate all combined to effect a revolution in accepted habits of thought and prepared the way for the great advances of the early years of the present century.

Trends in Development

The actual development of the public social services has been marked by two important trends (i) the evolution of *public* social services out of *voluntary* social services; and (ii) the abandonment of the conception of a comprehensive poor relief service based on destitution in favour of a number of specialist services based either on common citizenship, or on a contract of social insurance. Practically every public social service has its origin in some form of voluntary provision. It is not long since voluntary organisations monopolised the whole field outside the Poor Law, but the tendency has been for them to be replaced or their work taken over by statutory authorities. Nevertheless, they still play an important part in the administration of some public social services to-day. The break-up of the comprehensive poor relief service has been partly due to changes in public opinion concerning the responsibilities of the State and partly to the spirit in which the nineteenth century Poor Law was administered. It is conceivable that most of the new social services of the last thirty years might have evolved within the comprehensive framework of the Poor Law if the spirit of the "workhouse test" and a narrow interpretation of "less eligibility" had not created an atmosphere which was wholly prejudicial to such a development. As it was, social reformers turned their attention

to building up an independent system of specialised services without a destitution test. These new services have proved remarkably successful, but they have grown up in a very piecemeal way, without much regard either for consistency of principle or for the effect of one service on another. Moreover, they have left wide gaps for the Poor Law to fill. Poor relief, or public assistance as it is now called, was given to over a million and a half people in 1934 at a net cost of nearly £46 million.

Administrative Changes

The rapid growth of the public social services has resulted in many changes in public administration. These changes cannot be considered in any detail in this Report, but attention must be drawn to two important developments: (i) the change-over from administration by local *ad hoc* boards dealing with particular services, to administration by "omnibus" local authorities; and (ii) the growth of the centralised services.

Fifty years ago the relief of the poor and the administration of elementary education in England and Wales were in the hands of *ad hoc* authorities, responsible to their own special electorates. As a result of the reforms of local government which took place in 1888 and 1894, the Education Act, 1902, and the Local Government Act, 1929, the county and county borough councils have now emerged as the major local authorities responsible for the administration of *all* the public social services which have not been centralised. Similar developments have taken place in Scotland. On the other hand, there has been the tendency in the direction of specialisation of administration—this time at the centre instead of locally. Up to 1908, all the public social services were administered locally, but the non-contributory old age pensions scheme, the employment exchanges, health and unemployment insurance, and the contributory pensions scheme were administered centrally from the beginning. In 1935 an unemployment assistance service, responsible for meeting the basic needs of several hundred thousand families, was established with centralised administration.

The Growth of Social Service Expenditure.*

The total expenditure on the public social services in Great Britain increased from £35.5 million (or 19s. 2d. per head of population) in 1900 to £201 million (or £4 14s. per head) in 1920, and to £400.8 million (or £8 16s. per head) in 1934. Thus total expenditure was multiplied by eleven and expenditure per head of population was multiplied by nine in the course of thirty-four years. Net *public* expenditure on these services did not increase quite so much as a great part of the income of the social insurance was derived from contributions, and there were other sources of income in the case of some of the constructive community services. In 1900 net public expenditure on the services was £34 million (or 18s. 5d. per head of population). By 1920 it had risen to £198 million (or £4 12s. per head). In 1934 it was £286 million (or £6 6s. per head). Thus the total burden borne by the taxpayer and ratepayer was over eight times as great in 1934 as it was in 1900, and the burden per head of population had increased sevenfold. The increased relative importance of social service expenditure in the budgets of central

* It should be remembered that expenditure on housing and war pensions is not being taken into account in this Report.

and local authorities is shown by the fact that in 1900 this form of expenditure accounted for less than one-seventh of their aggregate expenditure, whereas in 1933 it accounted for nearly one-third. Even when every allowance is made for the rise in prices the trends are obvious. All these great changes are bound to figure largely in, if not to dominate, the social history of our times.

THE CONSTRUCTIVE COMMUNITY SERVICES

The constructive community services are the basic social services. They play a vital part in maintaining and raising the general standard of individual and social welfare. They provide constructive services—not cash allowances—and they provide them on the basis of common citizenship, to all who need them, irrespective of occupational status or social class. Nevertheless, they accounted for less than a third of the total expenditure on the public social services in 1934.

The Education Services

The public education services of Great Britain were responsible for the expenditure of nearly £106 million, over a quarter of the total expenditure on the public social services, and about four-fifths of the expenditure on the constructive community services in 1934. This was over five times as much as was spent on education in 1900.

The public system of education includes the following types of provision:

(i) Special nursery schools for about 5,000 children, and nursery and infant classes in ordinary elementary schools for about 170,000 children between the ages of 2 and 5.

(ii) Elementary schools for over 6 million children between the ages of 5 and 14 plus (including a growing number of special senior schools, central schools, and advanced divisions of boys and girls between the ages of 11 and 14 plus).

(iii) Secondary schools, junior and senior technical, art and domestic science schools, and day continuation schools for nearly half a million selected pupils of various ages up to 18.

(iv) Evening classes and institutes for over a million persons over the age of 14.

(v) Universities, university colleges, training colleges, and other higher educational institutions for some 80,000 students aged 18 and over; and

(vi) Adult educational classes of various types (including full-time adult courses in residential institutions) for about 55,000 students.

(vii) Special schools for about 64,000 defective children: blind, partially blind deaf and dumb, crippled, epileptic and mentally defective.

(viii) "Approved schools" (formerly Industrial and Reformatory schools) for about 9,000 young offenders.

(ix) Junior instruction centres for over 20,000 unemployed boys and girls between the ages of 14 and 18.

(x) A school medical service, meals for necessitous schoolchildren, day nurseries and evening play centres and other services.

Between the ages of 5 and 14 education is compulsory and, in so far as it is provided within the elementary system it is free. Before the age of 5 and after the age of 14 education is voluntary and, largely as a result of scholarships and free place arrangements, it is free for about half of those taking advantage of it. In the remaining cases fees are paid, but they are frequently nominal and seldom cover more than a small proportion of the cost of the education which is provided. Maintenance allowances are paid to about a hundred thousand boys and girls mainly in attendance at secondary, technical and art schools, and to several thousands of young men and women attending universities, training colleges and other higher educational institutions.

The direct control of educational administration in Great Britain is largely in the hands of 351 local education authorities: the county and large burgh councils in Scotland, and the county and county borough councils and the councils of 146 non-county boroughs and 24 urban districts in England and Wales. In Scotland the county and county borough councils are responsible for both primary and advanced education. But the position is complicated in England and Wales by the part played in educational administration by the non-county boroughs and urban districts. These authorities—known as Part III authorities—are only responsible for elementary education within their areas. Thus, while the county boroughs councils and 14 county councils in England and Wales have control of both elementary and higher education in their areas, in 49 counties there is a patchwork division of authority between the county councils administering higher education and the Part III authorities administering elementary education. There are numerous examples of combinations between local education authorities for special purposes.

The Board of Education in England and Wales and the Department of Education in Scotland are the actual authorities for educational administration, but the Ministry of Agriculture and the Scottish Department of Agriculture are responsible for agricultural education, and the Home Office is responsible for the Approved Schools.

The universities and university colleges are self-governing institutions, except in so far as they provide courses for the training of teachers, for which the central departments are responsible.

An important feature of the public system of elementary education in England and Wales is the part played in it by voluntary bodies. More than half the elementary schools in England and Wales, with almost a third of the children on their rolls, are voluntary schools, provided and partly controlled by religious organisations. A large number of voluntary workers take part in the provision of certain auxiliary educational services such as the work of care committees of the London County Council and other local

education authorities, and the 77 local juveniles organisations committees in different parts of England and Wales. There are also a number of voluntary organisations—such as the societies attached to the Invalid Children's Aid Association—which use the school as the centre of their activities.

Deficiencies in the Present Arrangements

In spite of the wide range and important achievements of the public system of education in Great Britain, it cannot be claimed that it is free from gaps and shortcomings.

(i) The provision of nursery schools and classes is still very inadequate.

(ii) There are still over a thousand schools on the "black list" in England and Wales alone.

(iii) There are over four thousand classes with more than 50 children in England and Wales alone.

(iv) The reorganisation of elementary schools on the "Hadow" plan is still very far from complete, especially in the Home Counties and in rural areas. Many new school buildings are needed, not only to reduce the size of classes and replace out-of-date premises, but also for new and much more varied forms of post-primary education.

(v) For the great majority of boys and girls formal education ceases entirely at the age of 14 plus. The Education Act, 1936, raises the school leaving age to 15 in 1939, but its exemption provisions are very unsatisfactory, and will probably destroy its effectiveness. Moreover, it does nothing for the important 15 to 18 age group.

(vi) In spite of existing scholarship provisions and arrangements for maintenance grants, it cannot be said that every child is able to get the education for which he or she is fitted, even when the facilities exist. Improved scholarship and maintenance grant provisions, together with more selective tests on entrance to higher educational institutions are plainly needed.

(vii) The dual arrangement whereby most of the county education authorities in England and Wales are only responsible for elementary education over part of their areas has become peculiarly anomalous since the introduction of the "Hadow" scheme of reorganisation. In many areas some forms of post-primary education are administered by one authority and other forms by another authority, sometimes with considerable friction. The elimination of Part III authorities and the development of joint authorities for education on regional lines would probably lead to considerable easiness of administration, as well as to the improvement in the services provided.

The Public Medical Services

The public medical services of Great Britain may be summarised briefly as follows:

(i) The maternity and child welfare services usually include ante-natal clinics, maternity hospitals, a midwifery service, infant welfare centres, and a system of home visitation by health visitors. Most maternity and child welfare authorities provide institutional treatment for the diseases of young children, and many authorities provide convalescent homes. Some authorities provide day nurseries, toddlers' playgrounds and kindergartens, and a few authorities provide home nurses for maternity cases and sick children needing special care. Milk and other foods are also supplied by many authorities.

(ii) The school medical service provides medical inspection for all schoolchildren and the treatment of minor ailments and conditions in certain cases. All elementary schoolchildren in Great Britain undergo a routine medical examination three times in their school lives. In London and some other areas they are examined four times. In addition to these routine examinations, there are special examinations of defective children and children found suffering, or suspected of suffering from, particular ailments. Medical treatment is provided in school clinics (and, in many cases, in local hospitals) by most authorities, but there are wide variations in the practice and quality of service provided by different authorities.

(iii) Public institutional treatment is now provided for most infectious diseases. There exist for this purpose about a thousand isolation hospitals with nearly 50,000 beds. A large number of infectious cases are also treated in special wards of general hospitals. Vaccination is compulsory, subject to a conscience clause, and immunisation against diphtheria is provided by many local health authorities.

(iv) There is now a comprehensive tuberculosis service in practically every part of Great Britain. The scope and quality of the service varies considerably, but most schemes provide for an examination of suspected cases at a dispensary or clinic, or in the patients' own homes; following up suspected cases in their homes; domiciliary supervision where institutional treatment is not considered necessary; and institutional treatment in sanatoria or hospitals.

(v) The venereal diseases service normally includes the organisation of lectures and the publication of information, the examination of specimens, the distribution of free salvarsan or its substitutes to general practitioners, and the provision of centres for diagnosis and treatment.

(vi) The general hospital service of the local authorities dates from 1930 when the Local Government Acts, relative to England and Wales and to Scotland, respectively, provided for the appropriation of Poor Law hospitals for general

hospital purposes. There are now a large number of hospitals of this type, but very few appropriations have yet been made in county areas.

(vii) The Highlands and Islands medical service is a regional service cutting across the ordinary local government system over a large area in North and West Scotland. It provides transport facilities, travelling allowances and supplementary fees to doctors in scattered districts; gives assistance to nursing associations, voluntary hospitals and local authorities; and supplements the remuneration of surgeons and others in outlying places.

(viii) The Factory Department of the Home Office employs medical inspectors, and the Mines Department and the Board of Trade a medical inspector of mines. Certifying factory surgeons, and "appointed" surgeons under the Factory Acts, must respectively examine young persons under 16 within seven days of their employment in any factory, and all employees in dangerous trades at regulated intervals.*

The only public medical service which is compulsory and free is the vaccination service, but more than half the parents of children born each year take advantage of the "conscience clause."

Certain other services are free: maternity and child welfare (except in certain residential institutions); the medical inspection (but not the treatment) of schoolchildren; the tuberculosis and venereal diseases services (except the treatment of certain cases in institutions) and the infectious disease service.

Free accommodation and treatment are available in general hospitals and some other residential institutions, but local authorities are obliged to make an attempt to recover some part of the cost. A nominal charge is usually made in the case of school medical treatment, but it is frequently omitted.

The administration of most of the public medical services is shared between the two central departments, the Ministry of Health and the Department of Health for Scotland, and a large number of local authorities with varying powers. The functions of the central departments are primarily supervisory, but their statutory powers and control over government grants and local borrowing enable them to control the policy of local public health authorities to a considerable extent. The principal local authorities administering the public medical services are the county and county borough councils in England and Wales and the county and large burgh councils in Scotland. But the position, particularly in England and Wales, is seriously complicated by the existence of minor public health authorities for different purposes. Thus, in England and Wales, there are 147 municipal boroughs and 96 district councils administering the maternity and child welfare service; and 146 municipal boroughs and 24 district councils administering the school medical service in elementary (but not secondary) schools. In England and Wales, the infectious disease service is controlled by a multitude of small local authorities. On the other hand, Scotland provides an excellent example of regional administration in the Aberdeen Regional Scheme, covering the public medical services of the counties of Aberdeen and Kincardine, and of the city of Aberdeen.

* A Factories Bill consolidating and amending existing legislation is now before Parliament.

The Deficiencies in the Existing Public Medical Services

The British public medical services are, in some respects, the best of their kind in the world, but there is room for much improvement, not only in the scope and quality of the provision which is made, but also in the administrative and financial arrangements on which the services depend. In view of the forthcoming P E P Report on the Health Services, these services are not dealt with fully in this Report, but some of the principal deficiencies of the existing arrangements are summarised below:

(i) The persistence of high rates of maternal mortality and morbidity suggests that the maternity services are still far from satisfactory. A comprehensive maternity service has yet to be created and there is a serious lack of trained midwives. The Midwives Act, 1936, should go far to improve the present arrangements, but the Maternity Services (Scotland) Act, 1937, goes a great deal further.

(ii) The infant welfare service has reached a high level of quality so far as children under a year old are concerned, but the supervision of children between the ages of 1 and 5 is both incomplete and unsatisfactory. It is also desirable that the practice of supplying milk and other foods to expectant and nursing mothers and to young children should be extended.

(iii) The school medical service varies enormously both in scope and quality. This indicates that there is much leeway to be made up by many local authorities. The number of routine medical examinations should be increased and the dental service, which is gravely inadequate, should be extended and improved.

(iv) The defects of the infectious diseases service are chiefly defects of age. Institutional accommodation is old-fashioned and uneconomical. Schemes for the concentration and improvement of isolation hospital accommodation are now being carried out, but much remains to be done before the service is completely modernised.

(v) The elimination of tuberculosis is bound up with the elimination of poverty, bad housing and overcrowding, but there is room for much improvement in the quality of the tuberculosis service, especially in rural areas. Large up-to-date institutions providing modern treatment are needed in some parts of the country, and there is an urgent need for a concerted attack by tuberculosis officers, general practitioners, industrial welfare workers and others to reduce the heavy toll of tuberculosis on young people between 15 and 25 years of age.

(vi) The general hospitals service is still young, but the progress of converting Poor Law hospitals into public hospitals is rather disappointing. The time has also come for a new hospitals policy defining the respective spheres of voluntary and public hospital development, and laying down the terms for fruitful co-operation between the two types of institutions.

(vii) There are so many variations and anomalies in the bases of provision of the different public medical services in different parts of the country that an official survey of the whole question of fees, payments, and cost of recovery is now due.

(viii) The existing arrangements for the local administration of the public medical services are very unsatisfactory. It is plainly desirable that the county and county borough councils in England and Wales and the county and large burgh councils in Scotland should eventually become "omnibus" authorities for the local public medical services. Meanwhile, it is very desirable that the authorities for school medical inspection and treatment (in all types of school) and the authorities for maternity and child welfare should be assimilated to each other. Further experiments along the lines of the Aberdeen Regional Scheme would probably result in considerable economies of administration as well as an improvement in the services provided. They might also make it possible to equalise rate-burdens over wide areas in which great disparities exist to-day.

The Welfare of the Blind

Schemes for the welfare of the blind are now provided by all county and county borough councils in England and Wales, and by all county and large burgh councils in Scotland. They usually include arrangements for the proper certification of blindness and for the training and employment of employable blind people in workshops or in their own homes; provision of a home treatment service; and the organisation of general welfare and recreational activities. But there is a wide range in the generosity of provision by different authorities, and home workers schemes, in particular, are insufficiently developed in some parts of the country. Less than half the blind welfare authorities in England and Wales grant domiciliary assistance to blind persons under the Blind Persons Act, 1920, rather than under the Poor Law. Since 1920 non-contributory old age pensions have been payable to blind persons at the age of 50, and the pension age is shortly to be reduced to 40. Voluntary organisations play an important part in blind welfare work, but there has been a tendency in recent years for many local authorities to increase their share in the direct administration of blind welfare schemes.

The Mental Health Services

The Mental Health services provide for two distinct types of person. The Mental Treatment Service (formerly the Lunacy Service) deals with persons suffering from mental disorders. The Mental Deficiency Service deals with persons suffering from arrested development of mind.

Persons suffering from mental disorders are treated in institutions maintained by county and county borough councils in England and Wales, and by county and large burgh councils in Scotland. Some mental patients are also looked after in Poor Law institutions, particularly in Scotland; some in voluntary institutions, and some in private asylums run for profit. Most patients are in an advanced stage of disease, but there has

been a welcome tendency in recent years for sufferers to come for treatment at an earlier stage. The Mental Treatment Act (England and Wales), 1930, provided for the admission of rate-aided patients on a voluntary basis without certification and also for the admission of temporary patients. Provision was also made for the establishment of a number of out-patients' treatment clinics. Great progress has been made during the last few years in carrying out the provisions of this Act, but institutional provision is still inadequate in many areas. In Scotland the service is much less advanced than in England and Wales. Little provision is made for voluntary patients and there are very few out-patients' clinics. A great deal more needs to be done in both countries to provide preventive services and early treatment facilities.

The Mental Deficiency Service has virtually grown up since 1913. There are now special schools for a considerable number of mentally deficient children, and training schools where many of them are prepared to enter the labour market. For some mental defectives over 16 there are special institutions and residential colonies. Supervision is arranged for mental defectives needing care but living in the community. Occupational classes, industrial centres, clubs and evening classes are also organised for them.

Unfortunately, the service is by no means complete. Owing to the cost of providing special schools, large numbers of mental defective children still attend ordinary elementary schools. Moreover, the present arrangements are such that these children cannot be dealt with by the local mental deficiency authorities except in special circumstances. It is urgently necessary that the gaps in the system should be closed as early as possible and that adequate provision should be made for those who are at present unknown to, or outside the reach of, the mental deficiency authorities.

The Employment Services

The employment services of the Ministry of Labour include the nation-wide system of employment exchanges, established under the Labour Exchanges Act, 1909, the juvenile employment services, and the provision of training and welfare schemes for unemployed men and women. These services are all centrally administered by the Ministry, with the exception of the juvenile employment service in certain parts of the country. In 108 out of 304 areas the juvenile employment service is provided by the local education authority under the general supervision of the Ministry. A grant is made to the National Council of Social Services for the purpose of organising welfare schemes for the unemployed.

The officials of the local exchanges are assisted by over three hundred local employment committees, with a total membership of about 10,000. There are also over three hundred juvenile advisory (or employment) committees attached to local juvenile exchanges (or bureaux), with a total membership of 4,500. Finally, there are several regional advisory committees and advisory committees on special problems, and two national advisory committees for juvenile employment.

The employment exchange system has proved to be one of our most successful public services. Nevertheless, it only deals with about a quarter of the jobs placed each

year, and it has not yet succeeded in establishing order in some sections of the labour market. The training and reconditioning schemes only attract a small proportion of those who could benefit by them, and the industrial transference scheme, in spite of its generous provisions, only deals with a small proportion of transferees. An improvement in these services, particularly in the arrangements for training and placing unemployed workers might well result in appreciable savings on unemployment assistance. There appears to be a strong case for the compulsory notification of certain types of vacancies.

THE SOCIAL INSURANCE SERVICES

The three great social insurance schemes—National Health Insurance, Unemployment Insurance, and the Widows', Orphans' and Old Age Contributory Pensions scheme —accounted for the expenditure of about £133 million in 1934, that is just a third of the total expenditure on the public social services. But as they were financed very largely by the weekly contributions of workers and employers, they only accounted for about one-ninth of the cost of the public social services paid by the taxpayer and ratepayer. They differ from the constructive community services in being confined to a particular section of the community, those engaged under a contract of service, and the benefits which they provide are based, not on any rights of citizenship or social need, but on a contract of insurance and the payment of premiums in the form of weekly contributions.

National Health Insurance

The National Health Insurance scheme was introduced in 1911 in the face of great opposition, but it has since had a comparatively uneventful history. It is now recognised even by those whose opposition was most violent, to be one of the most important achievements of British social policy.

Membership of the scheme is compulsory for all manual workers, with certain exemptions and exceptions, between the ages of 16 and 65, and for non-manual workers whose remuneration does not exceed £250 a year. Voluntary membership (with limited rights) is available in the case of insured workers whose incomes begin to exceed £250 a year. Legislation has been promised by the present government to lower the age of entry into National Health Insurance to 15 or the school leaving age.

Insured workers and their employers pay weekly premiums of equal amount into the insurance fund, which is also subsidised by the State. Benefits are paid out of this fund in certain contingencies—sickness, disablement, or the pregnancy of an insured woman or the wife of an insured man—under statutory rules. Benefits take the form of (i) cash payments, weekly in the case of "sickness or disablement benefit," or as a single lump sum in the case of "maternity benefit"; (ii) medical services in the case of "medical benefit." Cash benefits are paid for limited periods, relative to the number of weekly contributions paid. Medical benefit is now virtually unrestricted in duration.

The standard medical benefit provided under the scheme consists of ordinary medical treatment by a general practitioner, together with the necessary medicines and ap-

pliances. It does not include the cost of consultations with specialists, operations, rare drugs and expensive appliances, hospital treatment, or anything outside the scope of the work of an ordinary general practitioner.

When the scheme was launched it was decided to use the services of a large number of friendly societies, trade unions and commercial undertakings which had considerable experience of voluntary insurance. These organisations were given an important position in the administrative structure under the name "Approved Societies." Insured persons are encouraged to enrol themselves in Approved Societies of their own choice, and the societies are allowed to distribute to their own members any additional benefits, either in cash or services, or both, which their surpluses permit. Owing to the wide variations in the character and "riskiness" of the membership of different Approved Societies, there are very wide differences in the types and amounts of additional benefit which are provided.

The scheme is administered by the approved societies and a network of local insurance committees, under the general supervision of the Ministry of Health and the Department of Health for Scotland.

Weaknesses of the Health Insurance Scheme

In its present form the National Health Insurance scheme suffers from several grave defects:

(i) It is limited in scope and makes no provision for several categories of people who should be covered, e.g. small traders and other independent workers with low incomes, and employed workers earning between £250 and, say, £400 a year.

(ii) The cash benefits which it provides in case of sickness and disablement are far too low, and (unlike unemployment benefit) take no account of the family responsibilities of the insured worker.

(iii) The medical benefits only apply to insured persons themselves. The wives and children of insured persons are not covered by the panel doctor service.

(iv) The standard medical benefits now provided are very limited in scope. They should be widened to include, at least, consultant services and dental and ophthalmic treatment.

(v) The Approved Society system results in unjustifiable variations in the payment of additional benefit between one society and another.'

(vi) The administration of the scheme by the approved societies is unnecessarily complicated and, probably, uneconomic. There should be a careful re-examination of the advantages and disadvantages of the present arrangements, and of the case for either eliminating the approved societies or reorganising them on a regional basis.

(vii) The local insurance committees perform no functions which could not be more appropriately performed by the local public health authorities, which are usually responsible for all the other public medical services in their areas.

Unemployment Insurance

The Unemployment Insurance scheme started on an experimental basis in 1911, its scope being limited to a small group of industries. It was extended during the war and in 1920, since when it has covered about two-thirds of the working population insurable under the National Health Insurance scheme. It has had many vicissitudes since 1920, partly owing to the severe and prolonged unemployment of the post-war years, and partly to confused administration and the vagaries of politicians. In its present form the scheme is governed by the Unemployment Act, 1934 (Part I). A special scheme for agricultural workers was introduced in 1936.

Membership of the scheme is compulsory (with certain important exemptions and exceptions) on all manual workers and non-manual workers earning up to £250. Individual workers, employers and the State pay weekly premiums of equal amount into the insurance fund, out of which weekly cash benefits, on a fixed scale, are paid during unemployment. The possible duration of benefit is normally 26 weeks, but it may be a longer period up to 52 weeks, according to the number of weekly contributions paid. Both contributions and benefits are rather lower in the special scheme for agriculture than they are in the main scheme, on account of the low wages which are paid to agricultural workers. When unemployed workers have exhausted their right to unemployment benefit they must apply for further help, if they need it, to the Unemployment Assistance Board.

The scheme is administered centrally by the Ministry of Labour, but in a few industries the services of trade unions are used in local administration. An Unemployment Insurance Statutory Committee watches over the finances of the scheme, and makes recommendations to the Ministry of Labour concerning changes in rates of contributions and benefit, the use of surplus fund, and other problems.

The Limitations of the Existing Scheme

The Unemployment Act, 1934 (Part I), placed the unemployment insurance scheme on a sound financial basis and, by establishing the Unemployment Assistance Board as a second line of defence for those who exhaust their benefit rights, made doubly sure that it would not be overwhelmed by another severe depression. At the same time it provided for future changes and developments by setting up the Unemployment Insurance Statutory Committee to make recommendations to the Minister. There appears to be a strong *prima facie* case for the following developments:

(i) An extension of the compulsory scheme to employed workers earning between £250 and £400 a year. The Statutory Committee has already recommended this change.

(ii) A revision of the scale of benefit allowances in order to make them compare rather more favourably with the allowances of the Unemployment Assistance Board in family cases.

(iii) A revision of the rules governing the operation of the scheme which at present make it possible for particular groups of employers or workers, or both, to take unreasonable advantage of their tactical position in drawing on the insurance fund.

(iv) A re-examination of the financial position of the scheme with special reference to the debt of £105 million. Should the contributions of workers and employers continue to be burdened with this legacy of insolvency from the years before 1931?

The Contributory Pensions Scheme

The Widows', Orphans' and Old Age Contributory Pensions scheme was introduced in 1925 and became fully effective by January 1928. It was extended by an amending Act in 1929. The scheme now covers, with a few additions, roughly the same persons who are covered by the National Health Insurance scheme. It provides three kinds of pensions: (i) pensions for the widows of insured men, with temporary allowances for dependent children; (ii) allowances during childhood for the orphans of insured persons; and (iii) old age pensions for insured persons, and for the wives of insured men, between the ages of 65 and 70. At the age of 70 insured persons and the wives of insured men receive pensions under the Old Age Pensions Acts, 1908-24, but without any means test. The total number of beneficiaries at the end of 1935 was 1,844,000, of whom over 755,000 were widows (with over 300,000 children), about 17,000 were orphans, and over 770,000 were old age pensioners. The scheme is financed by contributions from employees and employers, with an annual grant from the Government which amounted to £14 million in 1936, but which is being increased by £1 million a year. A new scheme making it possible for small traders, professional, and other independent workers, earning up to £400 per annum (£250 per annum in the case of women), to insure voluntarily on very favourable terms, is being introduced by the present Government.

Some Difficulties

The contributory pensions scheme is one of the most popular of the British social services, but it is open to criticism at several points. While the pension of 10s. a week for a widow or an elderly person was never intended to cover all needs, a great many widows and elderly persons do, in fact, depend entirely upon it when they are not working. In these cases the pension is quite inadequate and a large number of pensioners have to apply for additional help from the public assistance authorities. The inadequacy of the old age pension is felt to be specially hard when an insured man reaches pensionable age, but his wife—a few years younger—has to wait until she is 65 before getting her pension. On the other hand, there are many widows and elderly persons in employment at good wages who have not the slightest need for a pension. There is a strong case for

increasing the amount of the old age pension by at least 5s. a week, conditional on the *retirement* of the recipient from any insurable occupation, and for allowing wives not more than five years younger than their husbands to draw their pension when their husbands reach the age of 65.

The Need for a Review of the Contributory Method

In view of the desirability of extending the social insurance schemes in various directions it is desirable that there should be a careful examination of the working of the contributory method of finance. This method is at present very popular and there is no reason to suppose that it cannot be made to yield considerably larger sums than it does to-day. But it is important not to press this method of finance to the point at which it becomes a real burden to industry and to low paid wage-earners. The possibility of modifying the existing flat-rate system of contributions should not be ignored, and the distribution of the total burden of social insurance contributions (including the employers' contributions to workmen's compensation insurance) between employers, employees and the State should be examined.

Workmen's Compensation

The Workmen's Compensation scheme is not a public social service, but it was established by law, and the State, through the Home Office, plays an important part in governing its operation. Compensation is now payable in respect of all persons, except non-manual workers earning more than £350 a year, working under a contract of service or apprenticeship in the event of death or personal injury by an accident arising out of and in the course of their employment. Compensation is also payable in the case of a long list of occupational diseases. The whole burden of compensation falls on the employers, who normally insure their risk either with a commercial insurance company or an employers' mutual indemnity association. Employers are not compelled to insure, except in the coal mining industry. Compensation for death takes the form of a lump sum, varying from £200 to £600, according to the worker's normal wages and responsibility for dependants. In the case of accidents weekly payments are made, varying with normal wages and family responsibility and also according to whether the incapacity is temporary or permanent. Under certain conditions weekly compensation payments may be commuted for a lump sum. Claims are settled by agreements between the parties or by judges of the county courts, acting as arbiters. Considerably reduced court fees are charged in workmen's compensation cases.

The present position of the workmen's compensation scheme in relation to the public social services is very anomalous, and the existing arrangements for settling claims are far from satisfactory. Moreover, the system of making lump sum payments frequently produces socially bad results. It is to be hoped that the Departmental Committee on the Workmen's Compensation Acts, which is now sitting, will make constructive suggestions for improving the present arrangements, and that it will also report on the possibility of making the workmen's compensation scheme part of the public social insurance system of the country.

THE SOCIAL ASSISTANCE SERVICES

The social assistance services are the residual social services. They provide for those whose resources are either exhausted or limited in amount. Unlike the social insurance services they are not restricted to the members of a contributory class, and the services which they render are conditioned by a test of needs or of available resources. Two of them—unemployment assistance and public assistance—may be described as basic relief services, discretionary in their application and intended between them to cover the needs of all destitute citizens irrespective of age or status. The non-contributory pensions scheme, on the other hand, is based upon a different conception, nearer to that of social insurance, which established a legal right to a fixed weekly payment on proof of status.

Non-Contributory Old Age Pensions

The non-contributory old age pensions scheme was introduced in 1908 and has since been extended by several Acts of Parliament, the last having been passed in 1924. It provides a full pension of 10s. 0d. a week to all persons over 70 (in the case of blind persons over 50*) who satisfy a test of nationality, residence and means. Reduced pensions are payable in the case of persons whose means are above the limit for a full pension but below a maximum limit. In 1926 there were over a million beneficiaries under this scheme, but the numbers had dropped to 662,500 by 1935-6 owing to the increasing number of unconditional old age pensions granted to persons over 70 who were provided with pensions under the contributory scheme. As more and more contributory pensioners reach the age of 70 the number of non-contributory old age pensioners will continue to decline. Eventually the scheme will in practice be limited to those who are outside the contributory insurance class, and will play a relatively small part in British social service provision. The cost of old age pensions paid under the contributory scheme, on the other hand, may be expected to account for a steadily increasing share of the total cost of the public social services.

The present scheme is administered by the Commissioners of Customs and Excise, who make the necessary investigations of the circumstances of applicants through their local pensions officers ; local pensions committees, appointed by the local authorities, which hear and determine applications ; and the Minister of Health, who hears appeals. The Post Office also takes part by making the actual payments.

The great majority of pensioners appear to get along on their pension, supplemented by earnings, private means of family help, but a significant minority find it necessary to appeal for extra help from the public assistance authorities. Separate figures are not available for the over 70 class, but over 200,000 old age pensioners of all kinds of 65 and over were receiving public assistance in England and Wales in January 1936.

Unemployment Assistance

The unemployment assistance service is the most recent public social service. The Unemployment Assistance Board, which was set up under the Unemployment Act, 1934, only began operations in January 1935. It was charged with the duty of providing for the

*Pensions for the blind are shortly to become payable at the age of 40.

household needs and general welfare of the able-bodied unemployed outside the insurance scheme. In January 1935, it took over the responsibility for the insured unemployed, who had previously been receiving transitional payments. Thus it replaced the temporary arrangements, which had been in operation since the Economy Act of October 1931, whereby insured persons who had exhausted their right to unemployment benefit were given assistance out of national funds, subject to a locally administered "Means Test." On April 1st, 1937, it became responsible for meeting the needs of over a hundred thousand able-bodied unemployed persons who were previously in receipt of local public assistance. Thus a centralised service, with a national scale of allowances, and a standardised household needs test, became responsible for practically the whole field of unemployment relief.

The new service encountered serious difficulties during the first few weeks of its work. As soon as the effects of the first determinations of need made under the new arrangements came to be known there was a public outcry and a parliamentary crisis. As a result a Standstill Order was passed, under which the assessment of need was to continue on the lines previously followed by the local public assistance committees under the transitional payments scheme, and the new scheme was only to be enforced where applicants would gain by it. This extraordinary dual arrangement is still partly in force, but the introduction, in November 1936, of a new and rather more generous scale of allowances and regulations has in practice limited its operations to a relatively small number of cases where the earlier determinations were exceptionally high. These cases are now being "liquidated" gradually, but it is not expected that the cuts necessary to bring them into line with the new standards of assistance will be completed until April 1938.

During the year 1935 the average number of applicants for assistance was about 750,000, but the number has now fallen to less than 600,000. More than half of unemployment assistance cases have been out of work for over 12 months, and a large proportion of them are concentrated in depressed industrial areas. In the rest of Great Britain all save a small proportion of the unemployed are carried by the unemployment insurance scheme.

The Unemployment Assistance Board itself consists of six members appointed for a term of years. It is independent of the Ministry of Labour and has its own headquarters and staff, but the receipt of new applications and the actual payment of allowances is undertaken by the Ministry of Labour's employment exchanges. Certain other services are also prepared by the Claims and Record Office of the Ministry at Kew. The actual determination of need is undertaken by Area Officers, under the general supervision of District Officers, in conformity with the scale of allowances issued by the Board and approved by Parliament, and with the Board's own views expressed in instructions and memoranda. But it is estimated that discretionary assessments to meet special circumstances are made in over a fifth of the cases dealt with at one time. A system of local advisory committees was established in 1936 in order to bring the Board into touch with local opinion and to advise the Board on such matters as local rent allowances and the gradual elimination of determinations made under the Standstill Order. There is also a system of Appeals Tribunals to which aggrieved applicants may have recourse, but the volume of appeals has so far been relatively small.

The Unemployment Assistance Board may be congratulated on having created a great national service for the assistance of the able-bodied unemployed. It has eliminated most of the wide variations in local treatment which were a serious weakness of the transitional payments scheme, and it has gone far towards establishing an acceptable standard of assistance for those who have been out of work for long periods. The service suffers, however, from several weaknesses :

(i) It is not comprehensive : an unemployed man normally in receipt of more than £250 a year would have to go to a public assistance committee if he needed help ;

(ii) The determination of the scope of the service by the condition that an applicant must be capable of and available for work is unsatisfactory and leads to administrative confusion ;

(iii) There is a good deal of overlapping of service between the Unemployment Assistance Board and the Local Public Assistance Authorities in particular cases ;

(iv) Although certain discretionary powers are expressly conferred on Area Officers, the use of discretion tends to be mechanised by an elaborate code of rules ;

(v) The scale of allowances for household with no child or one child compares favourably with the B M A minimum standards. For households with two or more children the comparison is unfavourable, though the application of the scale in particular cases is often modified by supplementary grants for special purposes.

(vi) The constitutional position of the Board in relation to the Minister of Labour and to Parliament is anomalous.

Public Assistance

The poor relief system is the oldest public social service and it remains one of the most important services in spite of the growth of other more specialised forms of social provision. It is essentially a "last resort" service to which few people have recourse until they have exhausted all reasonable means of meeting their needs in other ways. It is a "salvage" service in the sense that it provides for those who are not only unable to provide for their own needs but who cannot obtain all the help they need from the other public social services.

Poor relief is now administered by the public assistance committees of the county and county borough councils in England and Wales, and by the county and large burgh councils in Scotland. It is given in two principal forms: (i) indoor relief in an institution; and (ii) outdoor relief in the applicant's own home.

Institutional relief is provided in many different kinds of institutions ranging from the general workhouse or "Poor Law Institution," with its infirmary and casual wards, to hospitals, clinics, district asylums, children's homes, homes for aged people and homes

for the mentally disordered and defective. Many of these institutions have been transferred from the public assistance committees to other committees of the county and county borough councils under the Local Government Act, 1929, but even in such cases the public assistance committees continue to use them for destitute persons under their care. About 180,000 persons (including 11,000 casuals), or 13 per cent of the persons in receipt of poor relief in England and Wales were relieved in institutions of one kind or another in January 1936. About half of these persons were suffering from some physical or mental infirmity.

Outdoor or domiciliary relief usually takes the form of a cash allowance, based on an assessment of household need. It may, however, take the form of relief in "kind," as, for example, in cases of sudden or urgent necessity or where some special need, such as extra nourishment, medical or surgical aids, is present. Poor relief in the form of medical services is provided by the district medical officer of the public assistance authority. Of the 1,207,000 persons (including dependants) who were in receipt of domiciliary relief in January 1936, about 330,000 were relieved "on account of unemployment," and some 420,000 "on account of sickness, accident or bodily infirmity." The great majority of the remainder were widows and wives separated from husbands, old people needing to have their pensions supplemented, and dependent children. Since April 1, 1937, over a hundred thousand persons, relieved "on account of unemployment," together with their dependants, have been transferred from the public assistance authorities to the Unemployment Assistance Board.

The Future of the Social Assistance Services

There are at present three social assistance services, but it is very doubtful whether there is any justification for more than one. As the contributory class of old age pensioners increases the non-contributory class receiving pensions is diminishing. Nevertheless, many of these pensioners have to have their pensions supplemented by public assistance. Would they not be more conveniently served by a comprehensive public assistance service covering them all from the beginning, without necessarily changing the terms on which they receive their pensions? An extension of unemployment insurance would reduce the number of persons needing unemployment assistance. Would not this residual class also be more conveniently and satisfactorily served by a comprehensive public assistance service? These changes may not be immediately practicable, but we believe that they ought to be envisaged as part of a long-term plan of social service development. Meanwhile, it is important that a number of problems common to the existing unemployment assistance and public assistance services—such as the form of needs tests to be applied in different circumstances, scales of allowances, "less eligibility," and the treatment of difficult cases and the relation of the assistance services to the constructive services —should be carefully examined.

THE SIGNIFICANCE OF THE PUBLIC SOCIAL SERVICES

Four distinct elements are traceable in the British public social services: (i) the charitable urge to help out people in suffering or distress; (ii) the social motive of setting minimum standards of education, hygiene, medical treatment and so on in the interests of

the community; (iii) the democratic tendency towards reducing inequalities of status and opportunity; and (iv) the "self-help" philosophy of encouraging or compelling people, by schemes of organised thrift, to protect themselves against risks to which they are exposed. These four elements have been visible in some form at every stage in the development of the social services, although their relative importance has changed from time to time.

The Social Services and the Individual

From the viewpoint of the individual there is an important distinction between the social insurance services which compel and assist him to make some provision against specific contingencies, such as unemployment, sickness, or old age, and the rest of the social services. In the former services the benefits are formalised and are administered on an impersonal routine basis. There are no inquiries into personal or family circumstances, and the way the benefits are used remains the responsibility of the individual.

In the case of the other social services, the community has not only to make the service available, but to take some responsibility for the manner of its use, whether in education, the welfare of the blind, or the assistance of persons who have been out of work for long periods. Unlike the social insurances, these services involve individual treatment, and when they are provided on "mass-production" lines (as in very large elementary school classes, and unemployment assistance in depressed areas) they cannot be wholly satisfactory.

The popularity of the contributory method is a remarkable feature of the public social services in their present phase. Wage-earners want the benefit of as many as possible of the comforts and specialised services enjoyed by the well-to-do, and they want them not as "charity," but as a right. Means tests and systems of cost recovery, on the other hand, are unpopular because they usually expose the beneficiary to some sort of enquiry into his personal circumstances. But the popularity or otherwise of particular forms of public social services at their present stage of development should not be allowed to obscure the fact that the needs which social services fill, or should fill, are constantly changing, and therefore new developments and adjustments are continually needed.

Economic Repercussions of the Social Services.

A detailed investigation of the economic repercussions of the public social services is outside the scope of this report, but it must not be forgotten that these repercussions are important. The public social services represent an elaborate mechanism for the redistribution of income, both as between different classes in society and as between one section and another of the beneficiaries themselves. They also make a significant contribution to the accumulation of public savings under the control of the Treasury.

On the other hand, the social services are so intimately bound up with the economic life of the community that every change in price and wage levels, or in habits of life, must have repercussions on them. This is particularly marked in the clash between low wages and rates of insurance benefit and social assistance, and in the difficulty of dealing with wide differences in the economic circumstances of different localities.

Needs and Capacity to Pay

The contribution of beneficiaries to the finances of the public social services raises many problems. The adjustment of service to need, and contribution to capacity to pay, is only possible within certain limits. Free services are expensive, and in some cases might result in abuses. Means tests and cost recovery schemes, unless they are carefully devised, tend to undermine personal responsibility at the same time as they affirm its importance. Flat rate contributions fall more heavily on lower paid workers than on those who are well paid. But we have not exhausted the possibilities of improving the present arrangements. The form of particular means test and cost recovery systems might be modified and insurance contributions might be broadly differentiated according to income.

The Problem of the Family

The failure of the wage-system to take any account of the disparities in family responsibilities is one of the greatest obstacles to further extensions of social provision. Poorly paid workers with large families cannot afford anything more than moderate contributions, fees, rents or other charges. On the other hand, they cannot be served adequately when they fall out of employment without making their position more favourable than it is when they are working. This difficulty might be overcome by an upward adjustment of wages in low paid occupations, but there are many difficulties in the way of the general application of such a policy. Another expedient would be to introduce the principle of family allowances into the general wage and salary system. The cost of paying adequate family allowances in respect of every child out of the proceeds of taxation would be very great, but a modified scheme involving the payment of 5s. a week in respect of each child after the third in each family would cost rather less than £7 million a year. In the meantime more might be done through the existing social service system to readjust the burden.

The Future of the Public Social Services

The wage-earning and small salary-earning classes as a whole have shown by the scale of their voluntary provision that they want and can afford more comprehensive schemes of social security. The questions arise, therefore, what are the limits of possible and desirable extensions and what are the priorities between them. Many of the most commonly demanded extensions and improvements have already been indicated, but we also attach great importance to the emergence of a broad strategy of social service development which can take the place of piecemeal improvisations.

While it would be premature to suggest any detailed order of priorities, we believe that the first consideration of social service policy should be the progressive reduction in size of the public assistance and unemployment assistance classes by developing the constructive community services and the social insurances. Such a policy must, however, be brought into co-ordination with national economic policy as a whole. The finances of

the social services—and of unemployment insurance and assistance in particular—are directly affected by government policy in relation to monetary questions, tariffs, public works and national development.

It is also necessary to re-examine the forms of democratic control and public accountability in the social services and to explore the possibility of reconstructing the existing units and areas of administration in a more satisfactory system.

Relations with the Voluntary Social Services

Some reference is made in every section of this Report to the part played by voluntary bodies in the administration of the public social services. These bodies cover an extraordinarily wide range from the great teaching hospitals and friendly societies to small local charities and welfare societies. Their relations with public authorities range from complete independence to forming an integral part of the administrative structure of particular services. It is not possible to examine these relationships closely in this Report or even to discuss the justification of different forms of voluntary action in particular spheres, but it may be said that voluntary action can usually play an invaluable part in social administration where the services concerned are of an experimental or controversial nature at the time, where they demand exceptional freedom of opinion and experiment, for teaching or research purposes, where there is a need for giving individual attention to intimate personal problems, and where there is no need to ask for financial support from public funds. We hope that the place of the voluntary social services in our system of public administration will receive very careful consideration when the public social services come to be authoritatively examined, as we hope they will, by a competent official body.

The Personnel of Social Service Administration

The administration of the public social services involves the employment of a vast army of public servants and others who serve in a professional capacity. In many cases the quality of this personnel is of the highest order, but it cannot be said that the existing arrangements for the recruitment and training of officers for some forms of social service work is entirely satisfactory. In particular, there is a real need for a comprehensive course of training in social work for those engaged in home visitation of all kinds under the constructive community services and the social assistance services. The importance of training has already been recognised by some public authorities and also by some voluntary organisations with a salaried personnel. It is to be hoped that the practice of insisting on an adequate preparation for social work will spread throughout the administration of all the social services, both statutory and voluntary.

IMMEDIATE NEEDS

After a period of intensive growth the social services are settling down into the life of the nation. They are at present popular, and each taken by itself runs fairly smoothly. But it is an illusion to suppose that schemes and provisions which are acceptable and even popular now will continue to be so unless they are adapted to meet changing

needs. This is primarily a responsibility of social service specialists and administrators. Our first and essential proposal, therefore, is that all those interested in the social services should now take stock of their assumptions and ideas on the subject, and endeavour to work out an approach adapted to present and future, rather than to past, conditions. Above all, those concerned with particular aspects or subjects should start thinking intensively about the place of their own specialisms in the whole field.

We have examined the case for a thoroughgoing official investigation by a Royal Commission on the Public Social Services. It is now nearly thirty years since the last comprehensive inquiry into public social provision in Great Britain. Meanwhile, the whole scale and character of this provision has been changed and a whole host of new problems have come into existence. It would seem, therefore, that a thorough examination of the principles on which the public social services are based and of their results and inter-relations, by an authoritative body is overdue. But we are by no means certain that the Royal Commission technique would be altogether satisfactory for dealing with the enormous range of subject matter which would have to be considered. It would be very difficult to frame terms of reference which were both adequate and practical. It would not be easy to find suitable Commissioners who would command the respect of those engaged in, or interested in, every branch of the public social services. Above all, investigation would necessarily take a very long time, during which important changes might have taken place in the services under review. It appears to us that some less cumbersome instrument is needed to clarify immediate issues and for the solution of urgently pressing problems.

The Case for a Permanent Statutory Committee

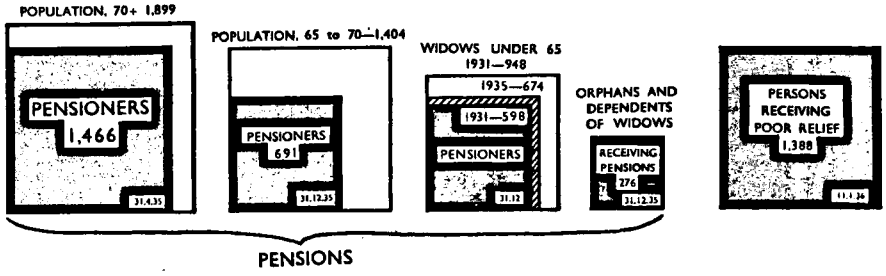
The need for some method of reviewing the public social services as a whole, and of recommending necessary changes in their structure or their method of operation, might be met by appointing a separate Minister or a separate Cabinet Committee for the public social services. But such appointments would add to, rather than relieve, the congestion at the centre which is largely responsible for the long-term aspects of the problem being neglected at present. A much more satisfactory method would be to establish a Social Services Statutory Committee, along the lines of the Unemployment Insurance Statutory Committee, established under the Unemployment Act, 1934. Such a body would not be responsible for administering any social service funds, but it would require to have authority to make thorough enquiries concerning their administration. It would have to be under obligation to report to the Ministers concerned, and the Ministers would have to be obliged to consider its recommendations. Its basic duties would be largely related to the finance of the social services, but it should be free to give its view on the general working, efficiency, and benefits or defects of the services. It should, in fact, act as an advisory General Headquarters Staff for planning and guiding social policy.

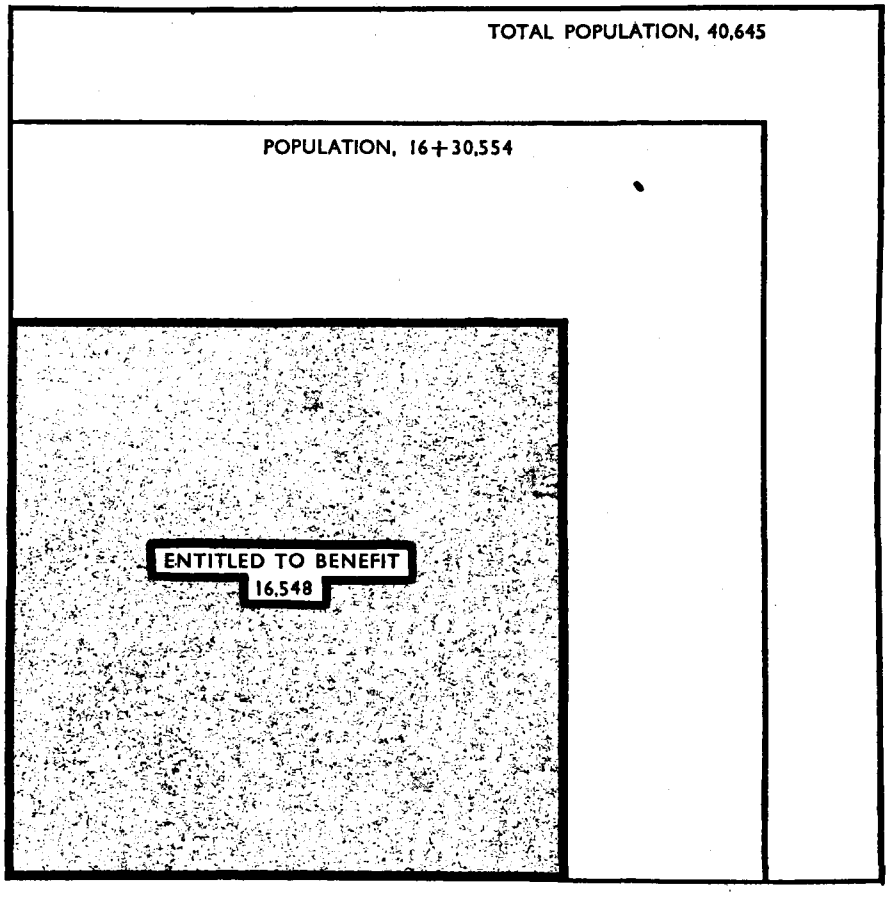
We are convinced that the establishment of such a body would greatly assist Parliament and public opinion in keeping intelligent and progressive control over a complex of vitally important services which are already so unwieldy that they are virtually uncontrollable without some such assistance.

EXTENT AND COVERAGE OF

ENGLAND AND WALES—1935

Numbers in





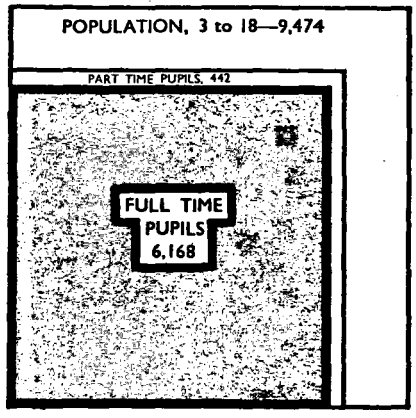
HEALTH INSURANCE

THE PUBLIC SOCIAL SERVICES

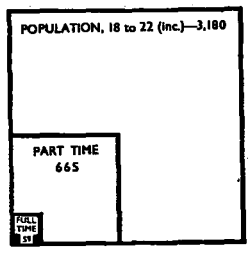
(unless otherwise stated)

thousands

EDUCATION



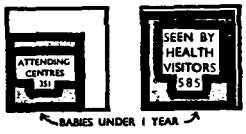
HIGHER EDUCATION



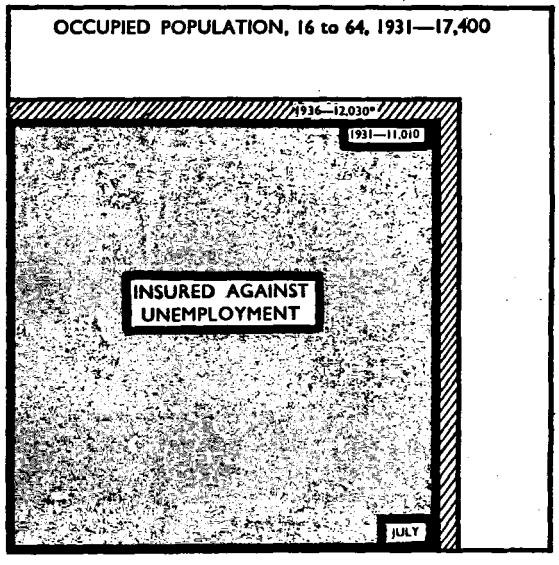
MATERNITY AND CHILD WELFARE

TOTAL BIRTHS–624–TOTAL BIRTHS

LIVE BIRTHS — 599 — LIVE BIRTHS



LUNACY AND MENTAL DEFICIENCY



UNEMPLOYMENT INSURANCE

* Number of insured Agricultural Workers in England and Wales estimated at 510,000 (included above).

Tuberculosis White square = number of cases on registers of Medical Officers of Health.

I. WHAT ARE THE PUBLIC SOCIAL SERVICES?

Difficulties of Definition—Three Types of Public Social Services—Social Service Expenditure—The Importance of the Public Social Services.

Difficulties of Definition

The first difficulty in beginning a survey of the public social services is to define them. There is no official definition of what constitutes a public social service, and there is no general agreement among experts in this field as to which services should be included and which should be left out. On a wide view, all services provided or financed by public authorities for the purpose of enhancing the social welfare of the population might be regarded as public social services. But this would involve the inclusion of a number of services such as sanitation, sewage disposal, street lighting, water supply, and, probably, the provision of roads and public utilities, which are not generally thought of as social services because of their impersonal character. A narrower view of the public social services limits the use of the term to those services, provided or financed by public authorities, which have as their object the enhancement of the personal welfare of individual citizens in the community. This view excludes the impersonal environmental services provided by public authorities, but includes a wide range of personal services, affecting every stage in the life of the individual citizen, from the provision of ante-natal care to the payment of old age pensions. It is this view which we have decided to adopt in preparing the present survey.

In the absence of any official definition or classification of the public social services it is extremely difficult to obtain a satisfactory picture of what these services are, who they affect, and how much they cost. The nearest approach to a complete statistical picture is the annual Treasury White Paper showing the expenditure incurred both nationally and locally under certain Acts of Parliament on what was originally called "direct beneficiary assistance." This return, known as the "Drage" Return, has been issued since 1920.* It covers all the services maintained—wholly or in part—out of public funds provided under the Unemployment Insurance Acts, National Health Insurance Acts, Widows', Orphans' and Old Age Contributory Pensions Acts, Old Age Pensions Acts, War Pensions Acts and Ministry of Pensions Act, Education Acts, Acts relating to Approved Schools, Public Health Acts (so far as they relate to hospitals, the treatment of disease, and maternity and child welfare services), Housing Acts, Acts relating to the Relief of the Poor, Lunacy and Mental Treatment Acts, and Mental Deficiency Acts.

The War Pensions Acts and the Ministry of Pensions Act make provision for special circumstances arising out of the Great War, and as they are quite distinct from the main body of social service legislation in this country, will not be dealt with in this Report. The Housing Acts will also be excluded, save where the management of house

* The Public Social Services (Cmd. 5310, etc.)

property by public authorities and the granting of rent rebates are concerned, on the general grounds that slum clearance and the provision of new houses under these Acts are not, strictly speaking, personal services. On the other hand, consideration will be given to the services of the Ministry of Labour's employment exchanges and junior instruction centres, the welfare of the blind, the provision of State scholarships and a number of other public social services not included in the "Drage" return.

Three Types of Public Social Services

The miscellaneous group of services which we have decided, for the purposes of this Report, to include under the generic name Public Social Services are of three main types. There are, in the first place, what may be described as constructive community services. These services include education, public health and medical services, and the work of the Ministry of Labour in providing employment exchanges, training centres and schemes to facilitate industrial transference. They involve the provision by the State or by local government authorities of specialised institutions and professional skill for common use—schools and teachers; health visitors, doctors, sanatoria and hospitals; employment officers and employment exchanges. In every case the State or the local authority has entered a field formerly occupied exclusively by private business enterprise or voluntary effort in order to make some constructive service available for the community as a whole.

In the second place, there are the social insurance services. These services—which include unemployment and health insurance and the widows', orphans' and old age contributory pensions scheme—may be regarded as forms of compulsory self-help, organised by the State and subsidised by the State and by employers of labour. In each case wage-earners are compelled to make regular contributions to a fund to which their employers and the State contribute and out of which they receive specified benefits in certain contingencies. These schemes are probably the most popular features of our present system of social services. They combine the psychological advantages of individual thrift with the system and comprehensiveness made possible by State organisation. Moreover, they provide for the great majority of wage-earners and their families a considerable measure of social security without any question of an investigation of personal circumstances arising. Benefits are received as contractual rights in respect of contributions paid. Although it is not strictly a public social service, and does not impose any direct charge either upon the State or upon the worker, the British system of workmen's compensation should, perhaps, be associated with the social insurances in this survey. The workmen's compensation scheme, like the social insurances, is based on employment, and the employer, upon whom the financial burden is laid, normally insures (though he is not compelled to do so) against his contingent liability. Moreover, the State does in effect make a small contribution towards the cost of administration in the form of a reduction of County Court fees in workmen's compensation cases, and the Home Office is responsible for the administration of the Acts.

Lastly, there is a group of social assistance services. They include non-contributory old age pensions, the allowances of the Unemployment Assistance Board, and the

manifold services of the local public assistance authorities. In each case these services are financed wholly out of public funds (except for the comparatively small amounts recovered from applicants and relatives) and assistance is generally given only after there has been some kind of enquiry into the financial circumstances of the applicant.

To these three groups of social services two other groups might be added in order to complete the picture of public social provision, although, with one exception, they will not receive further consideration in this Report. In the first place, there are the collective environmental services—drainage, sewerage, slum clearance, town and country planning, water supply, and so on. In the second place, there are what may be described as subsidised consumption services. This group would include subsidised housing and the recent Milk in Schools Scheme. In these latter cases public authorities help to bridge, by means of subsidies, the gap between current economic prices and prices which the poorer sections of the community can afford to pay for certain necessities of life.

EXPENDITURE ON CERTAIN PUBLIC SOCIAL SERVICES IN GREAT BRITAIN
YEAR ENDING MARCH 31, 1935

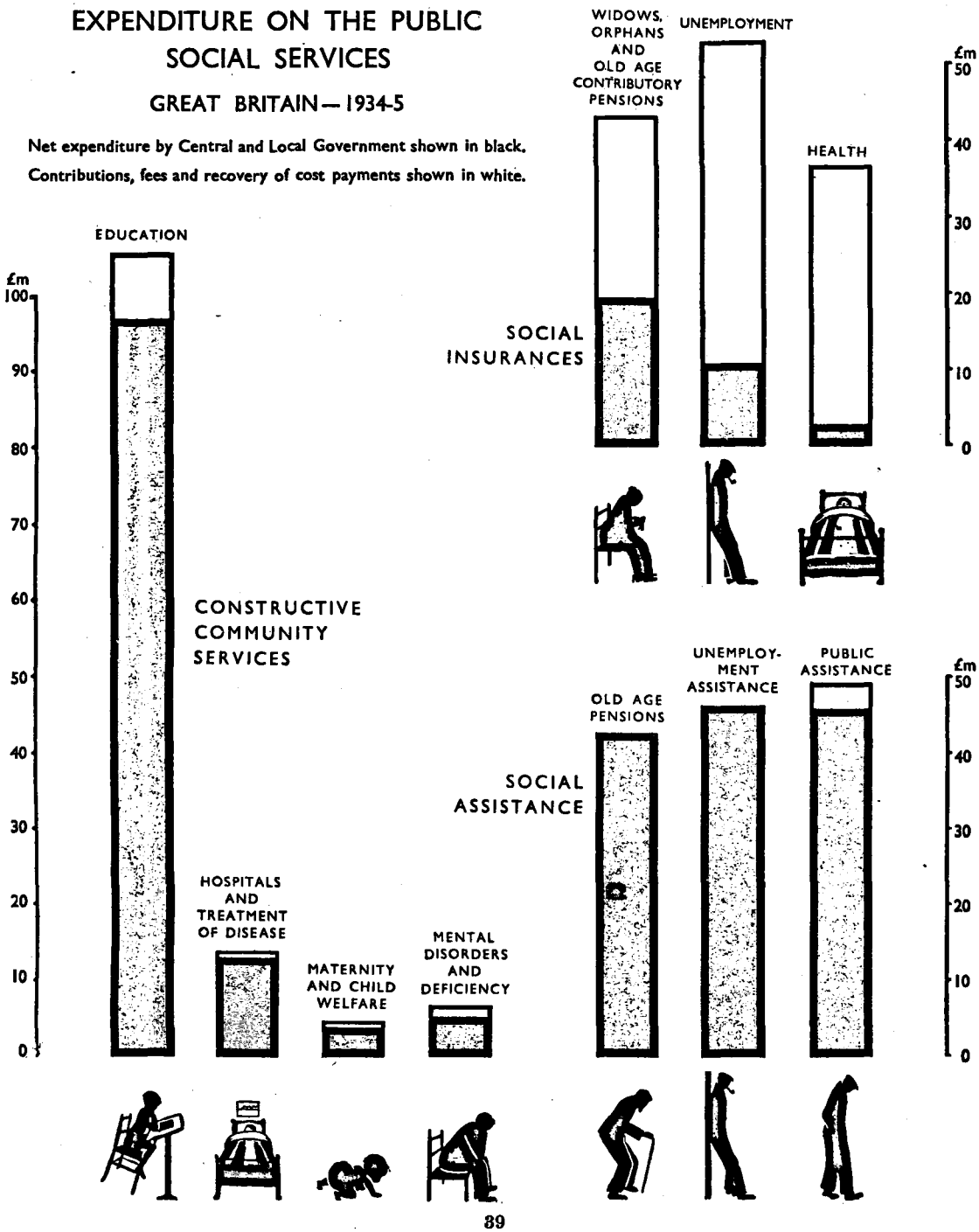
	Total expenditure	Income from fees, charges, contributions, etc.	Net expenditure falling on public funds
	£ (000)	£ (000)	£ (000)
Constructive Community Services—			
Education*	105,687	8,650	97,037
Approved Schools	621	69	552
Public Medical Services, Hospitals and Treatment of Disease	13,831	809	13,022
Maternity and Child Welfare	3,419	473	2,946
Lunacy and Mental Deficiency Services	6,574	1,443	5,131
TOTAL	£130,132	£11,444	£118,688
Social Insurances—			
Unemployment Insurance	52,913	42,127	10,786
Health Insurance	36,693	33,840	2,853
Widows', Orphans' and Old Age Contributory Pensions	43,226	23,636	19,590
TOTAL	£132,832	£99,603	£33,229
Social Assistance—			
Old Age Pensions (non-contributory)	42,414	—	42,414
Unemployment Assistance†	46,209	—	46,209
Public Assistance	49,179	3,391	45,788
TOTAL	£137,802	£3,391	£134,411
GRAND TOTAL	£400,766	£114,438	£286,328

* Including school medical service, meals for necessitous school children, and maintenance allowances.
† Transitional payments from April 1, 1934 to January 7, 1935; unemployment allowances from January 7 to March 31, 1935.

EXPENDITURE ON THE PUBLIC SOCIAL SERVICES

GREAT BRITAIN—1934-5

Net expenditure by Central and Local Government shown in black. Contributions, fees and recovery of cost payments shown in white.



Social Service Expenditure

As exact figures are not available, it is impossible to make a detailed analysis of the expenditure on each of the three main groups of public social services. Roughly speaking, however, it may be said that the social assistance services accounted for rather more than a third of the gross annual expenditure on the public social services in 1934, and that the social insurance services and the constructive community services each accounted for rather less than a third. But the social insurances account for less than one-eighth of the net public expenditure on the social services, owing to the large amount paid in contributions by members of the insurance schemes and their employers. The table on previous page shows the expenditure on the services included in the "Drage" return for the year ended March 31, 1935.

The total amount of expenditure on the three types of public social services which are included in the table amounted to £400,766,000, or £8 17s. per head of the population of Great Britain. This was equivalent to about one-tenth of the aggregate national income from all sources in 1934. Of the £400 millions, some £286 millions, or 71 per cent, was provided by the central government and the local authorities out of taxes and rates. This represented between a third and a quarter of the aggregate expenditure of all government authorities—central and local— in Great Britain during the same year. In addition, about one and a quarter millions were expended on the welfare of the blind, two millions on University grants, and over a million on the employment services (training, transference, industrial courts, etc.). The cost of War Pensions in 1934-35 was £41 millions, the whole of which was provided by the State. The cost of State-aided slum clearance and housing was £46 millions, but of this amount £27 millions was paid in rents and mortgage interest, leaving only £19 millions to be found by the ratepayer and taxpayer. The expenditure on workmen's compensation claims in 1935 amounted to about £11 millions, the whole of which sum was paid—directly or indirectly—by the employers concerned.

The Importance of the Public Social Services

As many people must have benefited in several different ways, it is difficult to make an estimate of the total number of persons affected during a year by one or other of the social services provided or assisted by public authorities. During 1935 about eight millions received public education; health insurance benefit was paid to about eight millions, and unemployment insurance benefit to about ten millions, including dependents. Nearly two and a half millions were receiving old age pensions, and widows and their dependants numbered just over a million. Over three million people, including dependants, received either unemployment allowances or public assistance. Making a generous allowance for duplication, it is probable that there are between twenty and twenty-five million beneficiaries during the course of a single year—a group equal to about half the total population.

The importance of the public social services may also be judged by a consideration of the impact of these services upon an ordinary working-class family. A young wage-earner and his wife starting off in a home of their own (possibly subsidised under one

of the Housing Acts) are likely to be touched at a score of points by different public social services in the course of their life together. Before their first child is born there will probably be visits by the wife to an ante-natal clinic at a child welfare centre or maternity hospital. The birth may well take place in a municipal maternity home or hospital, or the mother may be delivered at home by a municipal midwife. In any case the baby will certainly be visited by a health visitor employed by the local authority. There will also be visits to a child welfare centre to have the baby weighed and examined and to get milk and other foods at reduced prices. At the age of five the child will be old enough to attend an ordinary elementary school, where it will not only be educated, but also medically examined and treated for minor ailments by a school doctor. Meanwhile, the ill-health or unemployment of the father may involve claims for health and unemployment insurance benefits and, possibly, a claim for unemployment assistance or poor relief. An industrial accident or disease would give rise to a claim for workmen's compensation, and, in the case of the father's death, the widow would have a right to a pension for herself and an allowance for her young children. On the other hand, if both of them live, they may look forward to a public pension at the age of 65. This is not an abnormal example. It is typical of millions of working-class families in Great Britain to-day. It shows how continuously and intimately the public services of the State are nowadays bound up with the family life of ordinary citizens.

II. THE DEVELOPMENT OF THE PUBLIC SOCIAL SERVICES

The General Trend—The Public Social Services in the Nineteenth Century: The Poor Law; Education; Public Health; The Treatment of Lunacy; Workmen's Compensation—The Public Social Services, 1900-1914—The Effects of the War of 1914-18—The Post-War Period—Trends in Social Provision—Trends in Social Administration—The Growth of Social Service Expenditure: Expenditure before 1900; Aggregate Expenditure since 1900; Expenditure on Particular Services since 1900; Social Service Expenditure and Public Finance; The Transfer from "Rich" to "Poor."

THE GENERAL TREND

With two or three exceptions, the public social services are of comparatively recent growth. Fifty years ago elementary education, the Poor Law, and a limited amount of hospital provision for sufferers from infectious diseases and lunacy were the only forms of public provision for the personal needs of individual citizens. The rest of the public social services are largely the product of the last thirty years. Of the services considered in the last chapter, the provision of meals for necessitous school children, most of the medical services, the blind welfare services, non-contributory old age pensions, the three great social insurance schemes, and the unemployment assistance service have all been established since 1906.

During the greater part of the nineteenth century the prevailing social philosophy was hostile to the assumption by the State of any responsibility for the personal affairs of individual citizens who had not fallen into destitution. It is true that the State accepted some responsibility for the provision of elementary education as early as 1833 and that it recognised its responsibility for providing certain basic environmental and protective services in a long series of Public Health and Factory Acts passed during the course of the century. But it was still widely held less than forty years ago that for the State to make any direct provision for the welfare of its citizens, except through the Poor Law, was to undermine personal independence and to impair the mainspring of economic effort in the community. Apart from the provision of elementary schooling for his children and of hospital treatment in the case of an illness which was dangerous to the community at large, the ordinary citizen was expected to make every provision out of his earnings for the health and maintenance of himself and his family, through all the ups-and-downs of life. Charitable societies, of which there were many, could act as a buffer for some deserving cases, but the State could not itself provide for the poor except in the last emergency and under deterrent conditions.

The strict precepts of *laissez-faire* endured for many decades, but in the end they began to break down under the impact of new forces and new philosophies. The great industrial depressions of the 'eighties and 'nineties seriously disturbed the complacency

of those who believed that the social evils of the times would disappear with the inevitable march of economic progress. The recently enfranchised working class clamoured for a greater share of the attention of the legislature. The propaganda of the Fabians and the investigations of Charles Booth and others not only awakened a new social conscience, but created a new attitude of mind towards the study of the problems of contemporary society. Accepted social dogmas were critically examined, and the problems of old age, unemployment, ill-health and other similar questions were studied on the basis of a careful analysis of the available social data. It came to be recognised that unless the State was prepared to undertake much wider responsibilities for the individual welfare of its citizens, there was little hope of dealing with the poverty problem and the complex of social evils associated with it. It remained for the Parliaments of the new century, responding to the pressure of a wider and more vitally interested electorate, to embark on a revolutionary enlargement of the sphere of government activity.

THE PUBLIC SOCIAL SERVICES IN THE NINETEENTH CENTURY

The Poor Law

When the nineteenth century opened there was only one public social service in operation throughout Great Britain, but this service—the Poor Law—had already functioned for over two hundred years. Moreover, it was a service comprehending within its scope many forms of social provision which, in more recent times, have been made under specialised schemes. Poor relief was given to the sick, the halt and the blind; to widows and the elderly who had no family in a position to maintain them. Orphan children and the children of the destitute were provided with homes and employment; and the destitute but able-bodied unemployed were either given relief or set to work.

As a public social service the relief of the poor dates from the sixteenth century. In Scotland the first Poor Law Act was passed in 1579, and in England and Wales a series of Acts relating to the relief of the poor was consolidated in the great Poor Law Acts of 1601. These two Acts gave the Poor Laws of Scotland and England and Wales respectively a distinctive shape which endured for more than two centuries with very little change. Throughout the seventeenth and eighteenth centuries the Poor Law was administered, with varying efficiency and periodical changes of emphasis, from one form of provision to another, by the Justices of the Peace and overseers. But the Napoleonic Wars and their aftermath of poverty and unemployment imposed a very severe strain on the system, especially in certain parts of England and Wales where an indulgent administration of relief served important local interests. As a result of Parliamentary pressure, a Commission was set up in 1832 to investigate the administration of poor relief in England and Wales, and in the course of a few months it produced the famous Report on the basis of which the Poor Law Amendment Act, 1834, was framed. The Act dispensed with the services of the Justices of the Peace as the controllers of Poor Law administration. It created in their place Boards of Guardians, responsible for the administration of relief in groups or "Unions" of parishes, subject to the over-riding authority, on questions of

higher policy, of three Poor Law Commissioners in London. But the most important change introduced under the new regime was a change in relief policy, designed to re-establish the independence of the destitute labourer. Outdoor relief was restricted, and the principle was introduced that no relief should be granted to anyone except under conditions which were "less eligible" than those in which the lowest-paid working-class family in the district normally lived. In order to give practical application to this principle the "workhouse test" was introduced, and relief was withheld from all able-bodied persons who refused the "offer of the house." Similar changes were introduced in the Scottish system in 1845, when Parochial Boards were set up to administer the Poor Law in each parish, under the central control of a Board of Supervision.

The social consequences of these changes were far-reaching. The administration of the new Poor Law was sounder and much less wasteful than the old system, but it was unnecessarily harsh and repressive in its attempt to prevent malingering and abuse. It earned the bitter hatred of the working-class population and their sympathisers in other sections of society, and thus destroyed the possibility of its evolution into the great and comprehensive public social service which it might otherwise have become. The grimmer features of the reformed Poor Law were considerably modified during the course of the century, but the "stigma" remained, and social reformers sought other foundations upon which to build an adequate system of collective provision for social welfare.

Education

Statutory provision for education has been made in Scotland since the seventeenth century. As early as 1696 an Act was passed under which a system of parish schools, partly supported by an assessment upon freeholders, was established, and by the end of the eighteenth century burgh schools and academies had been provided by the municipal authorities in most of the larger towns. In England and Wales, on the other hand, the provision of education was entirely in the hands of private individuals and voluntary bodies until less than sixty years ago. The first State grant for education in England and Wales was made in 1833, when the sum of £20,000 was divided between the two great voluntary school societies* for the purpose of building new schools. This grant was renewed annually, and was followed six years later by the establishment of an Education Committee of the Privy Council to supervise its expenditure. In 1838 Parliamentary grants were first made towards the cost of Scottish schools. During the next forty years the grants increased very considerably in amount, and the supervisory powers of the Education Committee of the Privy Council (which became a Department of State in 1856) were greatly extended. Considerable progress was made under these arrangements, but the voluntary system fell very far short of providing a comprehensive system of elementary education. It was, therefore, a fundamental change when, in 1870, an Act was passed which provided for the establishment of rate-aided undenominational schools in every district of England and Wales where there was a deficiency of accommodation. These new rate-aided schools were administered by locally elected School

* The British & Foreign Schools Society (founded 1808) and the National Society for Promoting the Education of the Poor in the Principles of the Established Church (founded 1811).

Boards. The Education (Scotland) Act, 1872, provided for the establishment of School Boards to administer the parish and burgh schools of Scotland.

The Education Act, 1870, made provision for a universal system of public elementary education, but it did not make school attendance universally compulsory. Many of the new School Boards adopted by-laws making school attendance compulsory between certain ages in their own areas, and some of the School Attendance Committees, set up after 1876 in areas in which there were no School Boards, followed their example. In 1880, four years later, the adoption of school attendance by-laws was made compulsory throughout the country. In order to enforce attendance, some School Boards paid school fees out of the education rate after 1870, but it was not until 1890 that school fees were generally abolished.* Thus it may be said that sixty years elapsed between the first grant of State aid for school buildings and the establishment of a public system of elementary education which was universal, compulsory and free.

Whilst these developments in the system of public elementary education were taking place, a beginning was being made in building up a technical and secondary school system. Public grants for voluntary evening schools were made as early as 1851, and a special department of State—the Science and Art Department—was created in 1851 to supervise the provision of instruction in art, science and technical subjects. In 1889 the Technical Instruction Act broke new ground by empowering the boroughs and the newly created county councils "to supply or aid in supplying technical or manual instruction," and, in the following year, the Local Taxation (Customs and Excise) Act allotted a large sum out of the Customs and Excise Duties—popularly known as "whisky money," because it was originally intended for use as compensation for publicans—for the development of technical education. The provision of secondary education in the nineteenth century was chiefly made outside the public system, but, as children began to remain at ordinary elementary schools for longer periods, education of a secondary grade began to be provided in higher standards and, later, in special schools under the elementary code. In 1892 secondary education committees were established in every county and the five largest burghs in Scotland, to which the powers of the School Boards with respect to secondary education were entrusted. In 1894 the counties and county boroughs of Wales were given similar powers under the Welsh Intermediate Education Act. Similar powers were granted to local authorities in England in 1902.

Public Health

Education was by no means the only constructive community service to be developed in the nineteenth century. The period between 1830 and the end of the century was rich in social experiment of all kinds, and it was specially noteworthy for the development of many important public health services. The impulse behind the development of the public health services came from two sources—popular alarm over a succession of

* In places where school fees had exceeded 10s. a head they continued to be collected at a reduced rate, until the extension of rate-aid, even to voluntary schools, in 1902 made it possible for them to be abolished gradually. Actually public elementary education was not made absolutely free throughout the whole of England and Wales until 1918.

cholera and other epidemics, and the conclusions reached by the Poor Law Commissioners concerning the close association of public ill-health and pauperism. It was reinforced by the findings of two official Reports concerning the "Sanitary Conditions of the Labouring Classes" and the "Health of Towns" in the eighteen-forties, and led to the passing of the first Public Health Act in 1848. This Act, which was the forerunner of a long series, eventually consolidated in the great Public Health Act, 1875, established a central authority for public health and provided for the establishment of local health authorities in different parts of England and Wales. During the years which followed, the powers of these authorities were widened and strengthened, and they were exercised in such a way as to revolutionise the conditions of British urban life in the course of a generation.

Generally speaking, the services provided under the Public Health Acts and other social legislation of this period were basic environmental services—drainage, sanitation, sewerage, the clearance of unhealthy areas, the inspection of nuisances, and the provision of amenities, such as baths, washhouses, parks and open spaces—rather than the more personal social services with which we are concerned in this Report. The Poor Law had for long made some provision for the medical treatment of sick paupers; in 1867 the Metropolitan Asylums Board was created to look after London paupers suffering from infectious diseases and mental disorders, and the Poor Law Unions in London and elsewhere were required to establish infirmaries for paupers suffering from other diseases or from the infirmities of old age. In 1885 treatment in Poor Law infirmaries ceased to be a disqualification for the franchise. Meanwhile, the Public Health Act, 1868 and 1875, had provided for the establishment of public hospitals for non-pauper patients by the local sanitary authorities. But these hospital-building powers were used almost exclusively for providing isolation hospitals for sufferers from infectious diseases.

The Treatment of Lunacy

Lunacy was the subject of legislation in England and Wales as early as 1743, and in 1808 the Justices of the Peace were empowered to establish county asylums for the reception of persons suffering from mental disorders. In 1845 local lunacy authorities were created in England and Wales with the obligation to make provision for all persons certified as being of unsound mind and unable to pay for the care which they needed. Similar authorities were created in Scotland under the Lunacy (Scotland) Act, 1857. The English lunacy laws were consolidated and extended by the Lunacy Act, 1890, which made the county and county borough councils the responsible authorities.

Workmen's Compensation

The last social reform of the nineteenth century was the introduction of a system of Workmen's Compensation in 1897. Prior to this it was often impossible for a workman to obtain compensation even for injuries caused by negligence of his employer. The Workmen's Compensation Act, 1897, provided that employers could be held liable for the results of an industrial accident, even though no negligence could be proved either on their own part or on the part of any employee. Its application was limited to a small group of dangerous trades until 1906, when an amending Act extended the principle to practically every occupation, and to specified industrial diseases.

THE PUBLIC SOCIAL SERVICES 1900-1914

In spite of the wealth of social legislation during the latter half of the nineteenth century, there were still, at the end of Queen Victoria's reign, very few public social services available for citizens who did not happen to be destitute. During the years immediately following the Boer War demands for reform were pressed from many sides, and in 1905 a Royal Commission was set up to make a thorough investigation of Poor Law policy. The Royal Commissioners worked hard for four years, and produced two voluminous Reports, each making far-reaching proposals for the extension of social provision. But events moved more quickly. Before the Royal Commission reported, a beginning had been made with the building up of an important group of public social services entirely unconnected with the Poor Law. The revelations of the Inter-Departmental Committee on Physical Deterioration, appointed after the Boer War, led to the Education (Provision of Meals) Act, 1906, which permitted local education authorities (*not* Boards of Guardians) in England and Wales to provide meals for necessitous schoolchildren. In the following year the Education (Administrative Provisions) Act imposed the duty on all English and Welsh local education authorities of providing medical inspection for school children. In 1908 a forty-year-old agitation came to an end with the provision of non-contributory old age pensions at the age of 70, subject to a not very stringent test of personal means, and in the same year the Education (Scotland) Act provided for the feeding and clothing of necessitous school children and the medical inspection of all school children in Scotland. In 1910 a national system of employment exchanges was set up to introduce some order into an unregulated labour market, and in 1912 the national health and unemployment insurance schemes were introduced.

Under the National Health Insurance Act a sum of £1½ millions was made available for capital grants in aid of tuberculosis dispensaries, hospitals and sanatoria, and in 1912 the Government began to make grants to local authorities for the prevention and treatment of tuberculosis. In 1913 the Mental Deficiency Act provided for the ascertainment and care of mental defectives in England and Wales, and the Mental Deficiency and Lunacy (Scotland) Act, 1913, did the same for Scotland.* In 1914 grants were first made in England and Wales in aid of maternity and child welfare centres conducted by voluntary associations and local authorities.

Meanwhile, the system of public education was developing rapidly, particularly on the secondary and technical sides. The number of children on the rolls of secondary schools in England and Wales increased from 94,698 in 1904-5 to 187,207 in 1914, and full-time attendances at technical institutions rose from 2,441 to 13,958 in the same period. In Scotland similar developments took place in secondary and other forms of continued education, especially after the Education (Scotland) Act, 1908, which gave statutory recognition to local secondary education committees and extended the powers and obligations of Scottish School Boards to provide continued education.

* This Act also went some way to bringing the Scottish lunacy service into line with the service in England and Wales.

THE EFFECTS OF THE WAR OF 1914-18

The war held up the evolution of permanent social institutions in Great Britain, as in other countries, but it brought some social evils into strong relief and established a great extension of State control in economic and social affairs. It also prepared opinion for a generous social policy when peace should come. The creation of a venereal diseases service in 1916 was a direct consequence of exposures due to the war, while the "Fisher" Education Act, 1918, was perhaps the most important product of war-time idealism. This Act, which envisaged, among other notable advances, a system of part-time education up to 18, was followed in the same year by a comprehensive Maternity and Child Welfare Act and, in the following year, by the payment of out-of-work donation as a right to thousands of unemployed ex-service men, and by an improvement in the scale of old age pensions and of ordinary unemployment benefit.

THE POST-WAR PERIOD

In 1920 non-contributory old age pensions were made available for blind persons at the age of 50, and local authorities were required to prepare blind welfare schemes. In the same year the unemployment insurance scheme (which had been extended to several more industries during the war) was widened in scope to cover well over two-thirds of the occupied population, and in 1925 a third great social insurance scheme was introduced providing contributory pensions for widows, orphans and persons over 65 in the insured section of the population. Nevertheless, the Poor Law authorities, which still remained unreformed, had to deal with vast numbers of persons whose needs were not satisfied by any of the new public social services. The workhouse test for the able-bodied was almost universally abandoned, and scales of home relief were made more generous. Eventually the financial difficulties of Boards of Guardians in areas of severe unemployment soon became so acute that it was impossible to postpone the reform of the administration. In 1929 the Local Government Act abolished the Boards of Guardians and transferred their main functions to the Public Assistance Committees of the county and county borough councils. In Scotland the parish councils had been responsible for the administration of poor relief since 1894, but the Local Government (Scotland) Act, 1929, transferred their Poor Law functions to the county councils and large burghs. At the same time it was provided that the special functions of the Poor Law authorities in both countries relating to blind welfare, hospital provision, and the care of destitute children, and of aments and dements might be transferred to the appropriate special committees of the counties and county boroughs in England and Wales and of the counties and large burghs in Scotland, instead of being dealt with by public assistance committees. These powers have been used to a considerable extent and, in particular, a great public hospital system for general cases has begun to emerge in place of the old Poor Law infirmaries.

Towards the end of 1929 the Widows', Orphans' and Old Age Contributory Pensions scheme was extended in several directions, and the operation of the Unemployment Insurance scheme was eased in 1930. But the onset of the great industrial depression

interrupted the expansionist movement. Mounting unemployment imposed an unprecedented burden on the unemployment insurance scheme and on the local authorities in the worst areas. Although large additional sums were voted by Parliament to ease the position in both cases, drastic retrenchment was eventually called for. The Royal Commission appointed in 1930 to review the unemployment insurance tangle issued an interim report in 1931 recommending several measures of economy. It was followed closely by the even more drastic proposals of the May Committee on Public Expenditure. In July 1931 the regulations governing the payment of unemployment benefit to married women and seasonal workers were tightened up, and, a few weeks later, after the change in Government, the practice of making virtually unconditional payments to unemployed workers who had exhausted their standard benefit rights was terminated in favour of a system of transitional payments, given no longer as a right, but only after a test of needs and resources—the "Means Test." Meanwhile, a series of economy orders resulted in a reduction of many other forms of social service expenditure both by the central government and by the local authorities.

With the revival in trade in 1934 most of the economy measures began to be revised, and the Unemployment Act of that year broke new ground in social provision. Part I of the Unemployment Act, 1934, made a number of important amendments in the unemployment insurance scheme, particularly with regard to juveniles, who were now to be insured immediately on leaving school instead of at the age of 16. Part II created an entirely new service to deal with the relief of the large group of unemployed workers who had exhausted their insurance rights or who were outside the insurance scheme altogether. The administration of this service was vested in a new centralised authority—the Unemployment Assistance Board. The new Board began operations in January 1935 so far as insured persons who had exhausted their benefit rights were concerned, and on April 1, 1937 it took over responsibility for the able-bodied unemployed outside the insurance scheme. In the meantime the scope of unemployment insurance had been widened by the creation of a special scheme for agricultural workers.

TRENDS IN SOCIAL PROVISION

The two principal trends visible in the history of the British public social services are (i) the evolution of *public* social services out of *voluntary* social services, and (ii) the movement away from a comprehensive Poor Law service based on destitution and in the direction of a number of specialist services based either on common citizenship or on a contract of social insurance.

Practically every public social service in operation to-day has its roots in some form of voluntary provision. The Poor Law itself was created to take the place of the charitable services of the medieval Church and guild. Education has not yet outgrown its early association with voluntary organisations. The voluntary hospital and dispensary preceded and still co-exist with the modern public hospital and clinic. The work of voluntary undertakings, such as the St. Pancras School for Mothers and the St. Helen's Milk Depot, was the origin of the maternity and child welfare movement. The experience of the trade unions in administering contributory unemployment and pensions schemes for their own

members paved the way for national unemployment and pensions insurance. Similarly, the long experience of friendly societies in providing various forms of medical treatment and sickness benefits prepared the way for national health insurance. The historical association of the British public social services with voluntary organisations has not always been wholly advantageous. But it is impossible to overlook the importance, not only of the pioneer work performed by voluntary bodies in many different fields, but also of their contribution to social service administration to-day. It will be necessary to examine this contribution at a later stage in this Report and to form some conclusions as to the part which voluntary agencies may be expected to play in the future development of the public social services.

The retreat from the Poor Law and the creation of new forms of social provision without any destitution test was due partly to a fundamental change in public opinion concerning the social responsibilities of the State, and partly to the spirit in which the Poor Law had been administered for over eighty years after the reforms of 1834. During the greater part of the nineteenth century the principles of 1834 were in harmony with the prevailing social philosophy. By the end of the century, however, a great change had taken place in public opinion, and the need for the acceptance by the State of some responsibility for the welfare of its citizens, even though they might not be entirely destitute, was recognised. Nevertheless, it would not have been necessary to enlarge the sphere of State activity outside the Poor Law system to anything like the same extent if those who were responsible for its direction had been prepared to adopt a more constructive policy. It is not inconceivable that the evolution of most of the new social services which have grown up in the last thirty years might have taken place within the comprehensive framework of a reconstructed Poor Law if the spirit of the "workhouse test" and a narrow interpretation of the doctrine of less eligibility had not created an atmosphere of fear and hatred among the working-class population. As we have already noticed, many important modifications of Poor Law practice took place long before the end of the century, and the impetus behind several of our constructive community services—especially the constructive health services—originally came from within the Poor Law system. But these developments were very grudgingly accepted by the central authority and by many Boards of Guardians, who were never sufficiently imaginative to break down the popular prejudice with which the whole system was confronted. It is not surprising, therefore, that social reformers should have turned their attention to building up an independent system of specialised services based on common citizenship or on contributory insurance rather than on a test of destitution.

These new developments outside the Poor Law have been remarkably successful. Most of them have now established themselves as permanent features of our social life. But they have by no means been without their drawbacks. In spite of its grave deficiencies the Poor Law did provide a comprehensive service, and it did take into account the many closely related social needs of those who applied to it for help. The new services, on the other hand, are sectional. They have taken little account of the social background of their beneficiaries, and they have been built up piecemeal, as political opportunities have presented themselves, without much regard either for consistency of principle or for the effect of one service on another. Moreover, they have

left wide gaps which have had to be filled by the Poor Law after all. Under its new name—Public Assistance—poor relief is still given to over a million and a half persons in Great Britain, at a cost of nearly £46 millions a year.

TRENDS IN SOCIAL ADMINISTRATION

The rapid growth of the public social services has involved many changes in the structure of public administration in this country. The history of these changes is extremely complex, and cannot be dealt with here. But it may be useful to draw attention to one or two broad trends which have considerable importance.

In the first place, there has been a significant change-over from administration by local *ad hoc* boards, dealing with particular services, to administration by local authorities providing a whole group of related services. The two great public social services of the nineteenth century—the Poor Law and elementary education—were both administered by *ad hoc* authorities with their own special areas. The English Poor Law was administered by Boards of Guardians in Unions of parishes after 1834, but it was transferred to "omnibus" authorities—the county and county borough councils—in 1929. The Scottish Poor Law, which was administered by Parochial Boards after 1845, was transferred to the "omnibus" parish councils in 1894, and to the county councils and large burghs in 1929. Elementary education in England and Wales, in so far as it was rate-aided, was administered by local School Boards in special School Board areas after 1870. Primary education in Scotland was administered by similar bodies after 1872, and secondary education in Scotland was administered by separately elected secondary education committees in the counties and four cities after 1892. But elementary education was transferred to "omnibus" authorities in England and Wales in 1902 and in Scotland in 1929. The administration of secondary education in Scotland was also transferred to "omnibus" authorities in the latter year.

The use of the specially created *ad hoc* Boards was largely due to absence of any satisfactory "omnibus" authority at the time when the different services were originally established. When the "new" English Poor Law was introduced the boroughs were still unreformed, and there was no local government in the counties except the rule of the magistrates. It was necessary, therefore, to improvise an entirely new system of *ad hoc* authorities to administer relief under the new arrangements. The English boroughs were reformed in 1835, and many new charters were granted during the next forty years. But there was still no local government in the counties, other than the magistrates and the Boards of Guardians, when the Education Act was passed in 1870, and there was no disposition to trust many of the old boroughs with the administration of such a controversial service as elementary education. Once again, therefore, it was decided to create a special system of *ad hoc* authorities. By the end of the century the structure of English local government had been completed by the creation of county councils in 1888 and the district and parish councils in 1894, and each type of authority was given a wide range of administrative responsibilities arising out of the mass of social legislation passed during the previous twenty-five years. In Scotland the only "omnibus" authorities in existence during the greater part of the nineteenth century were the ancient

Royal burghs. But a number of Parliamentary burghs were created in 1883, county councils were created in 1889, and parish councils were created in 1894. During the present century the responsibilities of many of these "omnibus" authorities in both countries have been greatly extended, not only on account of the abolition of the *ad hoc* bodies, but also on account of the growth of new social services. Since 1929 a large number of the smaller "omnibus" authorities have either lost some of their powers or disappeared altogether, especially in Scotland. But every county council and the council of every independent urban authority of county status is now responsible for the administration of a large group of closely related social services.

Another significant development in the administration of the public social services has been the growth of a number of important centralised services during the last thirty years. Up to 1908 all the British public social services were administered locally, with some form of general supervision by the central government.* But when the non-contributory old age pensions scheme was introduced in 1908 it was decided to experiment with a form of direct central administration by the Customs and Excise Department. The local authorities were not entirely ignored, but their share in the administration of the scheme was limited to participation in the local pensions committees which were set up to examine claims. When the national system of employment exchanges was established in the following year central administration was again—this time inevitably—decided upon.† In 1911, when great social insurance schemes were introduced, central administration was adopted in both cases, though the local authorities were given a small share in the direction of the health insurance scheme through their association with the new system of local insurance committees. Again, when the third great social insurance scheme, providing contributory pensions for widows, orphans and old people over 65, was launched in 1925, the new tradition of centralised administration was naturally followed. But the creation, in 1935, of a centrally administered unemployment assistance service, responsible for meeting the basic needs of several hundred thousand families, raised very much more fundamental issues in public administration than had arisen from any of the earlier examples of centralisation. It will be necessary to consider these issues more fully at a later stage in this Report.

* Central organs evolved during the nineteenth century for the supervision of Poor Law, public health and educational administration. At the end of the century the Local Government Board was responsible for the supervision of public health and the Poor Law, and the Board of Education for education, in England and Wales. In 1919 the Ministry of Health replaced the Local Government Board, but it took on some additional functions—relating to national health insurance, the control of midwives, the protection of infant life and the medical inspection and treatment of school children—and shed others which the Local Government Board had exercised since its creation in 1871.

In Scotland the central authorities at the close of the nineteenth century were the Local Government Board for Scotland (established in 1872) and the Scottish Education Department.

In 1919 most of the functions of the Local Government Board for Scotland were transferred, with some new functions, to the newly created Scottish Board of Health. This authority, in turn, was superseded by the Department of Health for Scotland in 1921, after some rearrangement of functions.

The Ministry of Labour was created in 1916 to take over from the Board of Trade the work of the old Labour Department, and of the more recent employment exchanges and Unemployed Insurance Department.

† The administration of the new service was made the responsibility of the Board of Trade. In 1916, however, the functions of the Board of Trade relating to employment exchanges and unemployment insurance were transferred to a newly created Ministry of Labour.

THE GROWTH OF SOCIAL SERVICE EXPENDITURE

Expenditure before 1900

The development of the public social services resulted in an enormous increase in the expenditure of public authorities in the second half of the nineteenth century. In 1850 the total amount of public expenditure on education and poor relief—the two public social services then in existence—was approximately £5,116,000 in England and Wales, or 5s. 8d. per head of population. By 1900 the total expenditure had risen to £31,397,000 (excluding £410,000 under the Housing Acts), or 19s. 3d. per head; and several new services had come into being. This expenditure was distributed as follows:

	1850	1900
	£ (000)	£ (000)
Poor Relief	4,963	11,549
Education	153	16,969
Approved Schools	—	424
Treatment of Disease	—	1,330
Lunacy and Mental Treatment	—	1,025
TOTAL	5,116	31,297

This represented a sixfold increase on the amount expended in 1850, and an increase of about three and a half times in the amount expended per head of population.

Aggregate Expenditure since 1900

Since 1900 public social service expenditure has increased even more remarkably. The details are shown in the two following tables*:

TOTAL EXPENDITURE AND EXPENDITURE PER HEAD

Financial year beginning April 1	England and Wales		Scotland		Great Britain	
	Total	Per head	Total	Per head	Total	Per head
	£(000)	£ s. d.	£(000)	£ s. d.	£(000)	£ s. d.
1900	31,297	0 19 3	4,169	0 18 8	35,466	0 19 2
1910	54,204	1 10 1	7,725	1 12 5	61,929	1 10 4
1920	176,186	4 13 0	24,806	5 1 8	200,992	4 14 0
1930	333,321	8 7 6	45,806	9 10 0	379,127	8 10 0
1931	352,356	8 16 6	50,793	10 10 0	403,149	9 0 0
1932	353,201	8 16 0	50,108	10 5 0	403,309	8 19 0
1933	342,158	8 10 0	49,548	10 2 0	391,706	8 13 0
1934	349,612	8 13 0	51,154	10 7 0	400,766	8 16 6

* The expenditure shown in both these tables is based on the official "Drage" returns (Cmd. 5310, etc.) with the exclusion of expenditure on war pensions and housing.

PROPORTIONATE INCREASES SINCE 1900

	England and Wales		Scotland		Great Britain	
	Total Expenditure	Expenditure Per head	Total Expenditure	Expenditure Per head	Total Expenditure	Expenditure Per head
1900 . .	100	100	100	100	100	100
1910 . .	173	156	185	174	174	158
1920 . .	562	483	594	545	566	491
1930 . .	1,065	870	1,098	1,020	1,068	888
1931 . .	1,126	917	1,217	1,126	1,136	940
1932 . .	1,128	915	1,201	1,100	1,137	935
1933 . .	1,093	884	1,187	1,084	1,104	904
1934 . .	1,117	900	1,226	1,111	1,130	922

While total public social service expenditure was less than doubled between 1900 and 1910, it was more than trebled during the next ten years. Part of this extraordinary increase in expenditure is explained by the considerable rise in the price-level which occurred during and immediately after the war, but it was chiefly due to the introduction of new services, such as unemployment and health insurance, maternity and child welfare and the care of the mentally deficient, and to the expansion of existing services, particularly education and poor relief. During the next fourteen years, a period of falling prices, public social service expenditure doubled again. Between 1900 and 1934 total expenditure on the public social services increased nearly twelve times, and the expenditure per head of population increased over nine times.

Expenditure on Particular Services since 1900

As many of the public social services have come into existence comparatively recently, it is not possible to make a comparison with the position in 1900 in each case. However, the following table shows the total expenditure of four groups of social services which were already in existence in 1900, for the years 1900, 1910, 1920, 1930 and 1934.

(A) TOTAL EXPENDITURE: GREAT BRITAIN

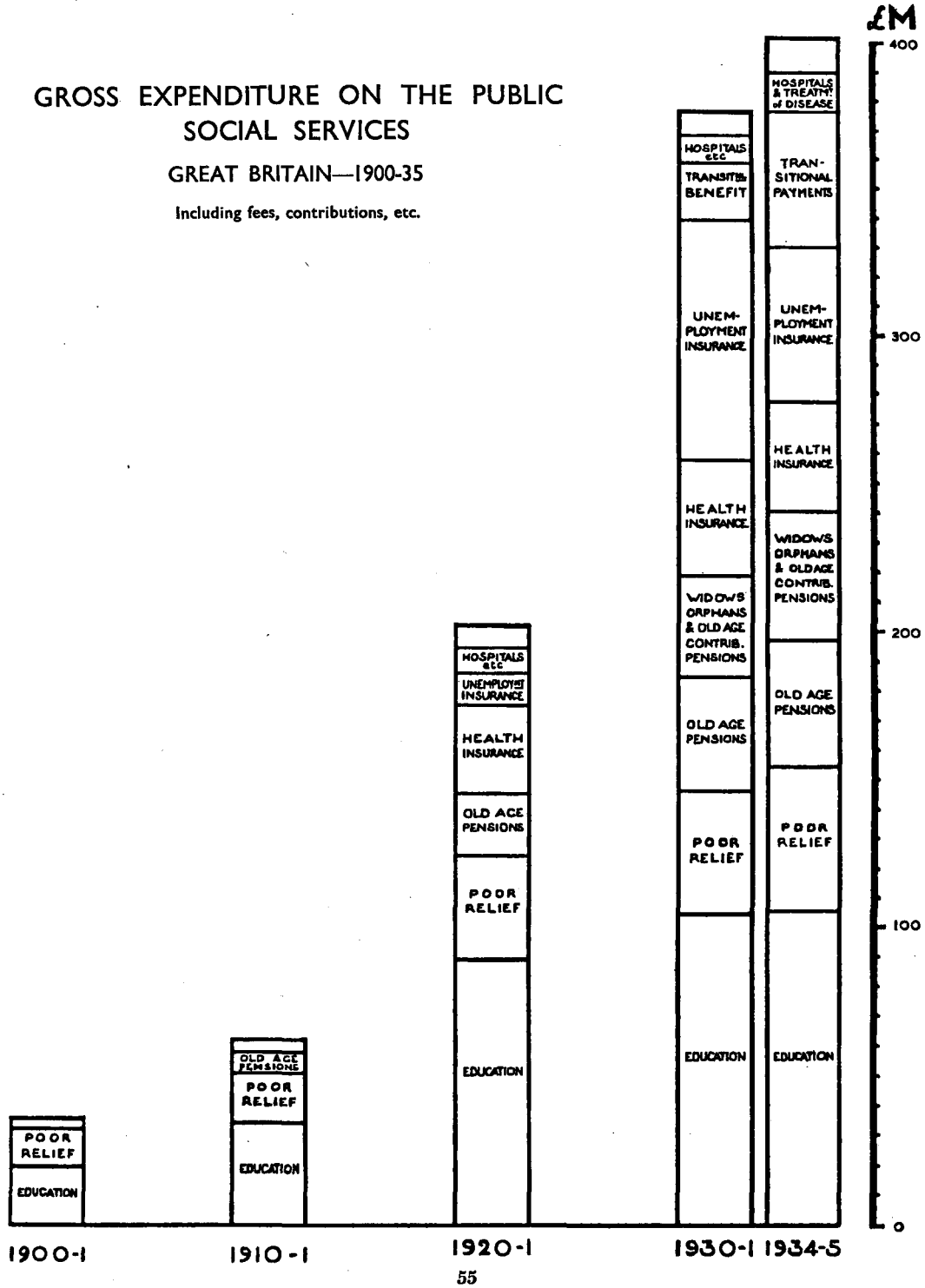
	1900	1910	1920	1930	1934
	£(000)	£(000)	£(000)	£(000)	£(000)
Education* . . .	20,051	34,071	90,274	104,831	105,687
Public Medical Services† .	1,571	2,231	10,654	13,713	17,250
Lunacy and Mental Deficiency Services . .	1,459	2,109	4,429	5,762	6,574
Total—Constructive Community Services . .	23,081	38,411	105,357	124,306	129,511
Poor Relief . . .	12,385	16,158	34,260	42,496	49,179

* Including school meals, the school medical service and the cost of the Approved Schools.
† Hospitals and treatment of disease, maternity and child welfare.

GROSS EXPENDITURE ON THE PUBLIC SOCIAL SERVICES

GREAT BRITAIN—1900-35

Including fees, contributions, etc.



(B) PROPORTIONATE INCREASES IN EXPENDITURE: GREAT BRITAIN

1900=100

	1900	1910	1920	1930	1934
Education*	100	170	450	522	526
Public Medical Services	100	142	678	871	1,096
Lunacy and Mental Deficiency Services	100	144	303	395	450
Total—Constructive Community Services	100	167	456	538	564
Poor Relief	100	130	276	343	397

* Including school meals, the school medical service, the cost of the Approved Schools, and grants to the Universities.

Thus, expenditure on the public medical services has been multiplied by ten, that on education by five, and that on lunacy and mental deficiency by four and a half. The principal cause of the increase in each case has been the expansion and development of the service, but it should be noted that public expenditure on mental deficiency, as distinct from lunacy, only began in 1913, and that public expenditure on maternity and child welfare only began in 1914. In the case of education a large part of the increase has been due to the new scale of teachers' salaries and the superannuation scheme, both of which were introduced immediately after the war. Expenditure on poor relief increased nearly four times, in spite of the growth of the other public social services. This was partly due to population increase, but the chief reasons were the relaxation of the rules governing the granting of relief, the higher scale of relief and the high level of post-war unemployment.

The remainder of the increase in public social service expenditure has been largely due to the introduction of non-contributory old age pensions in 1908, of unemployment and health insurance in 1912, and of widows', orphans' and old age contributory pensions in 1925, and to the evolution of an entirely new unemployment assistance service outside insurance. The expenditure on these services since their introduction is shown in the Appendix. It will be seen that there has been an enormous increase in each case. This has been due to several different reasons. Thus:

(i) The section of population affected by the services has increased. This has been particularly marked in the case of old age pensions (owing to the ageing of the population) and, to a smaller extent, in the case of widows' pensions. There has also been an appreciable increase in the working population covered by health and unemployment insurance.

(ii) The rules governing eligibility for the benefits provided by these services have been considerably relaxed. The qualifications for receipt of non-contributory

old age pensions have been eased. The membership of the unemployment insurance scheme has been greatly extended, and various forms of uncovenanted benefit have been given under each social service, while unemployment assistance has grown out of unemployment insurance.

(iii) The scales of payment made have been greatly increased in several cases. The standard rate of old age non-contributory pensions has been doubled. The standard rate of health insurance is half as much again as it was originally, and that of unemployment insurance more than double, apart from the introduction of dependants' allowances.

(iv) Expenditure on unemployment benefit and transitional payments has risen as unemployment itself has increased. There has been a corresponding decrease during the last three years. But the movement in both directions has been partly offset by changes in scales of payment and in the rules governing eligibility.

Meanwhile, public expenditure on the employment services and on the welfare of the blind increased very considerably, chiefly as a result of the expansion of the service in both cases.

Social Service Expenditure and Public Finance

The burden of this greatly increased expenditure has not fallen entirely on the taxpayer and ratepayer. Substantial amounts have been received in fees and charges for certain services, as payments "in recovery of cost," and in the form of contributions from insured persons and employers under the social insurance schemes. The actual increase in net expenditure may be seen in the following table:

Financial year starting April 1	Net public expenditure	Proportionate increase in net public expenditure	Net public expenditure per head of population	Proportionate increase in net public expenditure per head of population
	£(000)		£ s. d.	
1900	34,000	100	18 5	100
1910	60,000	175	1 9 5	160
1921	197,901	584	4 12 1	500
1931	261,786	770	5 17 0	636
1932	296,491	870	6 11 6	715
1933	282,056	830	6 4 9	678
1934	286,328	840	6 6 0	685

Net public expenditure falling on the taxpayer and ratepayer has increased rather more than eight times since 1900, and net public expenditure per head of population has increased nearly seven times. On the other hand, the budgetary expenditure of both central and local government authorities devoted to other purposes, excluding the service of the National Debt, has been multiplied by four since 1900. But the increased relative importance of social service expenditure of central and local authorities is shown by the

fact that in 1900 public expenditure on the social services accounted for less than one-seventh of their total expenditure, whereas in 1934 it accounted for nearly one-third.

New levels of public expenditure have involved new levels of taxation. The standard rate of income tax has averaged 4s. 5d. in the £ during the last ten years, compared with 1s. 1d. in the £ during the ten years immediately preceding the war. Meanwhile, a steeply graded surtax has been imposed on large incomes and the scale of death duties, which were first introduced in 1894, has been raised. There has also been a marked increase in indirect taxation, particularly since the imposition of a general tariff in 1931, and the average rate levied by local authorities increased from 4s. 9d. in the £ in 1900 to 11s. 11½d. in the £ in 1935-6. As we have already seen, increased social service expenditure has been by no means entirely responsible for this increase in taxation. For instance, interest and management of the national debt now cost about nine times as much as in 1913-14. But, as expenditure on defence and on the service of the national debt is usually regarded as a first charge on the Budget, a significant tendency to single out social service expenditure for ruthless economy measures during periods of budgetary depression has begun to show itself. So far it has found its most marked expression in the "Geddes' axe" campaign of 1921-22 and the "economy crisis" measures ten years later. It is significant that a vigorous campaign against "wasteful social service expenditure" is once again being conducted by certain sections of the popular Press.

The Transfer from "Rich" to "Poor".

The enormous increase in public social service expenditure has undoubtedly had a considerable effect on the distribution of real income in the community. There has been a certain amount of redistribution of real incomes within the same social class—as, for example, between the employed and unemployed members of the unemployment insurance scheme and between the healthy and unhealthy members of the health insurance scheme. There has also been some redistribution between "rich" and "poor." Compared with the position in the early years of the century the rich now shoulder a much larger proportionate share of the total burden of public expenditure than the poor and the moderately well-off. On the other hand, most of the *direct* benefits of the expanding social services have been enjoyed by sections of the population in receipt of low incomes. It is possible, however, to exaggerate the extent to which redistribution between rich and poor has taken place since 1913.

Whilst there has been a considerable increase in direct taxation, which is chiefly borne by middle-class and well-to-do people, there has also been a large increase in indirect taxation, which is for the most part paid out of working-class pockets. Since 1913 budgetary expenditure on the public social services has increased by about £180 million, but indirect taxation has increased by about £245 million during the same period. On the assumption that three-quarters of the increase in indirect taxation has been paid by working-class people it may be said that social service expenditure out of the Budget and working-class taxation have more or less kept pace since 1913. It is impossible to make a similar comparison in the case of local government services and expenditure, but it is well known that there have been very considerable increases in the rates paid by the occupiers of working-class houses. The present position has been

examined by Mr. Colin Clark in a recent work.* According to Mr. Clark's estimates, some £338 million of national and local taxation was paid by the wage-earning and small salaried classes; £686 million by the rich; and £117 million by "all classes" in the financial year 1935-6. On the other hand, some £429 million of public expenditure was for the benefit of the working-classes, whilst nearly £263 million was for the benefit of the rich. Thus, "the net effect of taxation and local rates in 1935 can be described as a redistribution of £91 million from the rich to the poor in the form of services other than those provided for from working-class taxation." This amount represents rather less than 2 per cent of the national income.

It must also be remembered that it is not sufficient to consider only the *direct* benefits provided by the public social services. Well-to-do people enjoy many advantages as a result of the existence to-day of a healthier, better educated and—except in a few hard-hit areas—a more contented working-class population than existed thirty years ago. These advantages cannot always be measured in financial terms, but they are none the less very substantial.

* C. G. Clark 'National Income and Outlay' (1937) page 142 et seq.

III. THE CONSTRUCTIVE COMMUNITY SERVICES: DESCRIPTIVE AND ANALYTICAL

Order of Discussion—Public Education: Special Educational Services; Approved Schools; Junior Instruction Centres; The Basis of Provision; Maintenance Allowances; School Meals and Clothing; Central Administration; Local Administrative Areas; Provided and Non-Provided Schools; Co-operation with other Voluntary Bodies; Finance; Universities and University Colleges—**Public Medical Services:** Maternity and Child Welfare; The School Medical Service; Infectious Diseases; The Tuberculosis Service; The Venereal Diseases Service; The General Hospital Service; The Highlands and Islands Medical Service; Industrial Health Services; The Basis of Provision; Central Administration; Local Administrative Areas; Local Administration; Co-operation with Voluntary Bodies; Finance—**The Welfare of the Blind:** The Basis of Provision; Central Administration; Administrative Areas; Local Administration—**The Mental Health Services:** Basis of Provision; Central Administration; Local Administration—**Employment Services:** The Employment Exchanges; The Juvenile Employment Scheme; Training and Welfare Schemes; Administration; Co-operation with Voluntary Bodies.

ORDER OF DISCUSSION

Each of the public social services classified in Chapter I as constructive community services will now be briefly described, and particular consideration will be given to the following points in each case:

(*a*) The nature and extent of the provision made
(*b*) The basis of provision
(*c*) Central administration
(*d*) Local administrative areas
(*e*) Local administration
(*f*) Co-operation with voluntary organisations
(*g*) Finance

In Chapter IV the constructive community services will be reviewed as a group under the same general headings.

PUBLIC EDUCATION

Every boy and girl between the ages of 5 and 14 years must now receive some form of continuous elementary education, either in a school provided by a public authority, or in some other way. A few children are educated by their parents or by private tutors; a considerable number are educated in private schools of one sort or another, but the great majority of children of "school age" attend schools which are either provided or

maintained by public authorities. Thus, 6,070,000 out of 6,490,000 children—about 94 per cent—between the ages of 5 and 14 in Great Britain were on the rolls of public elementary schools or other schools maintained, wholly or in part, out of public funds during the year 1934-5. There were in addition some 170,000 children under 5 attending nursery schools, nursery classes and infants' schools provided or maintained by public authorities, and some 530,000 boys and girls between the ages of 13 and 18 were in full-time attendance at various types of educational institutions in receipt of public aid.* Moreover, 76,000 students aged 18 and over were attending full-time courses at universities, university colleges, training colleges and other higher educational institutions subsidised from public funds. Apart from full-time students there were, in the same year, more than a million young people over the age of 14 in attendance at various part-time courses, held for the most part in evening institutes and technical schools and colleges; and about a thousand adult students attending university extension classes, W.E.A. classes and other forms of adult education, the cost of which is met almost entirely by public authorities. Altogether over eight million people, mostly under the age of 18, received some form of State-provided or State-aided education in 1934-5.

Special Educational Services

The public education system is not only concerned with the health of the mind, it also concerns itself with the health of the body. Every local education authority has its school medical service, and most local education authorities provide free meals or milk for necessitous schoolchildren. Some local education authorities also provide vacation schools and evening play centres for children living in congested areas. In order to meet the peculiar needs of defective children—blind, partially sighted, deaf, epileptic, crippled and mentally defective—a large number of special schools have been established. Attendance at a special school is now compulsory in England and Wales for blind children between the ages of 5 and 16, and for other defective children between the ages of 7 and 16 where facilities exist.† Provision is also made by some local education authorities for the full-time instruction of blind, deaf and other defective students over the age of 16, in preparation for a trade.

Approved Schools

Several schools for young offenders were established by voluntary agencies in the eighteenth century, and they grew in number during the first half of the last century. The State gave them official recognition under the Young Offenders Act, 1854, and a long series of Acts culminating in the Children and Young Persons Act, 1933, regulated their use. Until 1933 there were two types of school: (i) Reformatory schools for persistent young offenders, generally over the age of 13; and (ii) Industrial schools for less serious cases, including some children who might not have committed an offence but who were living in criminal surroundings, generally over the age of 11. But this distinction was

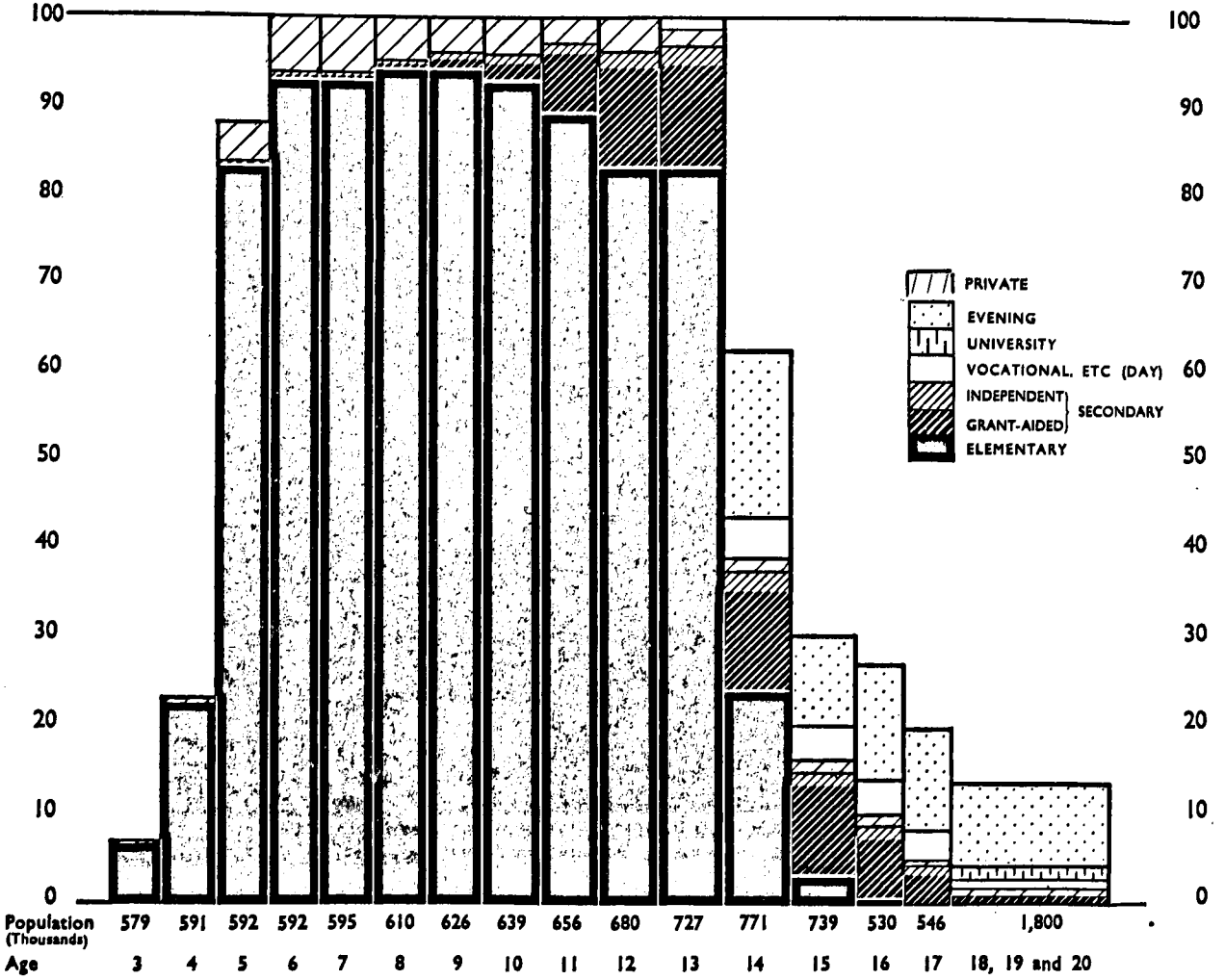
* These include central schools (for boys and girls up to 15), secondary schools, junior and senior technical, art and domestic science schools (see Appendix).

† The lower limit for deaf children is shortly to be reduced to 5 under the Deaf Children (School Attendance) Bill. In Scotland the ages for all defectives are slightly different.

EXTENT OF EDUCATIONAL PROVISION

ENGLAND AND WALES—1935

ESTIMATED NUMBER AND PER CENT OF YOUNG PERSONS AT EACH AGE RECEIVING VARIOUS FORMS OF EDUCATION



abandoned under the Act of 1933 in favour of a classification of schools according to the needs and circumstances of the boys and girls committed to them. Approved schools are provided by local authorities and by religious bodies and other voluntary organisations. In England and Wales the Home Office is the supervisory authority, but in Scotland the Scottish Education Department is responsible. In 1935 there were 103 Approved Schools, with 7,500 boys and 1,460 girls in residence.

Junior Instruction Centres

The first official courses of instruction for unemployed boys and girls under 18 were started in 1918. They were opened in connection with the Out-of-work Donation Scheme immediately after the Armistice. Since then the junior instruction centres have had many ups-and-downs, but by the middle of 1936 well over a million boys and girls had passed through centres and classes. Until recently the only means of actually enforcing attendance was to make it a condition for the receipt of unemployment benefit. This only affected juveniles between the ages of 16½ and 18; but many younger persons attended voluntarily. The Unemployment Act, 1934, not only lowered the age of entry into unemployment insurance to the school-leaving age, but also enabled the Ministry of Labour to make attendance at a junior instruction centre (or some other educational course) compulsory in any area where juvenile unemployment was a serious problem. The effect of this provision, as the following table shows, was a considerable increase in attendances at junior instruction courses during the years 1934-6. The number of centres and aggregate attendances have fallen off during the last twelve months owing to the decline in juvenile unemployment, but the percentage of unemployed boys and girls in attendance has continued to increase.

Great Britain	Week or month ended		
	April 25, 1934	April 22, 1936	April 21, 1937
Number of Centres	123	196	179
Classes	14	26	20
Other institutions	179	101	42
Average attendances			
Boys	11,373	18,936	13,257
Girls	4,044	10,935	9,713
Total	15,417	29,871	22,970
Percentage of registered unemployed juveniles	13.9	24.5	26.6

The Basis of Provision

Before the age of 5 years public education is voluntary, but (apart from the charges made in nursery schools and classes in respect of food provided during school hours) it is free for all who take advantage of it. From the age of 5 to the end of the term in which children reach the age of 14 education is compulsory, and, in so far as it is provided under the elementary code, it is free. Education after the age of 14 is voluntary, but it

still remains free if it is provided under the elementary code. Charges are now made at all grant-aided secondary schools in England and Wales and most other public educational institutions outside the elementary system, though they are waived or remitted in a large number of cases. In Scotland secondary education is provided free.

Up to April 1, 1933, tuition fees in grant-aided secondary schools were very varied, and in some schools (e.g. the municipal secondary schools in Bradford and Sheffield) no fees were charged. However, new regulations came into force on this date in England and Wales requiring all schools to charge fees. The fees now charged are by no means uniform, but they average between £10 and £12 a year, or roughly speaking, one-third of the gross cost of the education provided. Every school must offer a minimum number of entrance scholarships, known as "special places," to pupils from public elementary schools and may offer additional special places open to pupils from any school. Holders of these "special places" are entitled to total or partial remission of fees, according to their parents' financial circumstances. In 1936 it was made possible for local education authorities to offer up to 100 per cent "special places," but most authorities keep a certain proportion of places for fee-paying pupils who have not taken the entrance examination. The present position in England and Wales is that about 48 per cent of the pupils in grant-aided secondary schools pay full fees; about 5 per cent have "special places" and pay reduced fees; and the remainder—about 47 per cent—have "special places" and pay no fees at all.

Fees in junior technical and trade schools, junior art schools and junior housewifery schools usually vary from three to six guineas a year, and fees for full-time senior courses in technical institutions approximate to local secondary school fees. But in all cases arrangements are made for the provision of "special places," with total or partial remission of fees to meet the needs of poor students. The income scale, by reference to which these special places are awarded, usually follow the same lines as those for secondary schools.

Fees for part-time evening courses normally vary from 2s. 6d. to 10s. a session, though they sometimes exceed 10s. in the case of advanced courses. It is now the usual practice to charge a slightly higher fee each year of a course. But total or partial remissions of evening class fees are made on a considerable scale.

Fees in universities, university colleges, training colleges and other higher educational institutions vary according to the nature and length of the course followed and according to whether residence is included. But they seldom cover more than a relatively small proportion of the cost of tuition. It is not usual for them to be scaled down in accordance with the financial circumstances of students, but they are frequently covered, wholly or in part, by scholarships and other grants in aid from public authorities, as well as from private bodies. Nearly 96 per cent of students in training colleges were in receipt of some form of assistance from public authorities in 1934-5, and it is estimated that nearly 42 per cent of the full-time students in the universities and university colleges were in receipt of assistance from outside sources (i.e. other than personal and private sources) in the same year.*

* Report of the University Grants Committee (1934-5).

Maintenance Allowances

Local authorities have the power, subject to the approval of the Board of Education or the Department of Education for Scotland, to grant maintenance allowances to boys and girls in poor circumstances attending schools under their control.

The numbers receiving allowances, and the amounts paid in England and Wales in 1934-5 were as follows:

Type of School	Number receiving allowances		Total No. of pupils	Amounts paid	
	Junior	Intermediate		Junior	Intermediate
				£	£
Secondary Schools . .	71,452	9,106	456,783	422,873	119,757
Technical and Art Schools and Colleges . . .	8,525	967	31,640	72,569	17,475
TOTAL . .	79,977	10,073	488,423	495,442	137,232
Elementary Schools . .	5,747	—	5,475,000	65,543	—

The scale of allowances is decided by the local authority and submitted to the Board for approval. Rates vary from £5–£10 a year for junior and £10–£20 for intermediate awards (School Certificate to Higher Certificate standard). In some cases the maximum allowance is only given when the family income does not exceed £2 a week plus 10s. for each child after the first dependant. In one extreme case the limit is £1 for maximum allowance. In most areas the top income for receiving any grant is £4 a week plus 10s. or £1 for each child after the first.

The following table shows the current scale of maintenance allowances paid by the London County Council. It will be seen that they are relatively high. This is mainly in recognition of the high cost of living.

SCALE OF MAINTENANCE ALLOWANCES IN LONDON

Parents' income limit	To school-leaving age		School-leaving age to 17+			Advanced courses to 19+		
	Amount of Allowance							
£	£9	£6	£15*	£12*	£7 10s.	£27	£24	£15
	Number of dependent children in family							
150	1+	—	1+	—	—	1+	—	—
200	3+	1-2	2+	1	—	1+	—	—
250	4+	1-3	3+	1-2	—	1+	—	—
300	5+	2-4	4+	2-3	1	2+	1	—
350	6+	3-5	5+	3-4	2	3+	1-2	—
400	—	4+	6+	4-5	3	4+	2-3	1
450	—	5+	—	5+	4	5+	3-4	2
500	—	6+	—	6+	5	6+	4-5	3
550	—	—	—	—	6+	—	5+	4
600	—	—	—	—	—	—	6+	5
650	—	—	—	—	—	—	—	6+

* At Junior Technical and Junior Art Schools the rates are £17 and £12 12s.

There are also considerable variations in practice with regard to the determination of eligibility for allowances. In many places the whole family income, including the wages of subsidiary earners, is taken into account; in other places subsidiary earners are excluded. In some places rent and rates are taken into account, but in many places they are ignored. In most places the number of dependent children is a determining factor.

School Meals and Clothing

In order to prevent the education of children being impaired by underfeeding, statutory powers to provide meals for children in public elementary schools were conferred on the local education authorities of England and Wales by the Education (Provision of Meals) Act, 1906, and on the local education authorities of Scotland by the Education (Scotland) Act, 1908. The Scottish Act also conferred the power to provide clothing. These Acts were amended subsequently to enable local authorities to supply meals on holidays and other non-school days. The powers granted under these Acts of Parliament have not been taken advantage of by every local education authority, but the position at March 31, 1936, was that 235 out of 316 local education authorities in England and Wales and 24 out of 35 local authorities in Scotland were providing meals, and 29 out of 35 local education authorities in Scotland were providing clothing. There are, however, wide variations of practice as between the different authorities actually making some form of provision under these Acts. In some parts of the country three meals a day (breakfast, dinner and tea) are provided at week-ends and during the holidays as well as on school days. Some authorities confine themselves to making provision on school days. Others limit their provision to a midday meal. Others, again, only provide a "milk meal," consisting of a glass of milk (perhaps with a biscuit) during the course of morning school. On the other hand, many authorities vary the nature and extent of their provision according to the needs of different children.

In 1935-6 143,000 children received free solid meals in England and Wales, and they had an average of 161 meals each during the year. This is about 1 in 40 of all elementary school children. The numbers have been falling slightly in the last few years. Free milk was given to 406,300, or 1 in 13 children, who had an average of 157 milk "meals" each. The provision of free milk has been steadily increasing for some time.

In addition to the supply of free milk under the Education Act of 1921, there is a much more extensive system of subsidised consumption under the Milk in Schools Scheme, 1934. The Government has placed the sum of £500,000 annually for a period of years at the disposal of the Milk Marketing Board. The National Milk Publicity Council started in 1927 to organise the sale of milk in schools on a commercial basis, charging 1d. for a third of a pint, and by 1934 a large proportion of schools were covered. The Milk Board took over this organisation and subsidised the sale, charging ½d. for a third of a pint. At the same time the scheme was extended to all grant-aided schools and to junior instruction centres. The reduced price also became applicable to milk purchased by local education authorities.

When the price was halved the number of children who bought milk was immediately trebled, but the number began to fall off when the novelty had gone. There are now about three million children taking cheap milk in all types of schools—roughly half of the school population.

Central Administration

The central authority for the administration of the public system of education in England and Wales is the Board of Education, and in Scotland the Scottish Education Department. But neither of these authorities has any control over the universities and university colleges, except in so far as these provide courses for the training of teachers; over the education of the Army, Navy and Air Force; or over technical education for agriculture, which is a responsibility of the Ministry of Agriculture and the Department of Agriculture for Scotland. Moreover, neither of the central authorities directly controls any educational institution, nor employs or pays any teachers, except in the case of the Royal College of Art, which is a Government institution. Approved Schools in Scotland are under the Education Department, but in England and Wales the Home Office is responsible.

The functions of the two central authorities are best summed up in the word "superintendence." It is their duty to superintend the administration of education in their respective countries, to make sure that the duties laid upon local education authorities by Parliament are duly fulfilled, and to distribute grants voted by Parliament for educational purposes to the appropriate authorities. The two central authorities also play an important part in encouraging new developments in educational organisation and method, the training of teachers, and other matters, through the advisory work of their inspectors, the publication of pamphlets dealing with a variety of educational topics, the organisation of special courses for teachers, and the investigations and reports of their standing consultative committees.

Local Administrative Areas

The direct control of educational administration in Great Britain is largely in the hands of the local education authorities of which there were 351 in 1936, as follows:

England and Wales—
63 county councils,
83 county borough councils,
146 non-county borough councils (with a population of over 10,000 at the census of 1901),
24 urban district councils (with a population of over 20,000 at the census of 1901).

Scotland—
31 county councils,
24 councils of large burghs.

The county and county borough councils are authorities for both elementary and higher education; but the borough and urban district councils, which are known as

Part III authorities under the Education Act, 1902, are responsible for elementary education only, if they undertake any educational work. Elementary education, however, includes the provision of central schools in addition to junior and senior elementary schools. The responsibility for providing secondary schools and other forms of higher education in the areas of Part III authorities rests with the county—or Part II—authorities. Thus, the areas for elementary education in the case of county education authorities are not coterminous with their areas for higher education.* In 1935, there were only 14 county education authorities which had complete control of both elementary and higher education throughout their administrative area. There were 20 counties containing one autonomous area for elementary education; 9 counties containing two autonomous areas; 8 counties containing three autonomous areas; and the remaining 11 counties more than three autonomous areas. In one extreme case—that of the Lancashire County Council—the administrative area is an amazing patchwork, with 27 separate authorities—22 boroughs and 5 urban districts—for elementary education only. This confusion of authorities is a serious defect of educational administration in England and Wales. Many of the Part III authorities are very small and inefficient, and they make the administrative work of the Part II authorities within whose areas they exist very much more difficult. Many of them, especially in the depressed areas, are too poor to afford adequate services or even to attract a very high standard of official. On the other hand, in those cases where they are progressive, and not seriously hampered by financial difficulties, they often come into conflict with their Part II authorities in planning their post-primary systems.

In some cases there is actual competition in the provision of post-primary facilities between Part II authorities, responsible for secondary schools, and Part III authorities, responsible for up-to-date senior schools, central schools and junior technical institutions, in the same town.

On the other hand, a certain amount of co-operation has taken place for specialised purposes under the provisions of the Education Act, 1921.† Thus the county councils of Cumberland and Westmorland, of Brecon and Radnor, and of the three Ridings of Yorkshire have set up joint committees for agricultural education. The Yorkshire Council for Further Education was established by several large education authorities in the county.

The West Midlands Council for Technical Education is composed of several West Midland education authorities. A joint committee of five county councils administers the North Wales Training College. Chichester Municipal Borough Council and the West Sussex County Council have set up a joint education committee, and a number of borough and urban district councils have combined to form a single education committee for certain purposes. In Scotland there are 35 local authorities, each responsible within its

* It should be noted that the terms "elementary education" and "higher education" should not be confused with the terms "primary education" and "post-primary education." The former terms have a legal and historical significance. The latter serve only to distinguish all forms of education before the age of 11 from all forms of education after that age. Authorities dealing only with "elementary education" are thus concerned with some grades of "post-primary education" as well as "primary education."

† The Education Act, 1921, Sec. 6, provides that a local education authority may enter into such arrangements as it thinks proper for co-operation or combination with any other local education authority having powers under the Act.

own area for all forms of education, apart from university education and certain central institutions. These authorities include the four cities (Glasgow, Edinburgh, Aberdeen and Dundee) and 31 county education authorities. There is no administrative distinction between elementary and higher education in Scotland corresponding to the distinction between Part II and Part III authorities in England and Wales.

Provided and Non-Provided Schools

While the direct control of education (subject to the Education Acts and the supervision of the central departments) is in the hands of local education authorities, the actual provision of educational facilities is shared between them and a number of voluntary bodies. Thus there are two types of public elementary school in England and Wales:

(i) Provided schools or council schools, which are both provided and maintained by the local education authorities. These schools are the direct descendants of the old Board Schools.

(ii) Non-provided schools or voluntary schools, provided (that is, built and kept structurally in repair) by a voluntary body, but maintained (that is, provided with teaching staff and equipment, heating, lighting and cleaning) by the local education authority. These schools are the direct descendants of the old "National," "British" and other sectarian schools.

Although the voluntary schools in England and Wales account for more than half of the total number of schools, they account for less than a third of the children on the rolls.* There are relatively few schools in Scotland not under the management of education authorities. The position on March 31, 1935, is shown in the Appendix.

Council schools are under the direct control of the local education authority in England and Wales. In the case of voluntary schools, the care and maintenance of the school premises and the appointment of teachers is undertaken by committees of managers, appointed by the religious bodies concerned.† But the local authorities are responsible for the control of all instruction, except religious instruction, even in voluntary schools.

Co-operation with other Voluntary Bodies

In addition to the non-provided elementary schools, which receive public aid through the local education authorities, there are a number of secondary schools and higher educational institutions which obtain direct grants from the Board of Education and the Scottish Department. These schools, which include some of the well-known public schools, are inspected but not controlled by the central department concerned. They are usually under the control of a private governing body. The Board of Education and the Scottish Department also make grants to voluntary organisations such as the

* There were also a number of grant-aided secondary schools provided by religious bodies.

† The appointment of teachers in voluntary schools is subject to the approval of the local education authority, which may not, however, withhold approval of an appointment on any save educational grounds.

Workers' Educational Association and the extra-mural departments of the Universities towards the salaries of tutors of adult educational classes.

A large number of voluntary bodies take an active part in the provision of certain ancillary educational services. In London and some important provincial towns, School Care Committees are associated with almost all public elementary schools. The functions of these committees are varied. They make arrangements for the provision of school meals and for the assessment of payments for this service. They follow up medical inspection and treatment, and they act as links between the school and the home. They also take part in the work of advising boys and girls in the choice of employment and in supervising their welfare during the early years of their industrial life. In London there are 900 school care committees, with about 5,000 unpaid workers. They are co-ordinated under the Special Services Sub-Committee of the L.C.C., and they have the assistance of over a hundred salaried workers. There are also twelve voluntary committees which look after the moral welfare of children in London. A trained worker is attached to each committee, and is permitted to use care committee offices and to have access to official case papers. Work of the same kind is also being carried on in Manchester, Liverpool, Bristol, Brighton and Portsmouth, and also in the County of Cornwall. Many thousands of voluntary workers must be engaged on care committee and moral welfare work in different parts of the country, but there are many areas where no work of this kind is being undertaken.

Another form of voluntary activity is that carried on by local juvenile organisations committees. These bring together in each district representatives of juvenile organisations, social workers and others in order to increase the effectiveness of welfare work among boys and girls between the ages of 14 and 18. They had their origin in the Central Juvenile Organisations Committee, set up in 1918 by the Home Secretary in order to devise means of stemming the tide of juvenile delinquency which rose alarmingly during the war. Later, the Central Committee became an advisory committee to the Board of Education; at the same time local education authorities were encouraged to take local juvenile organisations committees into consultation, and to regard them as local advisory committees on juvenile work. There are now 77 local juvenile organisations committees in existence in England and Wales, and in some parts of the country they work in very close relations with the local education authority. In London the salary of the Secretary of the Joint Council of London Juvenile Organisations is paid by the L.C.C., and office room is provided in the Care Committee department.

There are also a number of voluntary societies which use the school as a centre for their activities. For instance, sixty societies in different parts of Great Britian have as their object the care of delicate and invalid children. These societies are federated to the Invalid Children's Aid Association, which was started in London in 1888. It works in close association with the educational authorities in London. Two metropolitan boroughs provide office accommodation, and the L.C.C. submits annual lists of physically defective children under school age in order that they may be visited by voluntary workers. Children's country holiday funds exist in London and many other parts of the country. The London organisation has a staff of more than a thousand voluntary workers and uses the schools as a centre for the collection of weekly payments from the children.

Finance

Nearly all the expenditure on public education is made by local authorities, and it is mainly financed by local rates and exchequer grants. The central government also incurs a small amount of direct expenditure, which amounted to £14 million in 1935-6 and was divided as follows:

	England and Wales £000	Scotland £000
Administration	324	60
Inspection and examination	323	57
Direct grants for elementary education	10	..
Special schools, play centres, nursery schools, etc.	52	..
Direct grants to secondary schools	615	..
Technical schools, etc.	136	..
Training of teachers	663	..
Pensions, employers' contribution	6,808	936
Pensions, grants for employers' contribution	43	..
Aids to students	215	..
Royal College of Art	16	..
Museums, art galleries, etc.	579	43
Grants to universities and colleges	1,877	
Scientific investigation, etc.	245	
Agricultural education	367	65
Approved Schools	302	62

Many of these items take the form of grants to voluntary organisation. The item technical schools, etc., includes grants to tutorial and other classes, such as those conducted under the Workers' Educational Association and similar bodies. Grants for agricultural education are made by the Ministry of Agriculture and the Scottish Department, both to local education authorities and to agricultural colleges and institutes.

Local government expenditure accounts for 90 per cent of the total. In 1934-5 it was just on £100 million, and was made up as follows:

(i)	England and Wales (elementary only) £000	Scotland (all forms) £000
Teachers' salaries	40,877	8,250
Maintenance of establishments	10,000	1,948
Administration and inspection	2,754	389
Loan charges	4,022	801
Special services	5,328	555
Aids to students and pupils	66	184
Other purposes	3,260	390
	66,307	12,517

(ii) *Higher Education, England and Wales*—	£000
Secondary schools	9,515
Training of teachers	438
Technical schools, etc.	5,084
Administration and inspection	816
Aids to students	1,570
Loan charges	1,725
Other purposes	1,894
	21,042

"Special services" include school medical services, school meals, special schools for defective children, organisation of physical training, play centres and nursery schools, and in Scotland, Approved Schools, county libraries, and technical education for the blind.

The capital expenditure incurred during 1934-5 on school building, extensions, etc., was:

	£000
England and Wales	
Elementary education	3,452
Higher education	1,352
Scotland	769
	5,573

The income to meet the current expenditure of local authorities on public education is derived from three sources: parliamentary votes, local rates, and income from fees and other charges. In 1934-5 the income from these three sources was as follows:

	England and Wales				Scotland	
	Elementary education		Higher education		All forms	
	£000	Per cent	£000	Per cent	£000	Per cent
Parliamentary votes	31,706	48	8,582	41	6,424	51
Local rates, etc.	33,160	50	9,254	44	5,812	46
Fees, charges, etc.	1,441	2	1,879	9	176	1
Other sources			1,327	6	106	1
	£66,307	100	£21,042	100	£12,517	100

The proportion of income derived from parliamentary votes and local rates is roughly the same in respect of both elementary and higher education in England and Wales, but a much greater proportion of total income is derived from fees and charges in the case of higher education.

Unfortunately, it is not possible to distinguish between the figures for elementary and secondary education in the case of Scotland, but the proportion of the income of Scottish educational authorities derived from parliamentary grants is higher, and the proportion derived from fees and "other sources" is rather lower, than the corresponding proportions in England and Wales. Grants to English and Welsh local authorities for elementary education are largely based on the expenditure of the authorities to which they are given, but the formulæ on which they are calculated, contain factors which weight them in favour of the poorer and more populous areas. Extra grants (which amounted to £413,000 in 1933-4) are paid to local education authorities in depressed areas. Grants for higher education in England and Wales are based entirely on reorganised expenditure, and are paid at the rate of 50 per cent of such expenditure.

Universities and University Colleges

The universities and university colleges are self-governing bodies over which the central authorities for education exercise no control, except in the case of training departments for intending teachers. But they receive substantial assistance from the State in the form of direct grants from the Treasury. These grants, which amounted to £1,800,000 in the year 1934-5, are fixed in advance for each quinquenium, on the advice of the University Grants Committee, composed of academic experts.* They also receive a small sum (£12,630 in 1934-5) from the Board of Education, and further grants, (£245,454 in 1934-5) from other Government departments. The total amount of parliamentary grants, £2,058,914, accounted for over a third of the total income of £6,072,651,† of the universities and university colleges of Great Britain in 1934-5. They received a further sum of £598,393—nearly 10 per cent of their total income—from local authorities. Thus 44 per cent of the total income of the universities and university colleges was derived from public funds in 1934-5.‡

PUBLIC MEDICAL SERVICES

The public health services of Great Britain fall into two groups: (*a*) environmental services, such as water supply, sanitation, housing and town planning; and (*b*) personal health services, such as maternity and child welfare, the school medical service, the tuberculosis and venereal diseases services and the institutional treatment of disease. It is with the second of these groups that we are concerned in this survey. The subject will be more fully dealt with in the forthcoming P E P Report on the National Health Services.

* The Parliamentary vote for the University Grants Committee has been raised to £2,100,000 a year for the quinquenium, 1936-41.

† This amount does not include college expenditure as distinct from university expenditure at Oxford and Cambridge.

‡ The remainder of their income was derived from endowments (13.9 per cent), donations and subscriptions (2.7 per cent), tuition fees (24.6 per cent), examination and graduation fees (7.9 per cent), and other sources (7.1 per cent).

Maternity and Child Welfare

For many years before the war voluntary bodies and a few local authorities had been conducting "Schools for Mothers," "Infant Consultations," and "Weighing Centres," and some local authorities had appointed health visitors to give advice to the mothers of young babies. Government grants became payable in 1914, and the Notification of Births (Extension) Act, 1915, provided the statutory basis for an extension of maternity and child welfare schemes throughout Great Britain. The powers granted under this Act were supplemented by the Maternity and Child Welfare Act, 1918.

The scope of maternity and welfare schemes varies considerably in different parts of the country, but schemes in general include the following services: (i) Ante-natal clinics, at which expectant mothers are examined and advised, and in some cases treated for minor ailments. (ii) Maternity hospitals or homes, or maternity beds in other institutions. (iii) Infant welfare centres, at which young babies and children up to the age of 5 years are examined, and their mothers advised concerning their welfare. At some centres treatment is also provided for minor ailments. (iv) A system of home visitation by trained health visitors. Also in England and Wales a public midwifery service is being set up under the Midwives Act, 1936, and in Scotland the machinery for a comprehensive maternity service is provided in the Maternity Services (Scotland) Act, 1937.

In addition to these services, most maternity and child welfare authorities provide institutional treatment for young children's diseases, such as ophthalmia neonatorum, pneumonia, whooping-cough and measles. Many authorities provide convalescent homes for nursing mothers and children under 5. Some authorities provide day nurseries, toddlers' playgrounds and kindergartens, and a few authorities provide home nurses for maternity cases and sick children needing special care. Milk and other foods are supplied to expectant and nursing mothers and to young children in many parts of the country, but this practice is by no means universal.

The School Medical Service

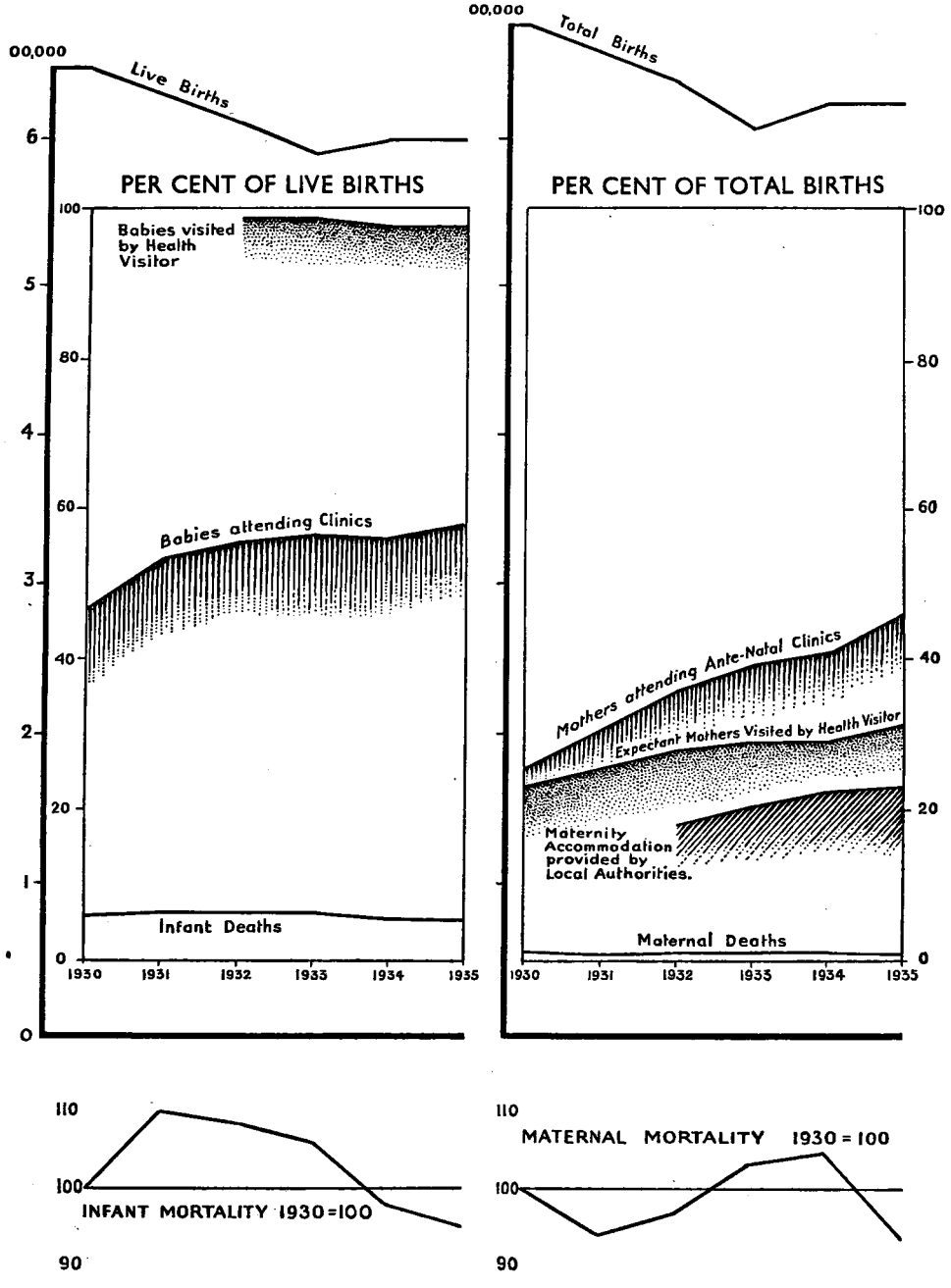
The school medical service was established in England and Wales under the Education (Administration Provisions) Act, 1907, and in Scotland under the Education (Scotland) Act, 1908. Education authorities in England and Wales are now required to provide for the medical inspection and treatment of children in public elementary schools and for the inspection of children in secondary schools and certain other higher educational institutions provided by them. They have the power, but are not obliged to provide treatment for secondary school children. In Scotland education authorities are required to provide for the medical inspection of all children attending schools under their supervision, and they may provide treatment in necessitous cases.

All elementary school children in Great Britain undergo a routine medical examination three times during their school lives—at the beginning, about the middle, and towards the end. In London and some other areas they are examined four times.* In addition to these routine examinations, there are special examinations of defective

* In Edinburgh an annual classroom survey of all children in the primary and intermediate schools has been introduced as an experimental measure.

MATERNITY AND CHILD WELFARE SERVICES

ENGLAND AND WALES, 1930-35



children and of children referred to school medical officers by parents, nurses, teachers or attendance officers on account of special defects or suspected ailments. During the year 1935 over 60 per cent of the children attending elementary schools in England and Wales and about 50 per cent of the children attending elementary schools in Scotland were medically examined either at routine or special examinations. A large number of these children were re-examined at least once during the course of the year.

Medical treatment is provided by most local education authorities for minor ailments, dental defects and defective vision, and for adenoids and chronic tonsilitis. But a quarter of the authorities in England and Wales still make no provision for orthopædic treatment, over one-third (38 per cent) do not provide X-ray treatment for ringworm, and only 31 per cent at present provide artificial light treatment. The position in 1935 is shown in the Appendix.

Treatment was provided in 2,037 school clinics in England and Wales and 221 school clinics in Scotland, and many local authorities had also made arrangements with local hospitals—both statutory and voluntary—for the treatment of special defects.

Infectious Diseases

The general provision of hospitals for infectious diseases by local authorities other than Poor Law authorities began in England and Wales in 1866 and in Scotland in 1867. The Public Health Act, 1875, and the Public Health Act (Scotland), 1897, required local authorities to provide isolation hospitals for infectious diseases, and the Local Government Acts, 1929, reasserted and extended these requirements. Public institutional treatment is now provided for smallpox, diphtheria, enteric fever, scarlet fever, erysipelas, cerebro-spinal meningitis, pneumonia, measles, whooping-cough and other infectious diseases. There exist for this purpose about one thousand isolation hospitals with nearly fifty thousand beds, including over three hundred hospitals for smallpox only, but a large number of infectious cases are now treated in special wards of general hospitals.

Vaccination against smallpox has been compulsory (subject to a "conscience clause") throughout Great Britain since 1867, and immunisation against diphtheria is now available on a voluntary basis by a large number of local health authorities.

The Tuberculosis Service

Before 1911 the systematic provision of tuberculosis services was limited and scattered. Over eighty tuberculosis dispensaries had been established, and nearly 2,000 beds had been provided in sanatoria by local authorities and voluntary organisations, but in the greater part of the country no provision was made. In 1911 a sum of £1½ million for capital grants was given from public funds in aid of tuberculosis dispensaries, hospitals and sanatoria, and in 1912 the Government began to make an annual grant in aid of tuberculosis schemes established by local authorities. Since 1912 a comprehensive tuberculosis service has been developed in practically every part of Great Britain.

The scope and quality of the provision made by local authorities vary considerably, but most tuberculosis schemes include the following general features: (i) an examination of suspected cases (usually passed on by private practitioners) at a tuberculosis dispensary,

with a specialist staff, a laboratory and X-ray facilities. In areas where there is no dispensary this work is performed by a tuberculosis officer in private surgeries, cottage hospitals or the patients' own homes.* (ii) Following up the source of infection in cases where tuberculosis is diagnosed. Members of the patient's family are frequently asked to submit themselves to an examination, and preventive measures are often introduced. (iii) Domiciliary supervision of tuberculosis cases, where institutional treatment is not considered necessary. Patients continue to be treated by their own doctor, but they are also visited regularly by a trained health visitor who reports to the tuberculosis officer. Extra nourishment and special drugs are given if necessary, and also, in some cases, special housing accommodation. (iv) Institutional treatment, where this is considered necessary. Advanced cases are usually treated in special wards of infectious diseases and general hospitals. Less advanced cases are treated in sanatoria or colonies. Non-pulmonary cases—usually children—are treated in orthopædic hospitals and special sanatoria.

The Venereal Diseases Service

The venereal diseases service was established under the Public Health (Venereal Diseases) Regulations, 1916. These regulations continue to govern the service. It normally includes the following features: (i) The organisation of instructional lectures and the publication of information relating to venereal diseases. (ii) Arrangements whereby specimens submitted by general practitioners are examined and reported on by a skilled venereal diseases officer. (iii) The supplying of general practitioners with free salvarsan or its substitutes for the prevention and treatment of venereal diseases. (iv) The provision of centres for the diagnosis and treatment of venereal diseases.

When the service was inaugurated in 1916 the majority of treatment centres were established in voluntary hospitals. In recent years, particularly since the passing of the Local Government Act, 1929, many local authorities have established centres under their direct control, either in *ad hoc* premises or in general hospitals transferred from the Poor Law hospital service.

The General Hospital Service

Since the Public Health Act, 1875, urban health authorities in England and Wales have been empowered to provide hospital accommodation for non-Poor Law cases.† These powers are widely used for the provision of hospital accommodation for patients suffering from infectious diseases. But only three local authorities—those of Bradford, Willesden and Barry—run general hospitals under this Act, and even these were not originally established by the municipality. The Scottish local authorities had a similar power under the Public Health (Scotland) Act, 1867, but this was lost in the Act of 1897, and until recently there were no local authority general hospitals apart from those under the Poor Law in Scotland. In 1929, however, the Local Government Acts, for

* In 1935 100,546 new cases were examined for the first time in England and Wales, 39 per cent of which were found to be tuberculous.

† This power was not given to County Councils when they were set up in 1888. They did not receive it until 1930. (See Local Government Act, 1929, Sec. 14; and Public Health Act, 1936, Sec. 181.)

England and Wales and for Scotland, made possible the appropriation of Poor Law hospitals for general hospital purposes by local authorities, both north and south of the Border. During the last six years many local authorities, including the London County Council and a number of county boroughs in England and Wales, and larger burghs in Scotland, have appropriated Poor Law hospitals for general hospital purposes under these Acts. But very few appropriations have yet been made by county councils owing to the unsuitability of many Poor Law institutions for general hospital purposes and the difficulty of recovering expenses from out-county patients.

The Highlands and Islands Medical Service

The Highlands and Islands Medical Service is an interesting example of a regional service cutting across the traditional local government system of the area which it covers. It was established in 1913 on the recommendation of a departmental committee, which was appointed to consider the adequacy of medical attendance and kindred services in the Highlands and Islands of Scotland. The purpose of the scheme is to ensure that the inhabitants shall be brought into approximately the same position as the inhabitants of the rest of Scotland so far as medical and nursing services are concerned.* Grants are made out of a special Highlands and Islands (Medical Services) Fund: (i) To doctors, in order to supplement the fees received by them from patients, and to provide them with means of transport and travelling allowances; (ii) to nursing associations or other organisations; (iii) to voluntary hospitals, associations, local authorities, and qualified surgeons.

Grants are given to 178 doctors and six specialists, and to 31 nursing associations employing nearly 200 nurses. Four hospitals and three ambulance committees are given financial assistance. Grants are also made towards the provision of houses for doctors and nurses, and of specialised services and to assist in the treatment of tuberculosis in certain areas. It should be noted that maternity and child welfare, the school medical service and the provision made for persons suffering from tuberculosis and venereal diseases remain under the control of the local authorities in the areas covered by the service.

Industrial Health Services

The Factory Department of the Home Office employs medical inspectors who deal with the prevention of occupational diseases and of accidents. The Mines Department of the Board of Trade also employs a Medical Inspector of Factories who is concerned with miner's diseases and accidents.

A service, comparable to the public health services and carried out under statutory enactments, is provided by doctors appointed by the Home Office, but paid by the employers. These are the Certifying Factory Surgeons, and the appointed Surgeons under the Factory Acts. The former must medically examine any young person under

* The area covered by the service embraces the counties of Argyll, Caithness, Inverness (excluding the burgh of Inverness), Ross and Cromarty, Sutherland, Orkney and Zetland, and the Highland District of Perth.

16 within seven days of his taking up employment in a factory (and in some workshops). The latter must medically examine all employees in some dangerous trades at stated intervals laid down by regulation.* Under the Merchant Shipping Acts no person under 18 may be employed at sea without being medically examined.

The Basis of Provision

The only public medical service on a compulsory basis is the vaccination service, but parents declaring a conscientious objection on oath may have their children exempted. The service is free for all without any enquiry into means, but the proportion of exemptions is high. Less than half the children born each year are vaccinated.

The following services, which are on an optional basis so far as the beneficiaries are concerned, are also free for all, without any enquiry into means:

Maternity and child welfare service (except the treatment of maternity cases, invalid mothers and children and so on, in hospitals and other residential institutions, and the provision of milk and other foods).

The medical inspection (but not the treatment) of school children.

The tuberculosis service (except the treatment of some cases in hospitals, sanatoria and other residential institutions).

The venereal diseases service (except the in-patient treatment of some cases in hospitals).

Free accommodation and treatment are available for necessitous cases in all types of public hospitals and residential medical institutions, but local authorities in England and Wales are obliged to make an attempt to recover some part of the cost of hospital treatment and maintenance (except for patients in infectious disease hospitals) either from patients or their families, subject to an enquiry into their financial circumstances. In the case of school medical treatment a nominal charge is usually made, but this is remitted, either wholly or in part, where family circumstances warrant it.†

Milk and other forms of nourishment are supplied by many local authorities to expectant and nursing mothers, and to young children at maternity and child welfare centres, but charges are usually made (though they are sometimes nominal) to all save necessitous cases.

Central Administration

In Scotland the central authority for the administration of all the public medical services which have been described in the preceding paragraph, except the factory medical services, is the Department of Health for Scotland. In England and Wales the Ministry of Health is the central authority for maternity and child welfare, tuberculosis, venereal diseases and the hospital services, but the Board of Education is the central authority for the school medical service. A measure of co-ordination is secured by the appointment of one chief medical officer for the two departments. The functions of the

* The Factories Bill, introduced into the House of Commons by the Government in February 1937 is a comprehensive measure for the purpose of bringing up to date existing legislation. Under it these duties will be performed by the "examining surgeons."

† In London the charges are 1s. for minor treatment and 2s. for more serious ailments.

central departments with respect to the public medical services are primarily supervisory. It is their business to see that the requirements of Acts of Parliament are complied with by local health authorities and, by the use of their statutory powers and their control over Government grants and local borrowing, to make sure that local authorities maintain a reasonable standard of efficiency and progress. But the central departments also play an important part in collecting information and statistics, supplying expert advice and planning new developments.

Local Administrative Areas

Maternity and child welfare services and school medical services are organised by the following authorities in England and Wales and Scotland:

HEALTH AUTHORITIES ORGANISING MATERNITY AND CHILD WELFARE SERVICES—1937

	England and Wales	Scotland
Metropolitan boroughs	29	—
County boroughs or large burghs	83	24
County councils	62	31
Municipal boroughs	147	—
Urban district councils	86	—
Rural district councils	10	—
	417	55

AUTHORITIES ORGANISING SCHOOL MEDICAL SERVICES 1936

	England and Wales	Scotland
London County Council	1	—
County boroughs or large burghs	83	4
County councils	62	31
Municipal boroughs	146	—
Urban district councils	24	—
	316	35

The tuberculosis service is administered by the councils of each of the counties and county boroughs in England and of each of the counties and large burghs in Scotland. In Wales the service is carried out by a voluntary association—the King Edward VII Welsh National Memorial Association—which receives grants from county and county borough councils. In three English counties and four English county boroughs the functions of the separate councils are exercised through three tuberculosis joint committees. Several of the Scottish authorities are also combined. In London the tuberculosis

dispensary service is undertaken by the City of London and the 28 metropolitan boroughs under special arrangement with the London County Council which, however, supervises the tuberculosis service as a whole and provides treatment in sanatoria and other residential institutions.

Venereal diseases services are undertaken by each of the county boroughs and counties in England and Wales, and the large burghs and counties in Scotland, some of them in combination.

The London County Council provide 3 hospitals for smallpox and 11 for other infectious diseases. In the rest of England and Wales hospitals are provided either by joint hospital boards, by isolation hospital committees, by voluntary combinations of authorities, or by single authorities. The position in 1936 is shown below:

	Joint Hospital Boards	Isolation Hospital Committees	Voluntary* Combinations	Single Authorities
For smallpox.				
Number of hospital authorities . .	10	8	43	177
Local authorities co-operating:				
County councils	—	—	—	11
County borough councils . .	7	1	—	48
Municipal boroughs . . .	16	5	18	43
Urban districts	47	38	94	34
Rural districts	28	37	57	32
Port sanitary authorities . .	—	—	—	9
TOTAL . .	98	81	169	177
For other diseases				
Number of hospital authorities . .	88	75	40	387
Local authorities co-operating:				
County councils	—	—	—	5
County borough councils . .	1	—	—	81
Municipal boroughs . . .	69	29	15	88
Urban districts	178	167	48	122
Rural districts	97	87	55	84
Port sanitary authorities . .	—	—	—	7
TOTAL . .	345	283	118	387

In Scotland the service is provided by the councils of the 31 counties and the 24 large burghs.

This service is still undertaken by many small authorities both in England and Wales and Scotland. But the Local Government Act, 1929, required every county council

* Authorities are not obliged to inform the Ministry of voluntary combinations. These figures are the total known to the Ministry.

in England and Wales to prepare and submit for the Minister's approval a scheme giving adequate accommodation for the treatment of infectious disease within its administrative area. The County Councils were thus recognised as the bodies responsible for the general co-ordination of the hospital services of the municipal boroughs and district councils within its borders. Schemes have now been approved by the Minister for about half the total number of administrative counties. The object of these schemes is to secure central hospitals of a convenient and economical size suitable for serving reasonably wide areas. This centralisation of accommodation has been achieved in several different ways. In some cases the county council has become the hospital authority for the whole or specified parts of the county. In other cases either joint hospital districts have been formed by grouping various district authorities, or district authorities have entered into arrangements for the reciprocal use of accommodation. Arrangements have also been made whereby accommodation necessary for some county areas may be secured in a hospital belonging to a county borough council. A similar policy of hospital concentration has also been adopted in Scotland.

The provision of general hospital accommodation for sick persons outside the Poor Law is a function of all county and county borough authorities in England and Wales, and all counties, cities and large burghs in Scotland. In practice, however, the service is still only given by the London County Council, 39 county boroughs, 10 county councils, one municipal borough and one urban district council in England and Wales, and by four authorities in Scotland.

It will be seen from this short survey that, although the counties and county boroughs in England and Wales are the principal authorities for administering all the public medical services, maternity and child welfare work is still undertaken by 147 municipal boroughs and 86 district councils; that the school medical service is still administered, so far as the elementary schools are concerned, by 146 municipal boroughs and 24 urban district councils (though the county councils are responsible for the medical service in secondary schools in these areas); and that the infectious diseases service is still provided by a multitude of small authorities, in spite of the new policy of hospital concentration. Meanwhile, the emergence of the county boroughs and county councils as general hospital authorities is proceeding very slowly. But there is no mistaking the trend in the direction of making these authorities public medical authorities in a comprehensive sense. At the same time, in a few cases wider areas of administration have been secured by the grouping of counties and county boroughs in joint authorities for tuberculosis and infectious diseases services. In one case—the regional scheme of public health administration in the Aberdeen area—all the medical services of two counties and an important city have been brought into a joint scheme.*

* The Aberdeen Regional Scheme serves the counties of Aberdeen and Kincardine and the City of Aberdeen, an area with a total population of 370,000. The public health services of the three authorities have been placed under the administrative control of one Chief Regional Medical Officer of Health. Under the Chief Regional M.O.H. there are four Divisional Medical Officers responsible for general health work, and a number of whole-time specialists in tuberculosis, infectious diseases, maternity and child welfare, venereal diseases and school medical inspection. The institutional resources of the area are pooled, and there is close co-operation between statutory and voluntary hospital authorities. But the public health committees of the three authorities remain responsible for the services in their own areas, and each authority bears its own share of the cost. Co-operation had begun earlier, but the scheme in its present form was made possible by the Local Government Act, 1929.

Local Administration

The administration of all the public medical services of a local health authority, with the exception of the school medical service, is controlled, in some cases, by a health committee, consisting of members of the elected council of the authority, with appropriate sub-committees, and in other cases by a series of special committees dealing with different aspects of public health. The elected committee or committees are advised by a special executive officer—the Medical Officer of Health for the area. He is the administrative head of the public health department of the authority, and it is his duty to supervise all its public health and medical services. There were, in 1936, 1,194 medical officers of health in England and Wales, of whom 452 were full-time officers and 742 were part-time officers who were also engaged in private practice. Most of the part-time medical officers are officials of urban and rural district councils, but as a matter of general policy arrangements are now being formulated whereby all medical officers appointed by these authorities in future shall be restricted from engaging in private practice.* It will inevitably take some time before a service of full-time M.O.H.s can be established throughout the country. Medical officers of health are usually assisted by one or more assistant medical officers, who sometimes specialise in a particular service, such as tuberculosis or maternity and child welfare. Medical officer's staff also includes a number of health visitors, who sometimes specialise in a particular service, but who usually carry out the work of home visitation for more than one service. Local arrangements vary according to local circumstances, which differ widely in urban and rural areas.

The local administration of the school medical service is usually controlled by a sub-committee of the Education Committee of the local authority. This sub-committee is advised by a special executive officer, the School Medical Officer for the area, who is responsible for the day-to-day administration of the service. Under the Birmingham City Council and several other large provincial authorities the work of the Medical Officer of Health's department is quite distinct from that of the School Medical Officer, and it is separately staffed, but under many other authorities school medical work is combined with the rest of the public medical services and is carried out in the same department under a single chief officer. Nevertheless, it is to the Education Committee and not to the Health Committee of the authority that a medical officer with combined duties is responsible for the school medical work of his department. The position in England and Wales in 1936 was as follows:

	Combined depts.	Separate depts.
Counties	63	—
County boroughs	75	8
Municipal boroughs	135	11
Urban districts	23	1
TOTAL	296	20

* Arrangements of this kind have already been formulated by 19 county councils, in consultation with district councils within their areas.

Co-operation with Voluntary Bodies

Voluntary effort continues to play an important part in the administration of some of the public medical services. In the maternity and child welfare service 1,122 out of 5,345 local centres in England and Wales are provided by voluntary organisations; part of their upkeep is financed from voluntary funds; and large numbers of voluntary workers take part in their activities. But the local health authority is responsible for their general supervision and the maintenance of an adequate standard.

The school medical service is under statutory authorities, but in London and some provincial towns a system of School Care Committees, employing a large number of voluntary workers, is associated with its administration. In London there is a School Care Committee attached to every public elementary school. Twelve organisers are paid by the London County Council, and there are about 5,000 voluntary workers, who receive a short preliminary training before they undertake any responsible duties. The Care Committee act as agents of the Special Services Sub-Committee of the County Council for the purpose of supervising the general welfare of school children, and they are entrusted with the responsible task of recommending necessitous children for free meals and assessing the capacity of parents to pay the nominal sums charged by the Council for medical treatment. They also perform a valuable service in "following-up" medical treatment and putting parents and children in touch with voluntary associations (such as the Invalid Children's Aid Association) which can give them special kinds of help.

Although the treatment of venereal diseases is a public service, about two-thirds of the treatment centres are conducted in voluntary hospitals with special officers and staff. In these cases the local authority makes an annual grant to the voluntary hospital for services rendered.

Finance

The total public expenditure on the medical services included in this section in the year ending March 31, 1934, was £22,461,000, distributed as follows:

	England and Wales	Scotland	Total
	£000	£000	£000
Maternity and child welfare	3,077	298	3,375
School medical service	2,129	170	2,299
Tuberculosis	3,699	653	4,352
Venereal diseases	436	86	522
General hospitals	4,660	90	4,750
Highlands and Islands Medical Service Fund	—	80	80
Infectious diseases*	4,061	1,227†	7,083
Salaries of M.O.H.'s, health visitors, etc., not allocated	1,795		
	£19,857	£2,604	£22,461

* Includes notification, disinfection, etc., and vaccination.
† Includes sanitary inspection, meat inspection, food and drugs and other minor items.

On the other hand, there were the following receipts from beneficiaries to set over against the expenditure on maternity and child welfare, the school medical service, tuberculosis, infectious diseases and general hospitals.

	England and Wales	Scotland	Total
	£(000)	£(000)	£(000)
Maternity and Child Welfare . .	456	16	472
School medical service . . .	110	—	110
Tuberculosis	123	19	142
Infectious diseases	208	9	217
General hospitals	460	22	482
TOTAL	£1,357	£66	£1,423

It will be seen that the amounts received were a very small proportion of the total expenditure in each case. The net public expenditure on the medical services included in this section in the year ending March 31, 1934, was £21,038,000. In the case of the school medical service the central government makes an annual grant to local education authorities equal to 50 per cent of their rate expenditure on the service. The remaining services are financed out of local rates, but local authorities receive a General Exchequer grant, which in 1933-4 amounted to £45 million in England and Wales, and £6 million in Scotland, towards the cost of their local services. Unfortunately, no information is available as to the allocation of this grant to specific local government services.*

THE WELFARE OF THE BLIND

Before 1920 there was no systematic provision by public authorities for those who suffered from blindness. Education authorities had established special schools for blind children, Poor Law authorities had granted relief and provided institutional accommodation in many necessitous cases, and many charitable associations had supervised the welfare of thousands of blind people. But it was not until the Blind Persons Act was passed, in 1920, that non-contributory pensions became payable to blind persons over the age of 50† and local authorities were obliged to establish comprehensive schemes for the welfare of blind persons in their areas. A Government measure which is to be submitted to Parliament this year (1937) provides for the payment of non-contributory pensions to blind persons at the age of 40.

* Prior to 1929 government grants for most of these services were made on a percentage basis. Thus the grant for maternity and child welfare was 50 per cent of local expenditure; tuberculosis, 50 per cent, together with certain fixed grants; and venereal diseases, 75 per cent. A General Exchequer Grant is made under the Local Government Act, 1929, to compensate for the loss of rate income due to derating and to replace the percentage grants. It is weighted to allow for special need by means of a formula based on total population, infant population, rateable value per head of population, unemployment, and (in the counties) size of population per mile of road. The grant was revised in 1933 and 1937, and will be revised again every five years.

† Chapter V, page 118, footnote.

Blind welfare schemes usually include the following features:

(i) Arrangements for the proper certification of blindness.

(ii) Arrangements for the training and employment of employable blind persons in workshops for the blind or in their own homes (under home workers' scheme).

(iii) The provision of a home teaching service for the social welfare of blind persons in general, and in particular, for teaching them to read Braille and Moon type, and to occupy themselves with simple pastimes.

(iv) The organisation of general welfare and recreational activities for blind persons.

A growing number of local authorities also provide financial assistance for blind persons other than by way of poor relief.*

The Basis of Provision

The certification and registration of blind persons and the home teaching and social welfare services for the blind are carried out at the cost of the local authority or the voluntary societies. In the workshops and in Home Workers' schemes an "augmentation" is paid to blind persons as an addition to their wages, calculated to offset the lower wage which they can command as a result of their handicap of blindness. Many local authorities provide, as they have power to do, domiciliary assistance outside the Poor Law subject to a test of means which is usually less strict than the Poor Law test. But this practice is not universal and legislation is to be introduced to divorce everywhere all assistance to the blind from the Poor Law.

Central Administration

The central authority for the administration of the blind welfare service in England and Wales is the Ministry of Health. The central authority in Scotland is the Department of Health for Scotland. Since 1929 the responsibility for the welfare of the blind has been devolved almost entirely on to the local authorities, consequently the central departments only act in a supervisory and advisory capacity. Both the central departments are assisted in their work by an Advisory Committee on the Welfare of the Blind.

Administrative Areas

The blind welfare service is undertaken by all the county and county borough councils in England and Wales, and by all the county councils and the large burghs in Scotland.

Local Administration

The supervision of local blind welfare schemes is usually undertaken by a Blind Welfare Committee composed of members of the elected council of the authorities with,

* The Local Government Act, 1929, provided that local authorities may grant domiciliary assistance to blind persons *exclusively* under the Blind Persons Act, 1920. In 1935, 63 out of 143 blind welfare authorities in England and Wales had made arrangements for giving domiciliary assistance to blind persons exclusively under this Act.

in some cases, a few co-opted persons. The responsible administrative officer is usually the Medical Officer of Health for the area. But it is an interesting feature of most blind welfare schemes that the actual provision of the service—or parts of it—is delegated to a voluntary organisation. Thus in London up to March 31, 1935, voluntary organisations provided workshop employment, Home Workers' schemes, and homes and hostels for the blind, all with some measure of financial assistance from the London County Council. One of the voluntary societies concerned, the Metropolitan Society for the Blind, performed registration and home teaching and acted for the L.C.C. in the payment of domiciliary assistance. At the date mentioned, however, the L.C.C. decided to take over all the routine work of the Metropolitan Society which continues to exist, and that Society now provides only subsidiary services, e.g. occupational pastime centres and maintenance of wireless sets. This is in line with the tendency of some large local authorities to increase their share in the direct administration of their blind welfare schemes.

Where the provision of domiciliary assistance to necessitous blind persons, other than by way of poor relief, is not delegated to a voluntary organisation, the service is usually administered by a special sub-committee of the local authority's Blind Welfare Committee.

THE MENTAL HEALTH SERVICES

The mental health services provide for two quite distinct types of person (i) those suffering from mental disorders (formerly called "lunatics"), and (ii) those suffering from arrested development of mind, whether congenital or induced by injury or disease before development is complete. The services dealing with the former type of person may be described as mental *treatment* services, the presumption now being that mental disorders are curable, or at any rate, amenable to treatment. The services dealing with the latter type of person are usually described as mental deficiency services. There are, of course, a certain number of mentally defective persons who also suffer from mental disorders. These persons may be dealt with by either or both of the two mental health services.

Owing to the existence of obvious dangers to the community, the law has long made provision for dealing with persons of unsound mind and certain types of mental defectives.* The existing arrangements are still governed to some extent by protective considerations, but the interests of the sufferers themselves are now paramount. Elaborate arrangements, with the necessary safeguards against mistakes and abuses, exist whereby persons suffering from mental disorder may be certified and detained, and there are similar arrangements for mental defectives. Provision is also made for the protection of the interests and property of mental patients and of mental defectives, and, above all, for their treatment and welfare.

* An Act of 1808 gave Justices of the Peace power to provide asylums for lunatics. The Lunacy Commission was founded in 1845, in which year provision was also made for the establishment of county and borough asylums. The Lunacy Act, 1890, established the Board of Control. In Scotland there were a number of Royal Asylums, established under charter before the Lunacy Act of 1857. The Scottish Board of Control was established in 1890.

Persons suffering from mental disorders are cared for in about a hundred institutions maintained by county and county borough councils in England and Wales, and 21 district asylums maintained by county and large burgh councils in Scotland. Some patients are also looked after in Poor Law institutions, particularly in Scotland, some in institutions run by voluntary organisations and others in private asylums run for profit. Most of the patients admitted to these institutions until comparatively recently have been in an advanced stage of disease. During the last few years, however, there has been a welcome tendency for patients to come for treatment at an early stage when there is often considerable hope of recovery. The Mental Treatment Act (England and Wales), 1930, provided for the admission of rate-aided patients on a voluntary basis without certification, and for the admission of temporary patients needing treatment on the certificate of two medical practitioners without a magistrate's order. Another important development under this Act has been the establishment of a number of out-patients' treatment clinics often in collaboration with general hospitals.

Before the Mental Deficiency Act, 1913, there was no systematic provision for mentally defective persons, as distinguished from those suffering from mental disorders. Since 1913, however, an important new service has grown up.

A considerable number of mentally deficient children are looked after in special schools in which the pupils are trained until they are 16 but, owing to lack of accommodation in special schools, many of them remain in ordinary elementary schools. There are some residential and some day schools where these children can be taught so that they can enter the labour market. For mental defectives over 16 there is provision in institutions and in residential colonies. Supervision is also arranged for mental defectives needing care but living in the community. Occupational classes, industrial centres, clubs and evening classes are organised for them.

Basis of Provision

Criminal lunatics are treated without charge. All other patients, or their relatives for them, have to contribute towards their maintenance in the mental hospitals of public bodies.

No charge is made for attendance at special day schools for mental defectives. Destitute persons are also given free accommodation in residential schools and colonies. The cost of maintenance, however, of other persons, both in public institutions and in institutions supported by voluntary organisations, is partly met by the patients or their relations.

Central Administration

The Board of Control for England and Wales and the General Board of Control for Scotland, supervise and inspect all places whether public or private in which lunatics are detained. They must supervise the welfare of the patients and enquire into any accidents or deaths which may have occurred in these institutions. They are also super-

visory authorities for institutions for adult mental defectives. The Boards of Control are responsible to the Minister of Health and to the Secretary of State for Scotland respectively. The supervisory authorities for special schools for mentally defective children are the Board of Education and the Scottish Education Department.

Other central departments administer two criminal lunatic asylums, and one naval and one military hospital for mental cases.

Local Administration

The Mental Deficiency Act, 1913, makes it possible for the Lunacy Acts and the Mental Deficiency Acts to be administered by a single local committee, but in the case of the great majority of local authorities, the two services are administered by separate committees.

Mental Treatment

Every county and county borough council in England and Wales and every county and large burgh council in Scotland must provide adequate mental hospital accommodation for rate-aided patients. They also have the power, which in England and Wales is almost always exercised, of providing for "paying patients." They may provide for the treatment of out-patients suffering from mental disorders, and they may contribute to the funds of any voluntary hospital undertaking this work. They may also make provision for the after-care of patients who have been treated for mental illness and contribute to the funds of voluntary after-care organisations. These powers and duties are exercised through a special Mental Hospital or Visiting Committee. If there is more than one hospital in the area, sub-committees are sometimes appointed to do the work of the Visiting Committee for each hospital. Some local authorities have combined for the purpose of running joint mental hospitals. Notable examples include the Lancashire Mental Hospitals Board, the West Riding Mental Hospitals Board, and the Staffordshire Mental Hospitals Board. Some authorities pay for the housing of the destitute mental patients in independent institutions such as the Royal Asylums in Scotland.

The work of voluntary organisations in this branch of the mental health service takes the form of maintaining private mental hospitals and nursing homes and of performing after-care work; of establishing out-patients' clinics for mental treatment at voluntary hospitals; and of providing research and consultant institutions, such as the Tavistock Clinic, and child guidance clinics for difficult and abnormal children.

Mental Deficiency

The administration of the public mental deficiency services is shared between two committees of local authorities:

(i) The Education Committee is responsible for the ascertainment and education of defective children (other than idiots and imbeciles) from the age of 7 to 16,

and for the notification to the Committee for the Care of Mental Defectives of certain classes of defectives.

(ii) The Committee for the Care of the Mentally Defective* is responsible for all defective persons notified by the local education committee, and for mental defectives found neglected, cruelly treated, or in any trouble with the police. The committee must provide supervision or guardianship, or must arrange for sufficient institutional accommodation of the appropriate kind for mentally defective persons for whom neither supervision nor guardianship affords adequate protection. Institutional care may be provided within their own institutions or in institutions provided by other local authorities or voluntary bodies. Thus many of the authorities in the Eastern Counties pay for the maintenance of defectives in the Royal Eastern Counties' Institution at Colchester, which is an independent voluntary body. In Lancashire the Lancashire Mental Hospital Board administers two institutions for mental defectives for the use of the constituent authorities.†

Voluntary associations for the care of the mentally defective play an important part in the administration of the mental deficiency service in some areas in Great Britain. For example they perform such functions for the local authorities as providing for the care of those under guardianship and supervision.

EMPLOYMENT SERVICES

The troubled history of British unemployment insurance and the vast efforts required to maintain the unemployed has diverted public attention from the fact that the Ministry of Labour has also been responsible for several constructive employment services which play an important part in our social life. These services include the national employment exchange system, which was established under the Labour Exchanges Act, 1909, the juvenile employment services, and the provision of training, instruction and welfare schemes for unemployed men and women.

The Employment Exchanges

For many years before 1909 experimental labour exchanges—for the purpose of bringing together employers who needed labour and unemployed persons who required work—had been started in many parts of the country. But it was not until that year that a national system of employment exchanges was established. This system has greatly developed during the last twenty-seven years, although its essential features remain unaltered. It consists of a network of local employment agencies and a clearing-

* In some areas this committee is called the Mental Health Committee.

† Public Assistance Committees have certain responsibilities towards destitute mental defectives, but in an increasing number of areas this responsibility is being transferred to the local Committee for the Care of Mental Defectives.

house system. Thus there are 1,188 local agencies of the Ministry of Labour (452 exchanges and 736 offices and branch offices) engaged in registering applicants for work and placing them in employment with firms notifying vacancies. There are also three specialised exchanges in London, the Building Trades Exchange and the Hotel and Catering Trades Exchange, dealing exclusively with the employers and workpeople in these trades, and Great Marlborough Street for educated women. Vacancies for which no suitable applicants are available at local offices are "cleared" by circulation to other offices, by telephone or printed lists. There are special clearing arrangements by divisional offices and for certain regions, all working under a National Clearing House in London. During the year 1935 over 2½ million engagements were effected through the agency of the national employment exchange system. The exchanges have always advanced fares to enable workpeople to take up jobs notified in distant areas. As an extension of this work, the Ministry of Labour has made special arrangements since 1928 for assisting unemployed workpeople in the depressed areas to move to other districts offering better prospects of work. Railway fares are paid for the worker and his family, lodging allowances are made pending the removal of the household, and financial aid is given towards the cost of removal and re-settlement. Over 140,000 workers have taken advantage of this scheme of industrial transference during the last eight years.

The Juvenile Employment Scheme

The Labour Exchanges Act, 1909, provided for the establishment of special departments of local employment exchanges to advise boys and girls leaving school on the choice of employment, to find suitable employment for them between the ages of 14 and 18, and to supervise their industrial welfare. The Education (Choice of Employment) Act, 1910, also empowered local education authorities to set up juvenile employment bureaux for the same purpose in their own areas. There are now 195 Ministry of Labour juvenile advisory committees; and juvenile employment bureaux are provided by 108 local education authorities. But the same functions are performed by both types of organisation, and both are now supervised by the Ministry of Labour.

Training and Welfare Schemes

The Ministry of Labour maintains several kinds of training institutions for unemployed men and women:

(i) Residential training centres for men who wish to enter new occupations requiring some degree of skill. The normal course is six months.

(ii) Residential and non-residential instructional centres and summer camps rehabilitating men who have got out of condition as a result of long-term unemployment. Twelve weeks is the normal duration of a course.

(iii) Non-residential physical training centres for unemployed men in certain areas.

(iv) Domestic training centres for girls and women (residential and non-residential).

The numbers of workers who have attended these training centres in recent years are set out in the Appendix.

Administration

The employment services included in this section are all under the central control of the Ministry of Labour and, with the exception of the juvenile employment bureaux, they are administered locally by the Ministry's officers. The juvenile employment bureaux (as distinct from the Ministry's own juvenile employment exchanges) are controlled by local education authorities, under the central administrative supervision of the Ministry of Labour.

For the adult service there are many local advisory committees established for the purpose of obtaining the advice and active co-operation of local people in the work of the exchanges. There were, at the end of 1936, 335 local employment committees, with a total membership of approximately 10,000, attached to local employment exchanges. There were also 195 juvenile advisory committees attached to juvenile employment exchanges and 145 similar juvenile employment committees attached to juvenile employment bureaux. The total membership of these committees was about 4,500. In addition there were a number of regional advisory committees and advisory committees for special problems (e.g. committees for advising pupils from public and secondary schools) and there were two national advisory committees for juvenile employment, for England and Wales and Scotland respectively.

Co-operation with Voluntary Bodies

The Ministry of Labour co-operates with voluntary organisations in a number of different ways. In some occupations the trade unions play an important part in placement and in the distribution of unemployment insurance benefit. Voluntary organisations also provide certain training facilities—such as the Headingham Scout Training Camp, which is recognised and assisted by the Ministry. The Ministry also contributes an annual grant to the National Council of Social Service for the purpose of organising occupational and welfare centres for the unemployed. At the end of 1936 there were over 1,500 occupational or welfare centres, the majority of which were serving areas where unemployment had been heavy and prolonged.

IV. THE CONSTRUCTIVE COMMUNITY SERVICES: GENERAL REVIEW

The Nature and Extent of Provision: Education—Public Medical Services—Blind Welfare Service—The Mental Health Services—The Employment Services—**The Basis of Provision:** Compulsion—Recovery of Cost—The Method of Fee Charging—The Need for a Review of the Basis of Provision—**Central Administration:** Central Control and Guidance—**Administrative Areas—Co-operation with Voluntary Bodies—Finance.**

THE NATURE AND EXTENT OF PROVISION

The survey which has been made in Chapter III demonstrates beyond any doubt the great importance of the constructive community services in the life of the nation. They play a vital part in maintaining and raising the general standard of both individual and social well-being among the great majority of the population. They are essentially *constructive* services in that they seek to improve individual fitness and the social adaptation of the persons with whom they deal. They provide an army of specialised professional workers—teachers, doctors, dentists, nurses, consultants, health visitors, home instructors, employment officers and others, and a large number of specialised institutions—schools, clinics, hospitals, sanatoria, blind workshops, special colonies and asylums, employment exchanges and training centres—for the use of those who need them. They are truly *community* services in the sense that they are not legally restricted to a particular social class. It is true that most well-to-do people and many who are only moderately well off normally prefer to use private facilities. But all the constructive community services are available for all who need them, irrespective of social class or income. Some of them, notably higher education, the specialised medical services and the employment exchange system, are used by others than the poor.* Nevertheless, it cannot be said that the constructive community services are by any means complete; there are still many gaps and shortcomings. The most important of these may now be mentioned, in the form of very brief and summary notes.

Education

Nursery Schools and Classes

Some advocates of nursery schools consider them to be indispensable for all children between 2 and 5, particularly in view of the diminution of large families. Others

* Many endowed schools and all the Universities and university colleges are now grant aided. An ordinary University student has 84 per cent of the cost of his education paid by the general tax-payer. Jobs at £1,500 a year are occasionally notified to the employment exchanges and filled by them.

maintain that they are only necessary in cases where the home conditions are manifestly unsuitable. At present only 5,000 children between 2 and 5, that is, less than 1 in 300, are in nursery schools, and less than one-tenth of the children of these ages are in the nursery or infant classes of ordinary elementary schools. Even on the latter view, therefore, the existing provision is still very inadequate.

Primary Education

In many respects, some of the best educational work to-day is done in infants' departments and junior schools. But it is seriously impeded in many parts of the country by the antiquated and, frequently, dilapidated character of school premises and the over-large size of classes. There were still, in September 1936, 1,054 schools on the "black list" in England and Wales alone, and a very large proportion of these include infants and junior departments. On March 31, 1935 there were 3,285 infants' and junior classes with more then 50 scholars.

Post-Primary Education

"Hadow" reorganisation is still very far from complete, especially in the rural areas. On March 31, 1936, about 40 per cent of the boys and girls in the senior schools and departments were still unaffected by reorganisation. In the countryside, where transport difficulties are an obstacle to concentration of pupils in senior schools, and in the Home Counties, where there has been an abnormally large increase in the school population as a result of the migration of industry and the creation of new housing estates, reorganisation has made even smaller progress. Many new school buildings are needed, not only to reduce the size of classes and to replace cramped and out-of-date premises, but also for a new and much more varied and realistic form of post-primary education.

Education from 14 to 18

For the great majority of boys and girls, formal education ceases entirely at the end of the term in which their fourteenth birthday occurs. Relatively few continue their education full time beyond this age in secondary and other post-primary schools, and although there is a wealth of provision of part-time day and evening classes, only about one boy in five and one girl in seven attend. The Education Act of 1936 raises the statutory school-leaving age to 15 in 1939, but it contains an unsatisfactory system of exemptions which will probably destroy its effectiveness, and it leaves the 15 to 18 age group untouched. Some measure of continued education up to the age of 18 is clearly needed for all. (The subject has been fully discussed in a previous P E P Report: The Entrance to Industry.)

University Education

All young men and women who would benefit from a university education do not go to a university. In spite of the existing scholarship facilities and maintenance allowances, it is impossible for many parents to enable their children to continue their education full time beyond the age of 18, and of those who do so, many are called upon to make crippling sacrifices. Without necessarily greatly increasing the existing number of university places, a more selective test on entrance together with improved scholarship

facilities would undoubtedly add greatly to the social value of the universities and university colleges.

Public Medical Services

Maternity and Child Welfare

The persistence of a high rate of maternal mortality and a large amount of illness and invalidism resulting from childbirth suggests that much remains to be done before we can be content with the maternity welfare services. The causes of the failure to reduce maternal mortality and morbidity are not altogether clear. Fundamental changes in social behaviour may well prove to be more important than any failure in professional skill or institutional care, but there can be no doubt that many lives now lost could be saved and much ill-health avoided by the provision of better public facilities. A comprehensive maternity service has not yet been created. There is still a serious lack of trained midwives, but the 1936 Midwives Act for England and Wales should result in important improvements in this service. Under it local authorities must provide midwifery service to meet the needs of their area. The Maternity Services (Scotland) Act, 1937, goes even further, and stipulates that a general practitioner and a specialist consultant should also be available. Only a small proportion of expectant mothers outside the large towns attend ante-natal clinics. Consultant obstetricians are not available in many parts of the country, and there is a serious shortage of ante-natal clinics, hospital accommodation and convalescent homes in many areas. More attention should also be paid to the nutrition of expectant mothers.*

The infant welfare service has reached a very advanced stage of development so far as children under the age of 12 months are concerned. Nearly all young babies are visited by health visitors, and well over half of them are brought to infant welfare centres. There is, however, still a good deal to be done to bring this service in the country areas up to the best standards of urban provision, and the supervision of children between the ages of 1 and 5 is very defective in most parts of the country. The first medical examination at school usually reveals a crop of minor ailments and not a few serious defects which would not have arisen if there had been effective medical supervision between 1 and 5.† There is also some evidence that many nursing mothers and young children suffer from the lack of milk and other nourishment in areas where these foods are not provided at maternity and child welfare centres.

School Medical Service

The extraordinary variations in the services rendered by the school medical service in different parts of the country (see Appendix) suggest that there is much leeway to be

* In 1934 the National Birthday Trust provided funds for the improvement of the maternity services in the Rhondda Valley, where the mortality rate had been exceptionally high for many years. The scheme started with increasing the provision for ante-natal care and introducing refresher courses for midwives, but in spite of these efforts the puerperal death rate continued to rise. In the next year food was distributed to all the undernourished mothers. The puerperal death rate fell from 11.3 to 4.8, and not a single death occurred among the mothers receiving food.

† The Ministry of Health has addressed a circular (Circular 1550 of May 29, 1936) to local authorities calling attention to the need for further measures of supervision of the health of all children of these ages.

made up by many authorities. There is a strong case for *at least* four medical examinations during school life (as in London) instead of the three examinations normally made, though some authorities advocate annual examinations (some of which might be held in the classroom, as in Edinburgh). But the gravest inadequacy is undoubtedly to be found in the dental service. Only two-thirds of the elementary school children in England and Wales in 1934 were dentally examined; of these nearly 70 per cent were found to require treatment. The Board of Education has estimated that an efficient service would require one dentist for every 5,000 children. Actually the ratio in England and Wales is 1 to 7,000 and in Scotland 1 to 14,000.

Infectious Diseases

The infectious diseases service is the oldest public medical service, and its defects are defects of age rather than of scope. There is no lack of hospital accommodation except in outlying areas, but much of this accommodation is uneconomical and old-fashioned. Under the Local Government Act of 1929 county councils in England and Wales were required to make surveys of infectious disease accommodation and to submit schemes for improvement. As a result the concentration of hospital accommodation in large modern units with up-to-date equipment is proceeding, but much still remains to be done before the service is completely modernised. Comparatively few local authorities provide artificial immunisation against infectious diseases.

Tuberculosis

Tuberculosis is for the most part a poverty disease. It is closely associated with bad housing, overcrowding, poor feeding and low standards of personal and domestic hygiene. A further reduction of the mortality and morbidity rate largely depends on an improvement in general social conditions rather than on any extension of the existing tuberculosis service, which is very highly developed in most parts of the country. Nevertheless there is considerable room for improvements in the quality of the tuberculosis service, especially in rural areas. In particular, there is a need for large up-to-date institutions providing modern treatment and for increased collaboration between the public tuberculosis officers and private practitioners, school doctors and industrial welfare workers in order to reduce the heavy incidence of tuberculosis on young people between the ages of 15 and 25.

Venereal Diseases

The venereal diseases service has been very successful in reducing the incidence of venereal disease during the last fifteen years. Its only serious shortcoming is its failure to hold a large proportion of patients sufficiently long to complete treatment. In 1934 some 24,000 persons in Great Britain ceased to attend clinics before their treatment was completed. The ratio of defaulters to persons cured was about two to three.

General Hospitals

The public hospitals service for general cases is still in its infancy. It has hardly come into existence in any part of the country outside London and a few large towns. Such

public hospitals as there are have usually started through the appropriation of former Poor Law hospitals, and are seldom housed in up-to-date premises. In view of the existence of hundreds of voluntary hospitals in different parts of the country, it is difficult to estimate the extent of the need for public hospital accommodation in particular areas. But it seems evident that many old-fashioned Poor Law hospitals ought to be converted into public institutions, with modern facilities and equipment, available for all who need treatment, irrespective of their economic circumstances. It is important that continuous co-operation between municipal and voluntary hospitals should be maintained.

Blind Welfare Service

The elements of a comprehensive structure of welfare service for the blind have now been completed in London and in most large provincial towns. But the service is still far from complete in many smaller towns and in rural areas. A few local authorities still assist the blind through the Poor Law, and there is a wide variation in the generosity of provision by different authorities. Home Workers' schemes are insufficiently developed in some parts of the country, and the home teaching service, though excellent in many ways, could be improved in others.

The Mental Health Services

Mental Disorder

Great progress has been made during the last few years in carrying out the provisions of the Mental Treatment Act, 1930, in England and Wales. But the institutional provision for mental patients is still very inadequate in some areas and some mental hospitals are overcrowded. In Scotland the mental health services are much less advanced than in England and Wales. Scottish local authorities make little provision for voluntary patients and have very few out-patients' clinics. In order to remedy this deficiency the provisions of Mental Treatment Act, 1930 (England and Wales), should be extended to Scotland. A great deal more needs to be done in both countries to provide preventive services and early treatment facilities.

Mental Deficiency

The principal weakness of the existing mental deficiency service is its failure to make any special provision for large numbers of mental defectives who are not ascertained by the local education authorities under the Mental Deficiency Act, 1913. It was intended that the local education authorities should, under this Act, provide special training for all ascertained mental defectives (except idiots and imbeciles) between the ages of 7 and 16. In practice this policy has broken down, chiefly on account of the cost of providing special schools for mental defectives, except in large centres of population. As a result large numbers of mental defectives attend ordinary elementary schools and remain unascertained. These children cannot be dealt with by the local Committee for the Care of the Mentally Defective unless there are special circumstances such as neglect, cruelty or crime which call the Committee's attention to the case. It is plain that the present gaps in the procedure of ascertainment should be closed as early as possible, and that adequate provision should be made for those who are at present either unknown to,

or outside the reach of, the mental deficiency authorities. It was estimated in 1929 that there were about 300,000 mental defectives in England and Wales. Yet in 1935 provision was made for less than 80,000, barely a quarter of this number.

The Employment Services

The Employment Exchange system has proved to be one of the most successful of the public social services. Nevertheless, it is open to improvement at several points. In spite of its success, it only deals with about a quarter of the total number of jobs placed every year, and it has not been able to establish order in many sections of the labour market. Moreover, the training schemes only attract a small proportion of those who need training. It is highly desirable that this service should be extended and popularised, and some measure of compulsion might even be suitable. The Ministry of Labour returns do not bring out the very heavy incidence of unemployment among unskilled workers, but an analysis of the 1931 Occupational Census shows that the rate of unemployment amongst unskilled manual workers was 30.5 per cent, as against 14.4 per cent for skilled and semi-skilled manual workers, and just over 5 per cent for office and professional workers. The cost of training along the right lines might well be more than repaid by saving in social assistance services. Even the revised industrial transference scheme, with its generous provisions, only deals with a small proportion of the total number of transferees. There is probably a strong case for introducing compulsory notification of vacancies in certain types of employment.

The gaps and deficiencies which have just been outlined clearly demonstrate the need for a policy directed towards the extension and improvement of the constructive community services. But before proceeding to make any practical recommendations, it is necessary not only to consider these services in their administrative and financial aspects, but to examine them in relation to the other two groups of public social services.

THE BASIS OF PROVISION

The various constructive community services are not provided on any common basis. Some of them are compulsory for certain classes of persons. Others are optional so far as the beneficiaries are concerned. Some of them are provided free of charge to all who take advantage of them. But in other cases some payment is required in principle, though the charge may be remitted on proof of need.

Compulsion

Besides the compulsory notification of certain infectious diseases, there is a strong element of compulsion in the following constructive community services:

Vaccination

Parents must have their children vaccinated either by the public vaccinator (in which case it will be performed free of charge) or by their own doctor within

four months of birth, unless they declare on oath a conscientious objection to its vaccination.

Elementary Education

Parents must send their children to public elementary schools or make some equivalent provision for their education between the ages of 5 and 14 (in the case of defective children, between the ages of 7 and 16, and in the case of blind children, between 5 and 16).

School Medical Service

Parents must allow their children to be medically examined by officers of the school medical service unless they make alternative provision for their periodical examination.

Factory Medical Service

Boys and girls under the age of 16 must be medically examined and certified as physically fit for factory employment by a certifying surgeon before commencing work in a factory.

Junior Instruction Centres

In certain areas insured unemployed boys and girls under the age of 18 are compelled to attend a junior instruction centre or class, provided that such a centre or class exists within reasonable distance. The compulsion is selective.

Infectious Diseases

Persons suffering from infectious diseases (including tuberculosis) may be compulsorily isolated and treated in appropriate institutions if, in the opinion of the local Medical Officer of Health, they are a danger to the community.

Mental Health

Certain persons suffering from mental disorders or mental defect may be compulsorily isolated and treated in appropriate institutions.

In the case of vaccination and the isolation and treatment of persons suffering from infectious diseases, mental disorders and mental deficiency, the principal motive behind the use of compulsion is the desire to protect society and only incidentally to benefit the individual. But in the other cases—in all of which, it will be observed, the beneficiaries are children or young people under 18—the principal reason for compulsion is to ensure that everyone receives a minimum standard of education and medical attention during his or her early years and to prevent deterioration due to unsuitable working conditions or unemployment. In the first five instances compulsion is general—although exemptions are allowed in certain cases—but the services are provided free of charge. In the last two cases compulsion is discretionary—and some payment by or on behalf of the beneficiary *may* be called for.

Compulsory measures have been discussed but have never been applied in connection with maternity and child welfare,* tuberculosis,† venereal diseases, training for the unemployed, and the use of employment exchanges for obtaining work.

The following services are provided free of charge to all who take advantage of them:

Elementary Education.

Maternity and Child Welfare (except treatment in residential institutions and the supply of milk and other forms of nourishment).

School Medical Inspections, but not *treatment* by the school medical service.

Factory Medical Examination.

Tuberculosis Service (except treatment in residential institutions).

The Blind Welfare Service.

The Mental Health Services (except treatment in residential institutions).

The Employment Exchange Service.

Industrial Training and Transference.

These services are provided free in order to encourage as many people as possible to use them voluntarily in cases where it is impossible to exercise compulsion. It is felt that no financial consideration, however slight, should stand in the way of the elementary education of any child, or in the way of anyone needing certain kinds of medical attention. The employment exchanges and the industrial training and transference services are provided free in order to prevent any avoidable unemployment.

It will be observed that the two principal exceptions to free provision in the group of services listed above are:

(i) Medical treatment by the school medical service.

(ii) Treatment or training in all forms of residential institutions.

In view of the provision of free treatment in the case of tuberculosis and venereal diseases and, to some extent, even in the case of maternity and child welfare, the case of school medical treatment is somewhat anomalous. But the exception of treatment and training in residential institutions of all kinds is plainly due to financial considerations. It is felt that all who can afford to do so should make some contribution to the cost of their maintenance whilst undergoing treatment or training.

Recovery of Cost

An attempt is usually made to recover some part of the cost of institutional medical treatment from the beneficiaries or their relatives. The Local Government Act, 1929, requires local authorities to devise schemes for assessing the capacity of patients in General

* Except for the notification of births since 1907.

† Except for notification since 1912.

Hospitals, appropriated from the Poor Law, to pay part of the cost of their treatment. The Public Health Act, 1936 (Sec. 184), coming into effect in October 1937, provides for the recovery of costs in the case of maternity hospitals, tuberculosis sanatoria, general hospitals and convalescent homes. Most local authorities at present make an attempt to get some payment for these services. Infectious diseases are in a different category, and treatment is usually free for all. In some areas the work of recovering the cost of treatment is undertaken by public assistance officers, but many local authorities have now appointed special officers or almoners for this purpose. There is a good deal of variation in the practice of different local authorities in the assessment of cost recovery charges. Capacity to pay is usually estimated on the basis of an investigation of family resources, but there are wide variations in the categories of relatives regarded as chargeable, the nature of the family income considered, and the amount of income disregarded.

The Method of Fee Charging

An alternative method of obtaining some financial return for services rendered is by charging a fee, which may be remitted, wholly or in part, in case of need. This method is usually adopted in the case of higher education, school medical treatment, and in some hospitals and convalescent homes. Generally speaking, the fees charged seldom cover more than a small proportion of the cost of the service rendered, and frequently are purely nominal. In the special case of secondary school fees a scale varying with the income of the parent is used. In the case of treatment by the school medical service a standard scale of fees is scaled down (if necessary, to nothing) after a rough assessment of family circumstances. But here, again, there are very wide variations in the practice of different local authorities.

The Need for a Review of the Basis of Provision

In spite of the variations in the basis on which the different constructive community services are provided, certain broad principles appear to have been followed with occasional divergences. Compulsion has obviously been related to the safety of the community and to the need to protect the interests of boys and girls during a vital period of development. The provision of free services has clearly been based on the policy of encouraging the widest possible use of certain important services, and the attempt to recover cost in various ways has been restricted in the main to institutional treatment and training where *maintenance* has also been involved and to higher education.

But there are many anomalies, and it is by no means certain that the broad principles which have, more or less, been followed have any special validity. A comprehensive report by the Minister of Health on the whole basis of provision, bringing out the wide variations in practice between the different local authorities, would be in the public interest, and is long overdue.

CENTRAL ADMINISTRATION

The actual provision of the constructive community services (except the employment services of the Ministry of Labour and the Highlands and Islands Medical Service) is

primarily a function of local government in Great Britain. But central government departments play an important part in supervising their administration. Thus the Board of Education and the Scottish Education Department supervise the local education authorities. The Ministry of Health and the Department of Health for Scotland supervise the local administration of maternity and child welfare, the tuberculosis, venereal diseases, infectious diseases and general hospital services, blind welfare and the care of the mentally disordered and the mentally defective. The Home Office supervises the Approved Schools and it directly administers the factory medical service; and the Ministry of Labour (in consultation with the education departments) supervises the work of the juvenile employment bureaux and junior instruction centres provided by the local education authorities. In England and Wales the school medical service is supervised by the Board of Education (although co-operation with the Ministry of Health is to some extent ensured by having a joint Chief Medical Officer), but in Scotland the school medical service is a responsibility of the Department of Health for Scotland.

Central Control and Guidance

Central control and guidance is exercised through the power to sanction loans and to make grants in aid of both capital and current expenditure, by the issue of departmental circulars, and by an inspectorate. Inspectors with varying powers are used in all the educational, public health and public assistance services. Broadly speaking, their duty is to insist on the observance of the law, which in some cases closely defines the type of service which should be rendered. If drastic action is to be taken, the Minister must intervene and appeal to the courts. In practice the inspectors advise, assist and co-operate with the local authorities. The Ministry of Health conducts periodical surveys of the medical services in different areas, which enables it to determine in detail the standards of the service provided. The District Auditors also help to hold local authorities in check. What amounts to a further method of control on the part of the central departments is the drawing up of model rules and by-laws which many local authorities adopt. There are also a large number of Acts under which the central departments can give to or withhold from a local authority specific powers. A local enquiry is often held before exercising this jurisdiction. But, in spite of a certain amount of encroachment by the central government during the post-war years, the locally administered services are substantially free to exercise a large measure of self-determination. This freedom has been enlarged since the 1929 local government reforms. The substitution of block grants or lump sum payments for payments allocated to some particular services, the disappearance of some of the smaller and weaker authorities, the strengthening of others, and the policy of the Ministry of Health of giving as much autonomy as possible to the larger authorities have all been ways in which this has been brought about. But the central departments, the Ministry of Health and the Department of Health for Scotland, exercise a negative control over local authorities through their power to sanction or to refuse to sanction the raising of a loan by the authority concerned.

The function of the central departments is to give advice, to stir up laggard authorities, to insist on minimum standards in administration, to restrain the ardour of

local authorities bent on ill-considered or unreasonably costly enterprises, and to keep the programme of all local authorities in some sort of line with each other and with national policy. It would be unfair to suggest that the Board of Education and the Ministry of Health do not concern themselves with the wider aspects of planning and of directing the education and public health services. But it is very questionable whether either of these two authorities, as at present constituted, is in a position to undertake with speed and effectiveness the task of reorganising and developing the services with which they are concerned. It is not clear whether this is due to lack of will or to lack of legal powers or to local resistances.

The case of the Ministry of Labour is different. Here there are no local administrative authorities to contend with, and the central authority is in a position to shape the services for which it is responsible in any way which it considers effective, within the bounds of its statutory power. The problem of the demand and supply of labour is so clearly a national problem that no question arises concerning the most appropriate form of administration. A central authority with a network of local offices is obviously needed. But the absence of more or less autonomous local authorities is not an unmixed advantage even in this case. It hampered the growth of the employment services for many years after 1910. Other things being equal, local responsibility combined with local knowledge makes for efficient day-to-day administration, whereas administration by officials of a central department often fails to do justice to local needs. Centralised services tend to be disliked and misunderstood, even where the co-operation of local people is secured on advisory committees.

The direct administration of the Highlands and Islands Medical Service by the Department of Health for Scotland is justified partly by the geographical character and poverty of the areas which are served, and partly by the preference of the private practitioners working in the Highlands and Islands for direct relations with Edinburgh rather than with their own county authorities. But maternity and child welfare, the school medical service, and the tuberculosis, infectious diseases, blind welfare, lunacy and mental deficiency services remain the direct responsibilities of the local authorities in these areas, and it appears that there is some failure of co-ordination.*

ADMINISTRATIVE AREAS

The constructive community services are administered in areas differing widely in extent. In the case of the employment services of the Ministry of Labour and the Factory Medical Service, the area of administration is Great Britain as a whole, though the country is split up into a large number of smaller divisions for administrative convenience. The area of administration of the Highlands and Islands Medical Service is a group of counties in the North and West of Scotland. But the other constructive community services are provided by a multiplicity of local government authorities, either jointly or singly, within their own administrative boundaries. Nevertheless, the multiplicity is not as great as it was in the past. The Education Act, 1902, considerably reduced the number of local education authorities in England and Wales, and the Education (Scotland) Act, 1918, did the same for Scotland. The Local Government Act,

* Report of the Committee on the Scottish Health Services (1936).

1929, eliminated the Boards of Guardians and established the county boroughs and counties as the administrative areas for public assistance. The same Act also provided for a review of the county districts, with a view to eliminating small and redundant authorities, but, although nearly 300 authorities have been eliminated under these provisions, the problem of reconstructing local government areas in England and Wales in line with modern industrial changes, population trends and developments in communications and transport, has only been nibbled at up to the present. The Local Government Act (Scotland), 1929, went very much further. A vast number of small "omnibus" authorities and *ad hoc* boards were swept out of existence, and the administrative structure of Scottish local government was greatly simplified. The authorities which were eliminated included district committees, standing joint committees, commissioners of supply, parish councils, education authorities, district boards of control and distress committees. Before the passing of the Act there were 1,340 authorities in all. Now there are 429, of which 201 are district councils, that is, sub-committees of county councils. Details are shown in the Appendix.

As a result of these developments the county and county borough councils in England and Wales and the county and large burgh councils in Scotland have emerged as the principal local authorities for administering the constructive community services. They are directly responsible for higher education,* the tuberculosis service, the venereal diseases service, general hospitals, blind welfare, and the lunacy and mental deficiency services in all parts of the country. All the county borough councils in England and Wales and the four city county councils in Scotland are also responsible for elementary education, but most of the English and Welsh county councils are only responsible for elementary education over part of their areas. In 1936 there were 170 Part III authorities, —146 municipal borough councils and 24 urban district councils—in the areas in which higher education is administered by the county councils and elementary education by the local council: a dual arrangement which has become peculiarly anomalous since the introduction of the "Hadow" scheme of reorganisation. Thus in many areas to-day some forms of post-primary education are administered by one authority and other forms by another authority, often without co-ordination and sometimes with considerable friction.

In England and Wales the county boroughs, and in Scotland the large burghs and the counties are responsible for the provision of maternity and child welfare services, but the position in the English and Welsh counties varies considerably. In some cases the county councils make the necessary provision themselves, but in other cases the work is undertaken by the smaller authorities within the county areas. Thus there are 147 municipal boroughs, 86 urban districts, 10 rural districts providing these services. The existence of autonomous maternity and child welfare authorities within the areas of county administration is often very unsatisfactory. The minor authorities are frequently too small for effective administration, and their existence as administrative "islands" in the county area complicates the work of the county health authority. Moreover, as some of these minor authorities do not provide their own elementary school medical services, there is a serious administrative break where the closest co-ordination

* This only applies to the four cities (Edinburgh, Glasgow, Aberdeen and Dundee) in Scotland.

of effort should be found. The position with regard to infectious diseases is at present even less satisfactory. The creation of joint authorities is proceeding, but hospitals for infectious diseases are still provided by nearly 600 separate authorities, many of which are far too small for an efficient service on up-to-date lines.

The unsatisfactory character of the administration of some of the public health services in the counties of England and Wales has been officially recognised, and some measures have already been taken to improve matters. Thus the Local Government Act, 1929 provided for the transference of maternity and child welfare functions to local authorities which were also local education authorities (where they were not already exercising these functions) and many transfers have already been made.* The Local Government Act also recognised the county councils as the bodies responsible for the general co-ordination of the infectious diseases hospital services provided by minor authorities within their areas, and required them to submit schemes for the provision of adequate accommodation for patients suffering from any infectious disease. Other problems—such as the avoidance of duplication of effort in the provision of maternity beds by the county councils as general hospital authorities and by autonomous maternity and child welfare authorities—have been tackled by administrative action on the part of the Ministry of Health. It seems clear, however, that the continued existence of any autonomous health authority within the administrative county is an obstacle in the way of comprehensive planning and efficient administration. Apart from the county boroughs, with their concentrated urban populations, the counties are the smallest units for the administration of any of the constructive community services considered in this Report which are admissible under modern conditions. There is certainly nothing to be said for the continued division of elementary and higher education and different public medical services between different autonomous authorities.

The question also arises whether the county boroughs and counties themselves are adequate units of local administration. There is some evidence that they are too small for certain purposes. Many joint authorities composed of two or more counties and county boroughs have already come into existence for the provision of particular educational and health services, and in the Aberdeen Regional Public Health scheme we have an example of comprehensive public provision over a wide area including a city and two administrative counties. The appointment of two commissioners for the Special Areas in 1934 was another example of the growth of the regional idea. Taking the community services as a whole, there are many signs pointing to the creation of large regional units of administration to facilitate comprehensive planning and permit the maximum development of those specialised institutions and services.

CO-OPERATION WITH VOLUNTARY BODIES

It is a characteristic feature of all the locally administered community services described in the previous section that the responsible authorities co-operate with voluntary organisations. This co-operation takes several different forms. In the case of

* Since the Act was passed, maternity and child welfare services have been transferred under this section to the county councils from the councils of 5 municipal boroughs, 33 urban districts and 6 rural districts, and two transfers have been made from county to municipal borough councils.

education, certain voluntary bodies—the boards of managers of non-provided schools—have a unique relationship, defined by statute, with the local education authorities. Local voluntary associations provide maternity and child welfare services in a large number of areas, with financial assistance from the local authorities concerned. The voluntary associations work in close relation with the local authority under the supervision of the medical officer of health. Co-operation between statutory and voluntary authorities in the provision of hospitals has not proceeded very far. The Local Government Act, 1929, required county and county borough councils to consult representative bodies of voluntary hospitals in the interests of better co-operation. But very few satisfactory schemes of co-ordination between statutory and voluntary hospital authorities have so far been put into operation. The Blind Welfare service provides an example of very close co-operation between local authorities and voluntary organisations. In most county and county borough areas blind welfare schemes are devised so as to allow for the full use of local voluntary societies for the care of the blind. Grants are made to these societies by most county and county borough authorities and the County Councils Association and the Association of Municipal Corporations have lately issued a scheme for co-ordinating services for the blind, which requests the National Institute for the Blind to reconstitute its governing body so as to make it fully representative of voluntaryism and of the local authorities. The mental health services also provided examples of co-operation between statutory and voluntary agencies. Thus some local authorities use the services of voluntary associations for the care of the mentally defective to undertake part of their statutory responsibilities.

FINANCE

The normal method of financing the locally administered community services is by local rates and loans, assisted by grants-in-aid from the central government. In some cases, as we have seen, a certain amount of income is also derived from beneficiaries under particular services, in the form of "recovery of cost" payments and fees, but this income only covers a small proportion of the cost of the services. The centrally administered services are financed directly out of national taxation.

Owing to the great variation in economic conditions in different parts of the country and the peculiarly burdensome character of taxes levied on the annual value of fixed property, especially in areas which have been impoverished by trade depression, the finance of community services by means of local rates is far from satisfactory. The low rateable values of many local authorities also affect their borrowing capacity and their ability to meet the service of such loans as they are able to raise. Without a considerable amount of additional financial assistance from the central government during the recent depression the community services in a great many areas would have broken down altogether.

Grants in aid of the local community services are based on three different principles:

(i) A specific percentage of approved expenditure;

(ii) Specific grants related to approved expenditure but weighted by local factors such as the average attendance at elementary schools, population, and rateable value;

(iii) Block grants in aid of local government expenditure in general, re-calculated every five years on the basis of a formula designed to show the extent of local need.

Education is the only one of the services considered in this Report which receives any substantial sums from specific grants. Grants in aid of higher education and of the school medical service are based on a simple percentage of approved expenditure. Grants in aid of elementary education are partly based on percentages of different types of expenditure and partly on local factors. Additional grants are also made to ease the special difficulties of local education authorities in the depressed areas. In 1933-4 grants in the first two classes in England and Wales amounted to £74 million for all local authority services, of which £38 million were for education, and block grants totalled £45 million. The details are set out in the Appendix.

The proportion of local government expenditure on the social services covered by central government grants has increased very considerably during the last five years, chiefly as a result of the de-rating of industry under the Local Government Act, 1929, and the provision of special aid for the depressed areas. More than half the net rate fund expenditure of many local authorities is now covered by central government grants, and in some county areas (where agricultural land is entirely de-rated) the proportion is more than 70 per cent. The five urban and county areas respectively with the largest proportions of central government income in 1933-4 were as follows:

Boroughs		*Counties*	
South Shields	57.7	Huntingdon	77.0
St. Helens	55.5	Isle of Ely	73.6
Middlesbrough	53.9	Montgomery	72.7
Dudley	53.3	Rutland	71.9
West Bromwich	53.1	Cumberland	69.5

Nevertheless, the financial position of many local authorities in the depressed areas is so difficult that there is very little hope of further progress in the development of the constructive community services in these areas without still further assistance from the central government. This state of affairs gives rise to some doubt as to whether it is wise to increase the present proportion of local government expenditure borne by the central government before considering the possibility of achieving economies in administration and a broader basis of local finance by grouping existing local government areas into larger regional units. The creation of regional units of this kind would not only make it possible to provide the constructive community services in a much more economical way than the present arrangements permit: they would also make it possible to equalise rate burdens over wide areas within which great disparities exist to-day.

V. THE SOCIAL INSURANCES: A SURVEY

Health Insurance—Contributions and Benefits; Administration; The Approved Societies; Local Insurance Committees—**Unemployment Insurance**—Basic Principles—The 1920 Act—The Great Depression—The 1934 Act—Present-day Administration—**Widows', Orphan's and Old Age Contributory Pensions Scheme**—Income and Expenditure—Pensions and Conditions—Numbers Insured—**Workmen's Compensation.**

The three national social insurance schemes—health insurance, unemployment insurance and widows', orphans' and old age contributory pensions—have grown up during the last twenty-five years. They now occupy a central position among the public social services. In the present chapter the three schemes will be described in turn, and some account will be given of the numbers of persons directly affected by them. The workmen's compensation scheme is not a public social insurance scheme in a strict sense, but as it has certain features in common with the State insurance schemes it will be described briefly at the end of the chapter.

HEALTH INSURANCE

The history of the two social insurance schemes introduced by Mr. Lloyd George in the National Insurance Act, 1911, affords an interesting contrast. The unemployment insurance scheme found its way on to the Statute Book quietly and unobtrusively, but its subsequent history has been eventful and stormy. The health insurance scheme, on the other hand, was forced upon the country amid a great uproar of opposition, but it has since had a comparatively smooth and prosperous course.

Unlike unemployment insurance, health insurance was a national scheme from the first. It applied in general to the whole industrial population. Membership was compulsory for all manual workers, with certain exemptions and exceptions, between the ages of 16 and 70, as well as for non-manual workers whose remuneration did not exceed £160 a year.* Provision was also made for voluntary membership on the part of persons who worked on their own account and were below the income limit. The scheme was based on a contract of insurance under which insured persons paid regular weekly premiums in return for ordinary medical attention and cash payments in the event of illness. In order to prevent the scheme being over-weighted by bad risks, the State made the contract obligatory on all industrial workers under a certain income level, with very few exceptions. In recognition of the inequality between good and bad risks and as a justification for a large measure of State control, the State subsidised the scheme by

* The income limit is now £250 a year.

contributing to the insurance fund. Furthermore, in recognition of the responsibility of industry for the health of its workers, the State insisted on a contribution to the weekly premiums from the employers of insured persons. The scheme was to be actuarially sound over a period of years, and the receipt of benefit was to be conditional on the payment of a certain number of contributions. Finally, it was recognised that the contributors' title to benefit was not a matter of discretion but of right, subject only to the satisfaction of such conditions as the scheme might impose.

The floating of a vast new undertaking such as the national health insurance scheme would have been very much more difficult had there not been already in existence a large number of voluntary associations which had considerable experience in the administration of sickness insurance.

The Government decided to use the services of these bodies and gave them an important place in the administrative structure of the new scheme. Thus insured persons were encouraged to enrol themselves in "Approved" societies of their own choice. These societies were of many types, the chief being friendly societies, trade unions, societies formed by industrial assurance companies or collecting societies, and employers' provident funds. Each society was given control of the funds derived from the contributions of its members and their employers, and they were allowed to retain any surplus disclosed on the periodical valuation of their assets and liabilities for the purpose of providing additional benefits for their members. Special arrangements were made for persons who either did not wish to become members of an approved society or had been refused by an approved society; they were known as "deposit contributors," bore their own individual risks and lost their right to benefit as soon as their credited contributions were exhausted. Another feature peculiar to the health insurance scheme was the establishment of specially constituted bodies known as insurance committees to supervise the administration of medical benefits in each area.

The principal developments in the scheme during the last twenty-six years have been (*a*) the introduction of a few new classes of insured persons and the limitation of voluntary membership to persons who have once been compulsory members; (*b*) the lowering of the age limit of contributory insurance to 65 and the introduction of special privileges for elderly workers with a long insurance record; (*c*) the strengthening of the financial positions of some of the weaker approved societies by pooling arrangements and additional State aid; (*d*) the extension of all ordinary benefit privileges to "deposit contributors" and the authorisation of new forms of "additional benefit" granted by approved societies; and (*e*) the prolongation of the benefit rights, partly at the expense of the State and partly at the expense of the approved societies, of insured persons whose contributions record has suffered as a result of prolonged unemployment.

Contributions and Benefits

In its present form the national health insurance scheme covers over 18 million insured workers in Great Britain, of whom all save 260,000 deposit contributors are members of approved societies. It is financed partly by the weekly contributions of its members

and their employers and partly by interest on its own invested funds and by subsidies from the State.* The scheme provides the following kinds of benefit:

Medical Benefit

Medical benefit consists of ordinary medical treatment by a general practitioner, together with a supply of medicines and of medical and surgical appliances, as often and as long as necessary. Members of the scheme have the right to choose and, on giving notice, to change their doctor. The doctors receive a capitation payment of 9s. a year in respect of each insured person on their panel of patients for medical treatment.

Sickness Benefit

Sickness benefit consists of periodical payments during incapacity for work on account of illness. The ordinary rates of benefit are: after 26 contributions, 9s. per week for men and 7s. 6d. per week for women; after 104 contributions, 15s. per week for men and 12s. per week for single and 10s. per week for married women. Benefit is payable from the fourth day of incapacity and continues for a maximum period of 26 weeks.

Disablement Benefit

Disablement Benefit is the name given to the continuation of periodical payments at half the above rates in the case of both men and women after the title to sickness benefit has been exhausted.

Maternity Benefit

Maternity benefit takes the form of a cash payment of £2 on the confinement of an insured woman or the wife of an insured man. In the case of a wife who is, or who has within twelve months been an insured contributor in her own right, the sum of £4 is payable.

Additional Benefits

Additional benefits are benefits which may be provided by an approved society having a disposable surplus when its resources are assessed at the periodical valuation. Additional benefits may take the form either of an increase of the normal cash benefits, or of payments towards the cost of various forms of treatment, such as dental, ophthalmic, hospital or convalescent home treatment. There are, of course, considerable variations between the additional benefits provided by different approved societies. Some approved societies are not able to provide any additional benefits at all. Others, with a large disposable surplus on valuation, are in a position

* National Health Insurance fund, Great Britain, 1935:

Income	£M	*Expenditure*	£M
Contributions of employers and insured	27	Benefits	31
From investments	6	Administration	6
State subsidy	7	Surplus	3
	40		40

to be generous to their members. But there is no uniformity either in the selection of additional benefits nor in the content of the same additional benefit as provided by different approved societies. In order to be entitled to additional benefits an insured person must have been a member of the approved society providing them for four years in the case of additional cash benefits, or for two years in the case of additional treatment benefits.

The expenditure on different forms of benefit in Great Britain during 1935 was as follows:

	£000
Medical Benefit	10,387
Sickness Benefit	10,107
Disablement Benefit	6,448
Maternity Benefit	1,596
Additional Treatment Benefits	2,558
Total Expenditure	31,096

The amount allocated for additional treatment benefits in England and Wales in 1936 was £3,301,000, distributed in the following way:

	£000
Dental Benefit	2,161
Hospital Treatment Benefit	92
Convalescent Home Treatment Benefit	203
Medical and Surgical Appliances	193
Ophthalmic Benefit	522
Other Benefits	130
Total Expenditure	3,301

It will be seen that dental and ophthalmic benefits are the most popular. They accounted for about 68 per cent and 16 per cent respectively of the total expenditure in additional treatment benefits in England and Wales in 1935. Other additional treatment benefits include treatment in approved charitable institutions; nursing; and hospital benefit.

Administration

The administration of the scheme is supervised on behalf of the central government by the Ministry of Health in England, by the Welsh Board of Health in Wales, and by the Department of Health in Scotland.* These Departments have an outside staff of inspectors in different parts of the country, whose chief function is to supervise the administration of approved societies, to investigate complaints by members of societies as to the non-receipt of benefit, to deal with applications for widows', orphans' and contributory old age pensions, and to supervise the payment of contributions by employers.

* The National Health Insurance Joint Committee co-ordinates the work of these departments, and that of the Ministry of Labour for Northern Ireland, which is responsible there for the administration of National Health Insurance.

The Approved Societies

All benefits, except ordinary medical treatment, are administered by approved societies, of which there are now 788 in England and Wales. This includes 25 branch societies with 5,490 branches which are independent financial units for National Health Insurance purposes, and which possess some measure of administrative independence within the structure of their parent organisation. About a quarter of the insured population are insured with industrial and collecting societies, which have created special non-profit making sections in order to satisfy the requirements of the National Health Insurance Act. Although these commercial organisations administer National Health Insurance on a non-profit making basis, they benefit considerably through being able to extend their profit-making business (for example, voluntary sickness and burial insurance) on the strength of their National Health Insurance connections

Approved societies are not usually organised on a geographical basis, though the membership of many of them is fairly localised. The wide distribution of membership of individual societies greatly complicates the work of administering the system. Many societies have to deal with a considerable number of members scattered in ones and twos in different towns throughout the country. Moreover, the fact that the working population of a single town may be insured with hundreds of separate societies makes it extremely difficult to use sickness insurance statistics for medical and public health investigations.* The societies vary enormously in size. The Royal Commission on National Health Insurance found that in England 65 per cent of the total number of societies comprised only 2 per cent of the total number of insured persons; while 76 per cent of insured persons were included in 2.5 per cent of the societies. At one end of the scale there were, at the time when the Royal Commission reported, 70 societies with less than a hundred members, and at the other end of the scale 24 societies with over fifty thousand, including two with over a million members; but since then continued pressure has been brought to bear on the smaller societies to amalgamate.

Some societies restrict their membership to persons engaged in particular occupations or belonging to particular religious denominations, trade unions or other voluntary associations, but many societies are open to all insured persons without qualification. The division of the insured population into separate and more or less self-supporting units of this kind is very unsatisfactory. It results in some extraordinary anomalies and disparities, particularly with regard to the distribution of additional benefits. But provision is now made for removing some of the wider disparities in the distribution of surplus funds by means of partial pooling arrangements and a central contingencies fund.

The present position is that about two-thirds of the insured population belong to societies which give additional cash benefits of up to 5s. per week. The number entitled to 5s. is about one-thirteenth of the total insured. Dental, ophthalmic and convalescent home treatment and medical and surgical appliances are given by societies covering

* The Report of the Royal Commission on National Health Insurance 1928 (p. 96), showed that there were 217 societies operating in Dundee, a town of 180,000 inhabitants. These societies, 52 of which had only one member in Dundee, had their head offices in London, Manchester, Glasgow, Aberdeen, Edinburgh, Leeds, Portsmouth, Newcastle, Tunbridge Wells and several other places.

about two-thirds of the insured. Over a fifth of the insured population is not entitled to any additional benefit, whether in the form of cash or treatment.

Local Insurance Committees

The administration of ordinary medical benefit and certain matters relating to deposit contributors and some other classes of insured persons is entrusted to special Local Insurance Committees. There is a local insurance committee in every county and county borough in England and Wales and in every county and large burgh in Scotland. Three-fifths of the members of each committee represent the insured persons of the area, elected by the approved societies; one-fifth of the members are appointed by the local authority; and of the remaining fifth two are elected by the local medical profession, one is a doctor appointed by the local authority, and the rest (including two women) are appointed by the Ministry of Health or the Department of Health for Scotland.

It was originally intended that these committees should play an important part in making arrangements with local doctors as to the terms of medical practice. As things turned out, however, arrangements were negotiated with the medical profession on a national basis from the very beginning, and the responsibilities of the local bodies, apart from certain routine duties, have been very limited. They receive and publish lists of doctors and druggists who will undertake the necessary prescribing and dispensing, and they deal with disputes as to medical and pharmaceutical work. They keep registers of the insured population of their areas (classified by approved society and by doctor) and they furnish doctors with up-to-date lists of insured persons for whom they are responsible. They also price nearly 60 million prescriptions annually and distribute nearly £9 million a year in payment for the services of panel doctors and pharmacists. The cost of this work amounts to nearly 5 per cent of the cost of medical benefit.

Each local insurance committee must confer with three other local committees (1) a Local Medical Committee representing all the medical practitioners of the area; (2) a Panel Committee representing the doctors who are on the insurance panel (frequently identical with the Local Medical Committee); and (3) a Pharmaceutical Committee representing the chemists and druggists.

The accounts of the local insurance committees and also those of the approved societies are audited by the National Insurance Audit Department, which is a section of the Treasury.

UNEMPLOYMENT INSURANCE

National unemployment insurance was introduced in its original form under Part II of the National Insurance Act, passed by the Liberal Government in 1911. The scheme was avowedly experimental and, unlike the national health insurance scheme, it was limited to a particular group of "skilled" industries in which marked fluctuations in employment were known to occur. These industries, which included building, constructional work, shipbuilding, mechanical engineering, iron-founding, construction of

vehicles, and sawmilling, covered some 2,250,000 workers, of whom only 10,000 were women. Neither textiles nor coal-mining were included. During the War munition workers and others who were likely to be affected by unemployment when peace returned were brought into the scheme and, in 1920, the scheme was extended to include, with certain exceptions, all manual workers and non-manual workers earning not more than £250 a year. The chief exceptions were persons engaged in agriculture, private domestic service, and certain classes of workers permanently engaged in occupations with little or no unemployment.

Basic Principles

The principles on which the original scheme was based were:

(*a*) Unemployment insurance was recognised as a contract under which the workers in a group of industries were to pay regular weekly premiums in return for a guaranteed benefit during short spells of unemployment.

(*b*) In order to overcome the unwillingness of some workers who thought they were less exposed to the risk of unemployment to insure on equal terms with others, the State made the contract obligatory.

(*c*) In recognition of the inequality of risk and as a justification for a large measure of State control, the State subsidised the scheme.

(*d*) In recognition of the responsibility of industry for the maintenance of its reserve labour force the State insisted on a contribution from employers of insured workers.

(*e*) The joint contributions of the State, the employers and the workers, and the amount and duration of the benefits paid were, theoretically at least, so adjusted as to balance over a period of years, including years of good and bad trade.

(*f*) The receipt of benefits was conditional on the payment of a certain number of premiums by the beneficiary.

(*g*) The contributors' title to benefit on the proved occurrence of the contingency was a matter of right, subject only to the satisfaction of whatever conditions the scheme might impose.

(*h*) Benefit payments were regarded, not as maintenance allowances sufficient to cover minimum needs, but as "first line of defence" payments which, together with savings and other family resources, would enable insured workers to tide over short spells of unemployment without undue hardship.

Under the 1911 scheme the contributions rate was 5d., shared equally between employers and employees for every week of insured employment. The State paid one-third of the joint contribution. Benefit was paid to persons over 18 at the rate of 7s. a week, on the principle of one week of benefit for every five contributions, with a maximum of fifteen weeks' benefit in a year. There was a waiting period of six days before any benefit was payable. As a result of these modest financial arrangements and the low percentage of unemployment in the insured industries both before and during the War period the unemployment fund was able to accumulate a surplus of £22 million by 1920.

In 1919 benefits were increased without any increase in the rate of contributions, but the unemployment fund was relieved to some extent by the introduction of a separate "Out of Work Donation" scheme as an emergency measure to deal with the special difficulties of the immediate post-War situation.

The 1920 Act

In 1920 the original scheme was withdrawn and an entirely new Act was passed applying to over eleven million workers. Benefits were fixed at 15s. a week for a man and 12s. a week for a woman, and contributions were raised to 8d. a week, shared equally between employer and employed in the case of men. The State contribution was fixed at about one-quarter. The waiting period was, for a time, reduced to three days, but the maximum period of benefit in any insurance year remained at fifteen weeks, subject to the limitation of one week of benefit for every six contributions, known as the "ratio" rule. But, in spite of these apparently conservative financial arrangements, the extended scheme was subjected to such a heavy burden of claims in the first few months of operation that radical changes had to be made within a year of its introduction. Unemployment, which affected less than half a million persons when the scheme was introduced, rose to over two million by the end of June 1921, not including short-time workers. In face of these conditions the actuarial basis of the scheme was shown to be quite unsound, and the substantial surplus which had been accumulated in the unemployment fund was soon used up. Moreover, the community was faced with the problem of maintaining an unprecedented number of unemployed persons and their families for whom the insurance scheme made either inadequate provision or no provision at all, because they had too few contributions to their credit.

Thus it came about that several of the principles on which the original insurance scheme was based were abandoned within a year of its extension throughout industry. The trouble was that there was no acceptable secondary scheme standing behind the insurance scheme. Rather than force hundreds of thousands of able-bodied unemployed workers and their families on to the unpopular Poor Law, the Government decided to allow insured persons to continue to draw benefit from the unemployment insurance fund, even though they had exhausted their statutory rights. Further, the principle of need was recognised in the payment of dependent's allowances. No attempt was made to balance contributions and outgoings. Instead, the Government resorted to heavy borrowing to maintain the solvency of the unemployment fund. During the next ten years, eighteen Acts of Parliament were passed to amend the "parent" Act of 1920.* Every Government, whatever party was in power, continued the same hand-to-mouth policy.† By the year 1931 the original carefully constructed scheme was hardly recognisable through the tangled maze of opportunist legislation; the debt on the unemployment fund had reached the huge total of £115 million; and the payment of "transitional benefit" to insured workers, who had exhausted their ordinary benefit rights, was costing the Treasury over £1 million a week.

* All except six of these Acts related entirely to borrowing powers.

† The Labour Government of 1929-31 made one advance, in placing the whole cost of transitional benefit on the Exchequer. The increase in debt after 1929 was due to the cost of standard benefit only.

The Great Depression

The great depression which overwhelmed the country during 1929-31 revealed the hopelessly unsatisfactory state of the unemployment insurance scheme and its extensions. In June 1931 the Royal Commission on Unemployment Insurance published its Interim Report, in which the majority of the Commissioners recommended the reduction of benefit rates and of the period of benefit. For those outside the benefit field a test of means and of need was to be the basis of assistance. In July the May Committee on National Expenditure, published a report which went very much further. It recommended the reduction of benefit by 20 per cent, limitation of benefit to twenty-six weeks, and the imposition of a "means test" on *all* claimants for transitional benefit. Then followed the financial and political crisis, during which the deadlock over the proposed cuts in unemployment insurance played a considerable part in the fall of the Labour Government.

One of the first actions of the National Government, which replaced the Labour Government in August 1931, was to issue a number of National Economy Orders, under which contributions were increased and rates of benefit reduced. A limit of twenty-six weeks in a year was set to the period of benefit and a "means test" to be administered by the local public assistance committees was imposed on all claimants to transitional benefit who had exhausted or not yet acquired their statutory rights. Meanwhile, all borrowing for the unemployment fund was stopped and the Treasury accepted full responsibility for the cost of the new transitional payments.

The new system, which was introduced in November 1931, as a result of the "economy crisis," was not intended to be a permanent arrangement, but it lasted for rather more than three years. The Royal Commission issued its Final Report in 1932. It suggested very few changes in the reformed unemployment insurance scheme as it had been operated since 1931, but it made a number of recommendations of a fundamental character concerning the administration of transitional payments. However, it was not until the summer of 1934 that the new Unemployment Act, on which the present arrangements are based, passed into law. Part I of this Act, which related to unemployment insurance, did not come into full operation until September 1934. Part II, which set up a new system of unemployment assistance instead of the old system of transitional payments, only operated from January 1935.

The 1934 Act

In effect, the first part of the Unemployment Act, 1934, re-affirmed, if not the principles, the practice of 1911. It was, of course, impossible after the grim experience of the post-War years to return to the unduly simple philosophy of the pre-War scheme. As it stands at present, membership of the scheme is compulsory for all persons between the ages of 14 and 65 who are employed under a contract of service or apprenticeship, with the exception of private domestic servants, persons in employment of a permanent character under a public or local authority, a railway company or a public utility company, and in some other occupations; and non-manual workers whose rate of earnings exceeds £250 a year. Agricultural workers have a separate scheme of their own.* In March 1937,

* Benefit became payable on November 5, 1936, under the provision of the Unemployment Insurance (Agriculture) Act, 1936.

it was estimated that the total number of persons insured under this scheme and the special scheme for agriculture was about 14 millions. This number accounts for over four-fifths of the workers in Great Britain earning £250 a year or less.

The weekly contributions are based on the "equal thirds" principle: the workers, the employers and the State contributing an equal amount. The present rate of contributions for adult males is 9d. a week for each party, and there are other rates on a lower scale for women and young workers.

Benefits are paid when certain statutory conditions are fulfilled and when the claimant is free from certain statutory disqualifications.* But it is not paid in respect of the first six days of any "continuous" period of unemployment. The maximum period during which benefit is granted is normally twenty-six weeks in an insurance year, but unemployed persons with an exceptionally good insurance record may be granted benefit up to fifty-two weeks in an insurance year. Unlike the systems favoured in most foreign countries the principle of the flat rate is still preserved in the British scheme, both for contributions and benefits. A realistic concession to the "needs" principle is, however, made in the provision of allowances to the dependants of insured persons, without any corresponding adjustment of weekly contributions. The rate of benefit for an adult man is 17s. a week, with additional allowances of 9s. in the case of a wife or any other adult dependant and 3s. for each dependant child. The rates of benefit for women and young workers are on a lower scale corresponding to the lower scale of contributions.

Present-day Administration

The scheme is administered by the Ministry of Labour through the officers of its four hundred local employment exchanges, assisted by some three hundred courts of referees, in the complicated business of applying the statutory rules of benefit.† An umpire sits in London and acts as a final court of appeal. A highly important innovation of the 1934 Act was the establishment of a Statutory Committee on Unemployment Insurance to watch over the finances of the insurance fund and to make recommendations to the Minister concerning changes in rates of contributions and benefit, the use of surplus funds, and problems relating to particular classes of workers and to the scope of the insurance scheme.

As the insurance scheme only provides benefits for a limited period of unemployment it does not affect a large section of the insured population who have been out of work for long periods. In April 1937, about 43 per cent of those who were on the unemployment

* The chief statutory conditions are that (1) thirty contributions must have been paid within the two years previous to the date of claim; (2) the claimant must be unemployed and capable of and available for work. Special conditions apply in the case of claims by certain classes of workers, notably married women and seasonal workers.

Disqualification for benefit arises in cases where employment was lost through a trade dispute; and benefit is refused for a period not exceeding six weeks in cases where employment was lost through misconduct or was left voluntarily without just cause, or where an offer of suitable employment was refused without good cause. Failure to attend a training course as required may also result in disqualification.

Insured persons who have exhausted their rights to benefit are not entitled to benefit in a subsequent year until they have paid at least ten further contributions.

† In certain trades, notably the boot and shoe trade, the trade union organisation is used in the administration of unemployment insurance to trade union members.

register were in receipt of insurance benefit. On the other hand, the turnover of the unemployed population "on benefit" is very much more rapid than that of the unemployed population which has exhausted its benefit rights. Thus, insurance affects the lives of a much larger number of people than an examination of the figures relating to one particular time would suggest. It is estimated that in the twelve months ended March 31, 1936, the number of separate claims for unemployment insurance benefit exceeded four millions, though there were never more than 700,000 persons in receipt of benefit at any one time.

WIDOWS', ORPHANS' AND OLD AGE CONTRIBUTORY PENSIONS SCHEME

The Widows', Orphans' and Old Age Contributory Pensions Scheme was introduced in 1925. It began to operate in January 1926 and became fully effective by January 1928. The scheme is interlocked with the National Health Insurance Scheme and covers, with a few additions, roughly the same persons. It is a compulsory and contributory scheme providing:

(*a*) Pensions to the widows of insured men until re-marriage, or age 70, when they receive old age pensions; and temporary allowances for their dependent children;

(*b*) Temporary allowances to the orphans of insured persons;

(*c*) Old age pensions to insured men at 65, and to their wives, also at the age of 65, until they become eligible for old age pensions at 70, which they then receive without a means test.*

The original scheme also provided pensions both to the widows of men who were insured under the National Health Insurance Acts, but who died before January 1926, and to insured men and their wives who reached pensionable age before the scheme was introduced. These provisions were considerably extended by the amending Act of 1929.

The scheme is financed by a joint contribution from the insured person and his or her employer, and by a subsidy from the State. The present scale of contributions is as follows:

	Employer d.	Employee d.	Total d.
Man	5½	5½	11
Woman	2½	3	5½

The State, in principle, pays the difference between expenditure and contribution income and, in particular, the whole cost of pensions granted in respect of risks which matured before the scheme started.

* A curious anomaly under this provision is that blind persons now receive non-contributory old age pensions of 10s. per week at the age of 50. If they are insured they are entitled to a contributory pension at 65, giving them £1 a week from the State, but at 70 these pensions disappear and are replaced by the Old Age pensions at the rate of 10s. a week only.

Income and Expenditure

The income and expenditure of the pensions fund in Great Britain for the year ended March 31, 1936, is shown in the following table:

Income	£000	*Expenditure*	£000
Contributions of employers and insured	25,695	Widows' and Orphans' Pensions	23,858
State Subsidy	14,000	Old Age Pensions, 65/70	19,491
Revenue from investments	799	Cost of administration	1,279
Balance drawn from accumulated funds	4,385	Payment to National Health Insurance Central Fund	251
	£44,879		£44,879

The accumulated funds of the contributory pensions scheme on March 31, 1935, amounted to nearly £30 millions. It should also be noted that the entire cost of pensions from the age of 70 upwards paid by virtue of the Contributory Pensions Act (£23 millions) is charged to funds voted annually by Parliament under the non-contributory Old Age Pensions Acts, 1908-24.

Pensions and Conditions

As in the case of the unemployment and health insurance schemes, the receipt of benefit under the Contributory Pensions Acts is conditional on the payment of a certain number of contributions. The exceptions relate in the main to the widows of insured men who died before January 1, 1926, insured persons who attained the age of 70 before the scheme came into operation, and to the wives of insured persons on attaining the age of 65.

But even in these cases the payment of a pension is conditional on the existence of some record of contributions under the national health insurance scheme. As in the case of benefits paid under the other two social insurance schemes, payments under the contributory pensions scheme are made without any test of means, residence or nationality. They are based on a contract of insurance and they are paid as of right, subject only to such administrative conditions as the scheme may impose.

The present scale of pensions is as follows:

Widow's Pension:	10s. a week, with an allowance of 5s. a week for the first child and 3s. a week for each subsequent child.
Orphan's Pension:	7s. 6d. a week (up to the age of 14, or 16 if at school).
Old Age Pension:	10s. a week for the insured person, and 10s. for the wife of an insured person, on reaching the age of 65.

If a widow is in receipt of a widow's pension on attaining the age of 70, her pension is replaced by an old age pension of 10s. a week for life, the whole cost of which is borne by the State.

Numbers Insured

The scheme is centrally administered by the Ministry of Health in England and Wales and by the Department of Health in Scotland. As a result of the use of a single stamp for both national health and pensions contributions, the latter are collected by the approved societies to which the insured persons belong under the national health insurance scheme. The total number of insured persons at the end of 1935 was 18,920,000, and the numbers of beneficiaries at that time were as follows:

		Total
Widows		755,485
Dependent children		301,716
Orphans		17,387
Old Age Pensioners, 65/70: Men	475,806	561,761
Women	85,955	
Wives of Old Age Pensioners, 65/70		207,259
TOTAL		1,843,608

There were, in addition, 505,000 insured men and 516,000 insured women, and wives of insured men in receipt of old age pensions after the age of 70, paid through the non-contributory Old Age Pensions Scheme but without any tests of means, residence and nationality.

WORKMEN'S COMPENSATION

The first Act relating to workmen's compensation was introduced in 1897. It established a new principle in English law—to the effect that financial responsibility for the results of an industrial accident exists even though no fault has been committed by the employer or by anyone acting under his orders. But its application was limited to a small group of dangerous trades. In 1906, however, an amending Act was passed which extended the principle to cover (i) practically every occupation and (ii) specified industrial diseases. Further amendments were made in 1923 and in 1931.

The present position of the law is that compensation is payable in respect of all persons working under a contract of service or appenticeship in the event of death or personal injury by an accident arising out of and in the course of their employment, except non-manual workers earning more than £350 a year and a few other classes of workers. Compensation is also payable in the case of a long list of occupational diseases. The whole burden of compensation falls on the employers of those who suffer industrial accidents or illness. There is no official insurance scheme, and employers are not compelled to insure against their own liability to pay compensation, except in the coal-mining industry. But most employers do, in fact, insure either with a commercial insurance company or an employers' mutual indemnity association.

Compensation consists of cash benefits only. In the case of death it takes the form of a lump sum varying from £200 to £600, according to the wages of the worker and

the degree to which his survivors were dependent on him. If the worker leaves no dependants, compensation consists of reasonable medical expenses and the cost of burial up to a maximum of £15. In the case of incapacity, compensation takes the form of a weekly payment, which begins on the fourth day, and which varies according to the normal earnings and the family responsibilities of the worker. No distinction is made between temporary and permanent incapacity, but there is a different scale of payments for partial and total incapacity. Under certain conditions, the weekly compensation payments may be commuted for a lump sum, and in practice an enormous amount of commutation takes place, especially in cases where the incapacity is likely to be permanent.

Compensation claims are settled by agreement between the parties or by judges of the county courts, acting as arbiters. Agreements between employers and workers have to be registered by the registrar of a county court, when they become enforceable as county court judgments. In cases where an agreement is made for a payment of a lump sum down instead of weekly payments, the agreement will not relieve the employer of his liability to make weekly payments unless it has been registered. To prevent agreements being made for lump sums which are unfair to the workers, the county court may refuse to register an agreement which it considers unsatisfactory either as to amount or in any other way, and may make such another order as it thinks just. In order to remove any hindrance in the way of a worker's access to the county court considerably reduced court fees are charged in workmen's compensation cases.

VI. THE SOCIAL INSURANCES: A GENERAL REVIEW

Scope of Social Insurances—Contributions; Workers' Contributions; Employers' Contributions; The State Contribution; Benefits.

The three great social insurance schemes taken together form a remarkable State-organised and subsidised addition to the wage system. They are based on the common conception of a contract of insurance tied to employment, and incidentally involving the payment of premiums. Thus, in return for employment, a worker earns not only his wages, but also a right to a limited payment from a public fund during sickness, unemployment, old age, and at death. But the three schemes exhibit a number of important differences in their scope, contributions, benefits, form of organisation, and financial basis. In the present chapter the three public social insurance schemes, together with the workmen's compensation scheme, will be examined rather more closely under each of these heads.

SCOPE OF THE SOCIAL INSURANCES

Each of the three social insurance schemes is limited in scope. Membership is not open to everyone. It is restricted in three ways—by age, occupation and rate of remuneration.

Age:

Membership of the national health insurance scheme and the pensions scheme is restricted to persons between the ages of 16 and 65. Since the passing of the Unemployment Act, 1934, the age of entrance into unemployment insurance has been reduced to the statutory school-leaving age, at present 14 plus. Thus there is a large number of boys and girls who are insured under the unemployment insurance scheme but not under the other schemes. There are no age restrictions of any kind in connection with workmen's compensation.

Occupation and Remuneration:

Membership of each of the schemes is based on employment. But the forms of employment included within the scope of the health and pensions schemes are more numerous than those within the scope of the unemployment scheme.

Membership of the health and pensions schemes is open to all persons (including married women) engaged in any employment *under a contract of service* whose rate of remuneration does not exceed £250 a year, and where the employment is manual labour

no limit of remuneration is imposed. Both schemes also include a great variety of other occupations such as contractors and sub-contractors engaged in manual labour, agricultural workers engaged on special terms, and share-fishermen. But they exclude non-manual workers earning more than £250 a year and all persons working on their own account. They also exclude teachers in public elementary and secondary schools, who have a separate scheme of their own, and certain classes of persons who are specially excepted because their employment secures to them benefits equivalent to those they would have enjoyed under the scheme.* On the other hand, provision is made for certain forms of voluntary membership.† As there are differences in the rules for "excepted" persons and voluntary membership under the two schemes, the scope of the pensions scheme is rather wider than that of the health scheme.

Membership of the unemployment insurance scheme is compulsory for all persons employed under a contract of service or apprenticeship, with the following exceptions:

(*a*) *Persons not covered by Unemployment Insurance, but insured under the National Health Insurance and Pensions Schemes.*

	Approx. Nos. concerned
Persons over 65 years of age (insured for medical benefit only)	400,000
Persons aged 14 to 64 inclusive:	
Private domestic service	1,350,000
Female professional nurses	100,000
H.M. Forces	295,000
Outworkers	100,000
Share-fishermen	12,000
Sub-contractors	20,000
Unestablished civil servants	11,000
Railway employees (conciliation grades)	382,000
Public utility employees	12,000
Persons insured under special schemes:	
Insurance	100,000
Banking	41,000

(*b*) *Persons not covered by Unemployment Insurance and "excepted" under the National Health Insurance and Pensions Schemes.*

Established Civil Servants	180,000
Local government employees	123,000
Police	60,000
Teachers	115,000
Independent workers	1,300,000
Employers, and persons with salaries above £250 a year	1,625,000

* The other workers to be affected in this way are police officers, pensionable clerks or other salaried officials of railway companies, and officials of local and central government.

† The chief class is that of employed persons who have ceased to be insurably employed (e.g. non-manual workers whose earnings have risen above £250).

Since June 1, 1936, workers engaged in agriculture, forestry and horticulture have been included under a special unemployment insurance scheme of their own. In this case the national insurance scheme was not acceptable, as both wages and unemployment are much below the general average. Yet some insurance was desired, in order, amongst other reasons, to attract labour to agriculture. This is a notable departure from the principle of spreading unemployment risks over the whole of industry.

Unemployment insurance at present covers about four-fifths of the health insurance class, and about two-thirds of the occupied population. Many of the categories which are excluded experience a very low rate of unemployment. The group which suffers the most hardship from exclusion are probably those engaged in trade or work on their own account, who are at present outside the scope of all the social insurances. The present Government has introduced legislation to enable small traders and workers on their own account to take advantage of the pensions scheme as voluntary contributors, if their income does not exceed £400 a year. But these workers will still be outside the scope of health insurance, and also of unemployment insurance, for which last they form an inherently unsuitable group.

The workmen's compensation scheme applies to the widest group of workers. It covers practically all persons under a contract of service or apprenticeship, except non-manual workers earning more than £350 a year.

Contributions

Each of the three social insurance schemes is financed by means of contributions from the insured workers themselves, from their employers and from the State. But the proportion contributed by each of these parties is not the same in the different schemes. In the case of unemployment insurance, the three parties pay a weekly contribution of equal amount into the unemployment fund, out of which all benefits, debt charges and administrative expenses are paid. In the case of health insurance, insured persons and their employers pay a joint contribution every week, and the State makes a grant equal to one-seventh of the cost of the benefits paid to men and to one-fifth of the cost of those paid to women,* together with the expenses of central administration. The joint contributions of the insured persons and their employers to the pensions fund are paid on the same principle and in the same way as those paid to the health insurance fund, but in this case the State makes an annual grant, in principle, covering the difference between expenditure and contributions income and, in particular, the whole cost of pensions granted in respect of risks which matured before the operation of the scheme. The workmen's compensation scheme is, of course, financed entirely by the employers concerned.

The present scale of weekly contributions to the three insurance schemes may be seen in the table on next page.

* Including all additional benefits.

WEEKLY CONTRIBUTIONS

Class of Person	Insured Person				Employer				State	Total
	U.	H.	P.	Total	U.	H.	P.	Total	U.	ex. State
	d.	d.	d.	s. d.	d.	d.	d.	s. d.	d.	s. d.
Men:										
21/65 .	9	4½	5½	1 7	9	4½	5½	1 7	9	3 2
18/20 .	8	4½	5½	1 6	8	4½	5½	1 6	8	3 0
Boys:										
16/17 .	5	4½	5½	1 3	5	4½	5½	1 3	5	2 6
14/15 .	2	—	—	2	2	—	—	2	2	4
Women:										
21/65 .	8	4	3	1 3	8	4½	2½	1 3	8	2 6
18/20 .	7	4	3	1 2	7	4½	2½	1 2	7	2 4
Girls:										
16/17 .	4½	4	3	11½	4½	4½	2½	11½	4½	1 11
14/15 .	2	—	—	2	2	—	—	2	2	4

It will be seen that the employer's contribution is the same as that of male employees in every case, but the proportions paid by employers and female employees respectively in the case of health and pensions are different. The total cost to all three parties ranges from 2s. 3½d. per week for young girls to 3s. 11d. for adult males, that is, from £7 to £12 5s. a year. Juveniles of 14 and 15 are insured for unemployment only, at a total cost of 6d. per week, or £1 6s. a year.

Workmen's Contributions

The question is sometimes raised whether the weekly contributions of the majority of workers are too heavy? Is it reasonable, for example, to deduct 1s. 7d. from the weekly earnings of an adult wage-earner? Contributions do not vary with earnings as they do in the social insurance schemes of some Continental countries. Thus they are a much heavier burden on workers with low weekly earnings than on those who receive relatively high wages. The percentage of earnings paid in insurance contributions by adult men at several different wage-levels is shown below:

Weekly Earnings s.	Percentage paid in insurance contributions of all kinds by adult males Per cent
35	4.5
40	4.0
45	3.5
50	3.2
55	2.9
60	2.6
65	2.4
70	2.3
75	2.1
80	2.0

These percentages are very low compared with the corresponding percentages in some continental countries. Thus, in Germany, Italy, Austria and Poland, all of which countries have compulsory social insurance schemes, the average workers' contributions range between 10 and 20 per cent of average weekly earnings considerably below the present British level. Moreover, many foreign workers at present pay very large sums to voluntary insurances. Nevertheless, the burden of compulsory insurance contributions on the low-paid British worker with a dependent family is by no means insignificant. Any increase would certainly inflict some hardship on the poorest families. It should not, however, be impossible to modify the flat rate principle by introducing three zones of contributions and benefits: (1) for those earning up to 50s. a week; (2) for those earning between 50s. and 70s. a week; and (3) for those earning more than 70s. a week.

Employers' Contributions

Employers of insured workers are compelled to contribute to each of the three insurance funds in recognition of the need for maintaining a reserve labour force during periods of slack trade, and for maintaining the health and physical fitness of their employees at all times. In the case of unemployment and health insurance, and in that of old age pensions, the justification in principle of a compulsory contribution from the employer seems clear. Employers plainly have a responsibility for their "laid off" or temporarily incapacitated workers, and they should help to look after them, just as they do in fact look after any capital equipment which is not in use or which has broken down. They have also some responsibility for the welfare of their employees at the end of their working lives, and some progressive firms have long made provision for this on their own account. But it is not so clear why employers should have to shoulder any substantial part of the responsibility for maintaining the widows and dependent children or the orphans of their employees, except in cases where death arises directly out of the conditions of their employment.

Unfortunately, the compulsory contributions levied on employers have the effect of a poll tax on employment. It is probable that in many cases the burden is passed on to the workers (who may be getting rather lower wages than they otherwise would) or on to the consumer (who may be paying rather higher prices than he otherwise would). But, in general, insurance contributions are costs of production which vary directly with the number of workers employed. Thus firms with relatively few manual workers may be paying an insignificant fraction of their total costs on social insurance contributions, whilst other firms with a relatively large number of workers may be fairly heavily burdened. It should be noted in this connection that the cost of workmen's compensation insurance, which also varies in proportion to the number of workers employed, falls entirely on the employers. The total annual cost of social insurance, including workmen's compensation premiums,* is now about £4 14s. per adult male employee in an average firm. But it is well to note that the cost of social insurance (including the cost of workmen's compensation) cuts a small figure compared with the total costs of production. Thus, even in the British coal-mining industry, which has an exceptionally high ratio

* Approximate annual average premiums in the principal factory industries are 12s. per head.

of labour costs, social insurance accounts for less than 5 per cent of total costs. Compared with the position in some Continental countries, the direct burden of the social insurances on British industry is fairly light. Unless there is a substantial increase in this burden, no change in the present system of contributions seems to be worth attempting, either in the interests of abstract justice or as an inducement to the firms to employ more workers.

The State Contribution

It is possible to argue that there is nothing in principle to justify any State contribution to the cost of the social insurances. Why should small shopkeepers and other excluded persons be taxed to subsidise services they are debarred by statute from enjoying? But there can be few who would not admit that State aid was necessary to launch these great services and that it is in fact necessary for their continuance and development.

Nevertheless, granted the need for State aid, there does not seem to be any special justification for any particular proportion of the cost which should be borne by the State. "Equal thirds" is at first sight a satisfactory principle, but there is no real reason why the State should contribute exactly the same amount as the worker and the employer to the cost of unemployment insurance. In the case of the health and pensions schemes the share contributed by the State is considerably less and it is sometimes partly related to specific charges, such as the cost of the central administration of health insurance and the cost of pensions granted in respect of matured risks. State funds are also being used to maintain the health insurance and pensions rights of certain classes of workers whose contributions have fallen badly into arrears as a result of unemployment. Finally, it should be remembered that the State at present bears the whole cost of unemployment assistance and of old age pensions paid to insured persons and the wives of insured persons on reaching the age of 70.

The justification of any increase in the contribution of the State to the cost of the social insurances is not to be found by referring to any general principles. It is entirely a matter of social expediency. Further discussion of this subject must, therefore, be deferred until Chapter IX.

Benefits

We have seen that the social insurance schemes provide two entirely different kinds of benefit—benefit in cash and benefit in the form of services rendered. Cash benefits are provided by each of the three State insurance schemes and under the workmen's compensation scheme. Service benefits are provided under the health insurance scheme.

Cash Benefits

Cash benefits are provided by the unemployment and health insurance schemes chiefly in order to tide over unavoidable interruptions of wage-earning, whether due to industrial causes or to ill-health. They are provided on a fixed scale, without any test of nationality, residence or means. The only qualification is a certain contribution record. Unemployment and sickness benefit are only paid for a limited period, but the latter is carried on

at a reduced rate under the name of disablement benefit as long as incapacity lasts. In the case of maternity benefit a lump sum is paid in cash to help to meet a particular contingency. But the pensions scheme provides regular cash allowances from a given age until death, and workmen's compensation in the event of incapacity is normally paid in the same way.

None of the cash benefits paid under the State insurance schemes were originally intended to cover even the minimum *needs* of the beneficiaries. Rather they were intended to provide a platform upon which it would be possible to build a sufficient income, with the help of savings and other personal or family resources. However, in the case of unemployment benefit and widows' pensions the principle of *need* has been recognised. to some extent in so far as some provision is made for dependants without any addition to premiums, whilst in the case of workmen's compensation both the wages of the worker and his family responsibilities are taken into account. The present scale of benefits under its three State insurance schemes is as follows:

SCALES OF INSURANCE BENEFIT IN FORCE DECEMBER 31, 1936

Health Insurance	*Normally payable:*	Weekly benefits:
Sickness benefit	For 26 weeks: After 26 contributions . 104 „ .	*Male* *Female* 9/- 7/6 15/- Single 12/- Married 10/-
Disablement benefit	After 26 weeks of sick benefit . . .	Half the above rates
Unemployment Insurance	For 26 weeks, after 30 contributions within the last two years . . .	*Age* *Male* *Female* 21-65 17/- 15/- 18-21 14/- 12/- 17-18 9/- 7/6 16-17 6/- 5/- Dependants: Adult 9/- Child 3/-
Widows' Pensions	Till age 70 to widow of insured man after 104 contributions . . .	Widow 10/- Dependent Children: First 5/- Others 3/-
Orphans' Pensions	Till age 14 (16 if at school) to orphan of insured person after 104 contributions . . .	7/6
Old Age Pensions	From age 65 after five years' continuous insurance immediately before 65th birthday and at least 117 contributions in last three years	Insured Person 10/- Wife aged 65 10/-

Even though the benefits set out in this table are not intended to cover minimum needs there is at least one anomaly which has considerable practical importance. If 17s. a week, with dependants' allowances, is considered to be an appropriate income "platform" for tiding over short spells of unemployment, why should 15s. a week, without dependants' allowances, be thought appropriate for tiding over periods of ill-health? Earnings usually cease in both cases, whilst additional expense is normally incurred in the case of illness. This anomaly frequently causes serious embarrassment to panel practitioners who are often requested to certify unemployed men as being fit for work long before they are really well in order that they may draw the higher rate of unemployment benefit with dependants' allowances instead of the lower rate of sickness benefit without allowances. For a family consisting of man, wife and two children it means the difference between 15s. and 32s. a week. Another difficulty arises out of the fact that the wives of contributory old age pensioners do not qualify for a pension until they reach the age of 65. Thus, a pensioner whose wife is five years younger than himself has to be content with a pension of 10s. a week until he is 70, when it will be raised to £1 a week if his wife is still living.

Workmen's Compensation

The present position of the workmen's compensation scheme in relation to the public social services is very anomalous. It is not easy to justify its continued separation from the public social insurances. We hope, therefore, that the Departmental Committee on the Workmen's Compensation Acts, which is now sitting, will not only make constructive suggestions for improving the present arrangements for settling claims and making payments, but will also report on the possibility of making the scheme part of the public social insurance system of the country.

VII. THE SOCIAL ASSISTANCE SERVICES

Non-Contributory Old Age Pensions—Numbers of Pensioners—Cost of Pensions—**Unemployment Assistance**—The Crisis of January, 1935—Administrative Arrangements—Persons Affected—The Second Appointed Day—**Public Assistance**—Indoor Relief—Domiciliary Relief—Poor Law Medical Service—Function of the Poor Law.

There are three public social services which may be described as social assistance services—non-contributory old age pensions, unemployment assistance, and public assistance or poor law relief. These services will be described briefly in turn below.

NON-CONTRIBUTORY OLD AGE PENSIONS

The original non-contributory old age pensions scheme was introduced under the Old Age Pensions Act, 1908. It provided a full pension of 5s. a week to persons over 70 years of age whose means did not exceed 8s. a week, and a smaller pension, varying from 4s. to 1s. a week to persons whose means fell between 8s. and 12s. a week. But applicants had also to satisfy a test of British nationality and of residence in the United Kingdom for over twenty years.

As a result of a series of amending Acts, the last of which was passed in 1924, a number of changes have taken place in the scale of pensions and in the qualifying tests, but the main features of the original scheme remain unaltered. The present position is that a full pension of 10s. a week is payable to persons over 70 (in the case of blind persons, over 50) who satisfy the following tests:

(*a*) They must have been British subjects for at least the past ten years;

(*b*) They must have resided in the United Kingdom for an aggregate period of at least twelve years since attaining the age of 50;*

(*c*) Their means must not exceed £26 5s. 0d. a year (10s. a week), after allowing for an income of £39 a year (15s. a week) not derived from earnings.

Thus a person over 70 with earnings and resources amounting to £65 5s. 0d. per annum can obtain another £26 a year by way of free pension. A smaller pension, varying from 8s. a week to 1s. a week, is payable to persons whose means fall between £26 5s. 0d. a year (10s. a week) and £49 17s. 6d. a year (19s. a week), after allowing for an income of £39 a year (15s. a week) not derived from earnings. In the case of an applicant who is one of a married couple living together in the same house, his or her means are deemed to be one-half of their combined means. In the case of two married applicants living in

Naturalised British subjects must have resided in the United Kingdom for twenty years.

the same house the means limits and unearned income allowance are doubled. Thus it is possible for a married couple, both over 70, to obtain a joint pension of £1 a week, provided that their joint earnings do not exceed £52 10s. 0d. a year (about £1 a week), after allowing for £78 a year (30s. a week) unearned income. In such a case the total annual income of two persons over 70 with pension would be £182 10s. 0d. It will be seen from the table below that for some years past only three or four per cent of applicants had their pension reduced on account of the test of means. The number totally disallowed is not known, but all these tests are waived in the case of persons over 70 who have been pensioners since the age of 65, having qualified under the contributory old age pensions scheme, or in the case of widows who are pensioners under the widows' pensions scheme.

A surprising number of different authorities have a hand in the administration of old age pensions. The Commissioners of Customs and Excise make the necessary investigations of the circumstances of applicants through their local pensions officers. The claims of applicants are heard and determined by local pensions committees (or their sub-committees), appointed by the local authorities.* Appeals made either by applicants or pensions officers against decisions of local pension committees are heard by the Minister of Health. Finally, the pensions, when granted, are paid through the Post Office.

Numbers of Pensioners

The number of persons who were granted pensions under the Old Age Pensions Acts, 1908-24, rose from 647,000 in 1909 to 1,071,093 in 1926, but has since declined to 662,508 in 1935-6 owing to the increasing number of unconditional old age pensions granted to persons over 70 who were previously pensioners under the contributory scheme. But the total number of pensions granted to persons over 70 under the two schemes rose to 1,683,226 in 1935-6. Of this number 693,353 were men and 989,873 were women. The proportions of men and women over 70 in receipt of a pension in 1935-6 were both about 77 per cent.

The following table shows the number of persons over 70 in receipt of pensions under the Acts of 1908-24 and the Acts of 1925-29 respectively since 1925 distinguishing between full and reduced pensions paid under the former Acts:

Year ended March 31	Old Age Pensions Acts, 1908-24			Contrib. Pensions Acts, 1925-29	Total
	Full	Reduced	Total	Full	
Great Britain					
1925 .	986,843	23,841	1,010,684	—	1,010,684
1926 .	1,041,100	29,993	1,071,093	—	1,071,093
1927 .	1,009,127	22,448	1,031,575	166,132	1,197,707
1928 .	972,621	23,357	995,978	289,681	1,285,695
1929 .	926,287	24,508	950,795	366,786	1,317,581
1930 .	901,263	25,472	926,735	446,596	1,373,331
1931 .	855,204	25,097	880,301	551,851	1,432,152
1932 .	804,831	24,827	829,658	647,795	1,477,453
1933 .	753,357	24,248	777,605	748,532	1,526,137
1934 .	716,101	24,433	740,534	843,254	1,583,788
1935 .	715,746	24,476	740,222	937,466	1,677,688
1936 .	637,834	24,674	662,508	1,020,718	1,683,226

* The councils of counties, county boroughs, large municipal boroughs and urban districts in England and Wales, and counties and 195 burghs in Scotland.

It will be seen that the proportion of pensioners receiving their pension unconditionally has increased every year since 1928 when the new provision came into effect. This increase is likely to continue for some years as more and more insured persons reach the pensionable age. It will also be seen that the number of pensioners receiving a reduced pension under the Acts of 1908-24 was very small throughout the whole of the period.

The number of old age pensioners of all kinds of 65 and over who were receiving poor relief was 202,434 in England and Wales on January 1, 1936.

Cost of Pensions

The entire cost of non-contributory pensions is borne by the national exchequer. This is also true at present in the case of the unconditional pensions granted at the age of 70 under the contributory pensions Acts. But it is estimated by the Government Actuary that the contributory pensions fund will be in a position to relieve the Treasury of part of the cost of the pensions paid to insured persons by the year 1962. The following table shows the cost of both types of pension during the last ten years.

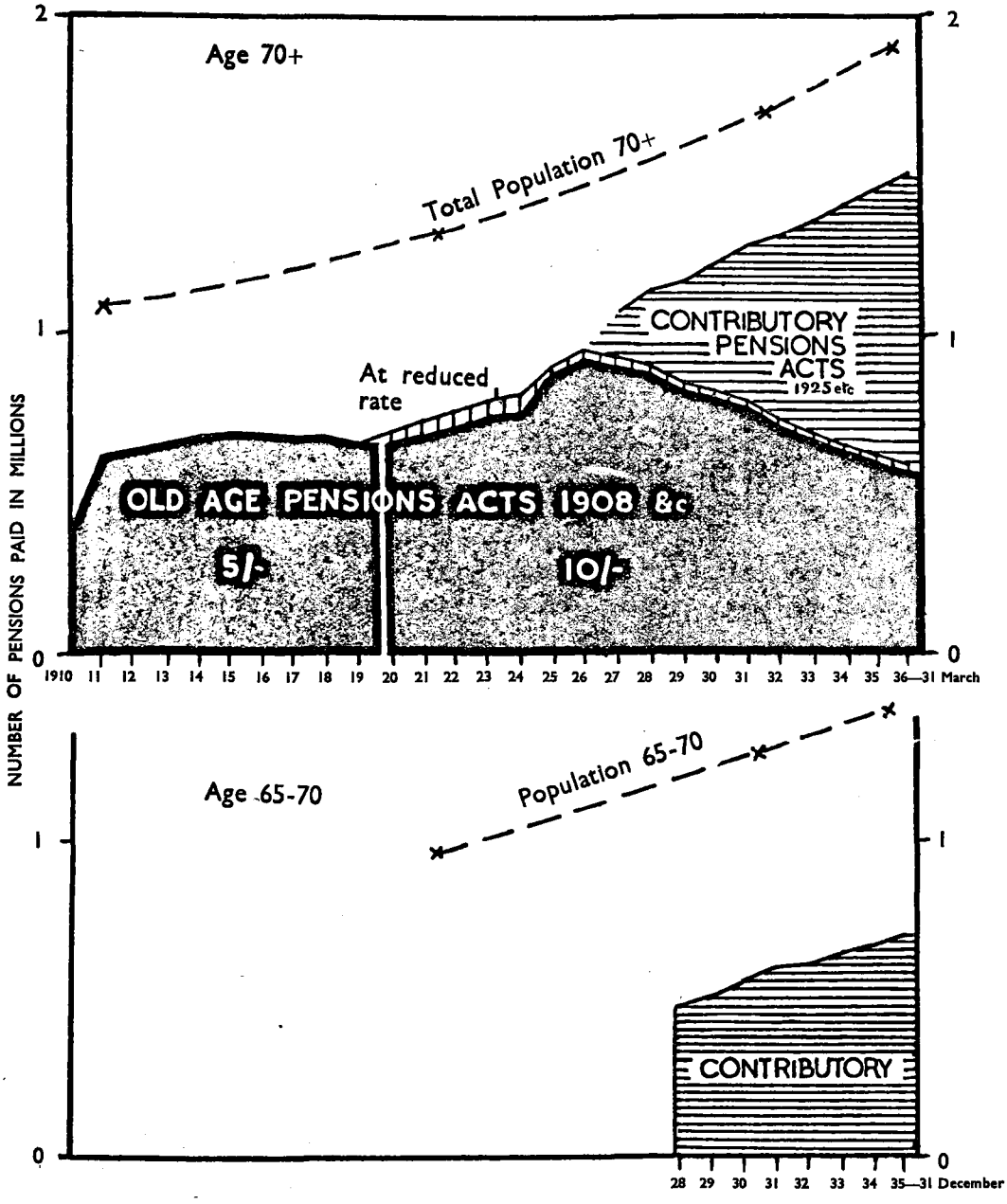
Year ended March 31	Old Age Pensions Acts, 1908-24 £(000)	Contributory Pensions Acts, 1925-29 £(000)	Total £(000)
Great Britain			
1925 . . .	24,906	—	24,906
1926 . . .	27,017	—	27,017
1927 . . .	27,390	2,594	29,984
1928 . . .	26,808	6,022	32,830
1929 . . .	25,474	8,578	34,052
1930 . . .	24,377	10,541	34,918
1931 . . .	23,632	13,044	36,676
1932 . . .	22,197	15,631	37,828
1933 . . .	21,122	18,556	39,678
1934 . . .	19,643	20,705	40,348
1935 . . .	18,596	23,139	41,735
1936 . . .	17,616	25,501	43,117

The total cost of old age pensions payable at 70 has risen steadily, especially since 1928 when the payment of unconditional pensions began. This increase may be expected to continue for the next thirty or forty years (apart from any modification which may take place in the scheme) owing to the increase in size of the elderly age groups in the population. The Government Actuary estimated in his report* on the 1925 Bill that the cost of old age pensions would have risen to £58,000,000 in 1950, and to £63,000,000 in 1960. But his figure for 1935-6 (£40,600,000) was 5.8 per cent below the actual cost in that year, owing mainly to the changes introduced by the 1929 Act. There have

* Report of the Government Actuary on the Financial Provisions of the Widows', Orphans and Old Age Contributory Pensions Bill. Cmd. 2406.

OLD AGE PENSIONS—1910-1936

ENGLAND AND WALES



also been various later estimates of future population, one of which* puts the age group 70 + as much as 5 and 12 per cent above the numbers used in the Government Actuary's calculations for 1950 and 1960 respectively. It is evident that we must expect a very formidable increase in expenditure on this service, quite apart from any increase which may be made in the scale of pensions provided.

UNEMPLOYMENT ASSISTANCE

The unemployment assistance service is the most recent of our public social services. It was created under Part II of the Unemployment Act, 1934, and the Unemployment Assistance Board, which was made responsible for the administration of the new service, began operations in January 1935.

The Unemployment Assistance Board was charged with the duty of providing for the material needs and general welfare of the able-bodied unemployed who were normally wage-earners. On the First Appointed Day (January 7, 1935) the Board took over the responsibility for the insured unemployed who had previously been on transitional payment. On the Second Appointed Day (originally March 1, 1935, but postponed to April 1, 1937) it became responsible for meeting the needs of nearly 100,000 able-bodied unemployed persons who were previously on the Poor Law.†

The new service was created to replace the temporary arrangements which had been in operation since the crisis and the Economy Act of October 1931. Under these arrangements insured persons who had exhausted their right to unemployment benefit were given transitional payments, according to their needs, up to the maximum which would have been payable in each case under the current benefit scale. The cost of transitional payments and their administration was borne entirely by the national exchequer, but the actual assessment of need and determination of claims was undertaken by the local public assistance committees, which could also give supplementary aid if they thought fit. The co-operation of the local authorities in administering transitional payments was undoubtedly responsible for the relative ease with which the new system and the new means test were introduced throughout the country in the face of a great deal of hostility. Practice varied according to local economic circumstances and the temper of the local electorate. The system was certainly open to serious objections. It was difficult to defend an arrangement whereby locally-elected authorities controlled the disbursement of some £50 millions of Government money for the raising of which they had no responsibility. It was even more difficult to justify anomalies which resulted from diverse practices of different local authorities, a few of which deliberately evaded the regulations determining need. Nevertheless, in two areas only—County Durham and Rotherham—did the Minister of Labour exercise his power to override local authorities and to intro-

* London and Cambridge Economic Service. Special Memorandum No. 40. Enid Charles.

† The actual numbers transferred (including dependants) in England and Wales were:

Men	44,350
Women	31,606
Children under 16	51,974
	127,630

(*Times*, May 12, 1937).

In Scotland the numbers per 1,000 of population were probably considerably higher.

duce commissioners. In general, the Minister preferred to postpone action until a more satisfactory permanent scheme had been devised which could be introduced throughout the country. It was as such a scheme that the unemployment assistance service was introduced in 1935.

The new service was specially designed to avoid the evils of the old system. The relief of the able-bodied unemployed (with relatively few exceptions) was to be taken out of the hands of the local authorities altogether. Diverse local standards of unemployment relief were to be replaced by a common scale of allowances and administrative regulations for the whole country. The able-bodied poor were to be taken out of the local Poor Law system, and the separation was to be complete. No supplementing by local public assistance committees was to be allowed. At the same time, an attempt was made to "take the dole out of politics" by making the Unemployment Assistance Board independent of Parliament in its day-to-day work and its handling of individual cases. Parliament would, however, have to approve the official rules and regulations which the Board would submit through the Minister of Labour. In practice, the Minister of Labour has to answer for the Board in Parliament, but has no control over its day-to-day administration.

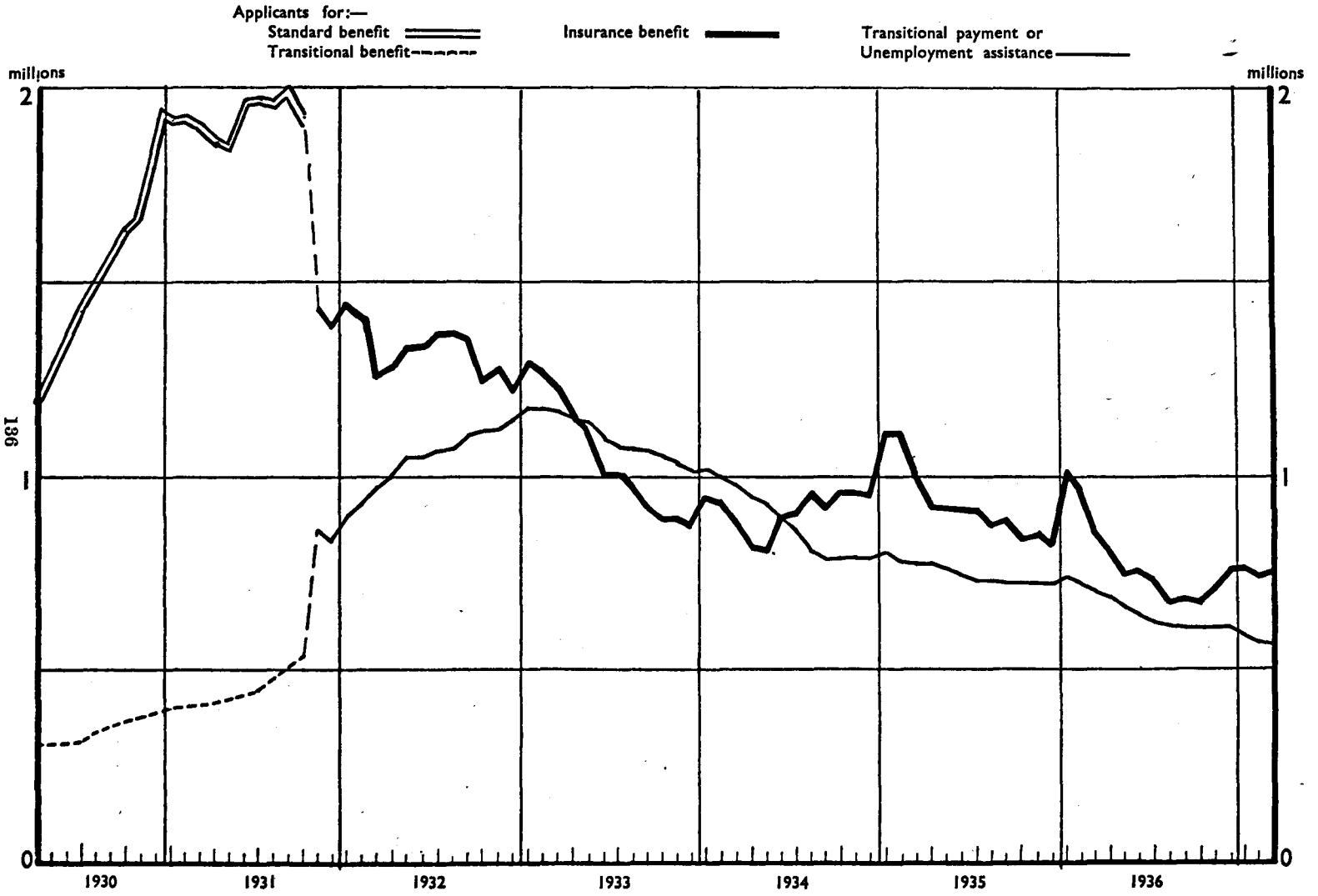
The Crisis of January 1935

Unhappily, the new scheme encountered heavy weather from the first. The Unemployment Assistance Board submitted its draft regulations containing the proposed national scale of unemployment assistance to the Minister of Labour, who laid them before Parliament in December 1934. The first determinations of need were made during the second week in January, and after a short period of calm, a storm of protest broke, before which the Government capitulated. It appeared that in thousands of cases in all parts of the country the effect of the new determinations had been to make unexpectedly large reductions in the allowances paid compared with the old transitional payments. Instead of spending at the rate of £3,000,000 a year more as had been estimated, an actual saving was being made. This was against the declared intention of the Government and, in face of protests from Members of Parliament of all parties, the attempt to enforce uniform scales everywhere was suspended. A curious measure, known as the Standstill Order, was quickly passed in order to modify the effects of this too sudden centralisation of relief of the off-insurance class. In effect, assessment was to continue on the lines previously followed by the various local authorities under the transitional payment scheme, and the new national scale would only be enforced in those cases where applicants would gain by it. Thus the Board had a dual system to administer and the 800,000 applicants got the best of both worlds.

This "standstill" arrangement was operated for nearly two years—from January 1935 to November 1936. In July 1936 Parliament approved a revised scale and new regulations for the determination of need. These were on the whole more generous than the first edition, especially towards family cases. On November 16, 1936, the new scale and regulations came into force. It is claimed for them that they meet practically all the objections raised against the original arrangements. The Board estimated that when they were fully in force, the allowances of about two-sevenths of the applicants would be larger than under the dual arrangements; some of the others will eventually receive

UNEMPLOYMENT BENEFIT AND ASSISTANCE

GREAT BRITAIN, 1930-7



less than under the dual arrangements, but it is as yet too early to attempt an estimate of the numbers concerned. The necessary cuts are to be completed during the eighteen months ending April 1938. There would doubtless be some grounds for reduction in areas of previous lax administration of transitional payments by public assistance committees.

Administrative Arrangements

The Unemployment Assistance Board itself consists of six members, appointed for a term of years. It is independent of the Ministry of Labour, and has its own headquarters, branch offices and staff. The form of organisation adopted consists of a relatively small headquarters in London and a network of district and area offices. The headquarters staff deal with the general administrative direction of unemployment assistance in all its aspects, including the collection and interpretation of statistics. The field staff—organised in 28 district offices, 15 sub-district offices, 240 area offices and 44 out-stations—are concerned with the actual investigation in detail of claims for assistance, decisions concerning the eligibility of claimants for assistance, and the determination of need. This system is supplemented, in rural areas where the number of persons coming within the scope of the Board is negligible, by special arrangements with local authorities, providing for the part-time use of the services of the local public assistance staff on an agency basis. Arrangements are also made with the Ministry of Labour providing for the employment exchanges to undertake the receipt of new applications and the actual payment of the allowances made. Certain other services are performed by the Claims and Record Office of the Ministry of Labour at Kew.

The actual determination of need is undertaken by the area officers and their staffs, in conformity with the scale of allowances and regulations issued by the Board and approved by Parliament, and with the Board's own views on special topics, expressed in instructions and memoranda. The Board's regulations and instructions are voluminous and detailed, but "discretionary powers" have been expressly given to district officers for use in all special cases. It is estimated by the Board that discretionary increases in assessments of need to meet special circumstances are made in a large proportion of cases. During the summer of 1936 a system of local advisory committees was established in order to bring the Board into touch with local opinion and to introduce a measure of elasticity into the interpretation of the Board's instructions on certain aspects of the assessment of need. The committees have already been asked to advise on such matters as the rent allowances and the gradual removal of the dual scales which were in force during the standstill period.

Provision was also made in the Unemployment Act, 1934, for the creation of appeals tribunals to which applicants for unemployment allowances could have recourse if they were aggrieved at any decision of the Board's officers or by the determination of allowances made for them.

Some 138 appeals tribunals were established in 1935, each consisting of a chairman and two other members—a representative of the workers and a representative of the Board. The volume of appeals has, however, been relatively small.*

* Only 19,900 appeals were lodged between January 7, 1935, and December 31, 1935—a period covering over a million assessments.

Persons Affected

Up to April 1937 the Unemployment Assistance Board was only concerned with insured persons over the age of 18 who had exhausted their right to unemployment insurance benefit.

During the calendar year 1935 the average number of applicants for unemployment allowances was 749,105. The Board has been principally concerned with persons who have had so little employment that they have not been able to make 30 contributions in two years.* Many of them had been out of work for very long periods as the following table, setting out the position on May 27, 1935, shows:

Wholly unemployed† applicants who have been out of work for:	Nos.	Per cent
5 years or more	25,709	3.6
2 years and under 5 years . . .	194,512	27.0
1 year and under 2 years . . .	124,926	17.4
6 months and under 1 year . . .	146,789	20.4
Under 6 months	198,132	27.5
	690,068	95.9
Persons temporarily stopped . . .	9,300	1.3
Casuals	20,379	2.8
	719,747	100.0

The geographical distribution of applicants for unemployment assistance is very uneven. Over four-fifths of all the applicants in Great Britain are to be found in Wales, Scotland and the North of England. Less than a fifth are to be found in London, the South and Midlands, which contain the same total number of insured workers. In London and South-eastern England only one in five insured persons who were unemployed on April 19, 1937, received unemployment allowances, but two out of every five received allowances in North-eastern and North-western England; over half in Scotland; and nearly 60 per cent in Northern England and Wales. It is evident that the work of the Unemployment Assistance Board is very largely concentrated on the severely depressed areas of Great Britain, suffering from long-term unemployment. In the rest of Great Britain the unemployment insurance system is adequate to deal with all save a small proportion of the unemployed.

As the average duration of unemployment among women is much shorter than among men, the Unemployment Assistance Board deals with comparatively few women. Of the 611,790 persons receiving unemployment allowances on April 19, 1937, only 40,908, under 7 per cent, were women and girls, and two-thirds of these were in the

* Representing a maximum of 30 weeks full work, or a minimum of 30 days work, one day in 30 separate weeks.

† "Wholly unemployed" applicants may have had one or more short spells of employment lasting not more than three days each.

North-western division and Scotland. A sample enquiry made in April 1935, when the number of applicants receiving allowances was about 725,000, showed that about 523,000, or just under three-quarters of the total, were married, and that 370,000, or rather more than half, were in households of three or more, with at least one child under 14 years of age.

This short survey of the available statistical evidence points to the general conclusion that the major task of the Unemployment Assistance Board is to assist, and to promote the welfare of, the households of married men suffering from long-term unemployment, principally in the depressed industrial areas of South Wales, Scotland and the North of England. Single men and women call for a comparatively small share of the attention of the Board, and in so far as they do so it is principally in the depressed industrial areas. In the rest of Great Britain the Unemployment Assistance Board deals with only a small fraction of the unemployed, mainly but not exclusively consisting of men whose personal characteristics are somewhat below the average standard and whose suitability for regular employment may be in some doubt. The proportion of elderly and partially disabled men is high. The Board's work does not, however, extend to the sick or to people over 65 years of age.

The Second Appointed Day

On April 1, 1937, the scope of the Board was widened to include all unemployed persons and their families whose normal occupation had brought them under the Contributory Pensions Acts (our widest social insurance) and who were "capable of and available for work." This meant the transfer from the public assistance authorities of nearly 100,000 destitute persons of a very mixed character. Some of these persons had been maintained in local authorities' institutions. Another new function that has fallen to the U.A.B. since April 1, 1937, is that of supplementing unemployment benefit wherever an applicant can prove that the Board's unemployment allowances would be more favourable to him than his benefit rate. Such supplementary payments have always been possible under the Poor Law, but they are likely to become far more general under the U.A.B. It is estimated that under the new regulations most families with more than two children or more than one adult dependant and small resources will be eligible for a supplement.

PUBLIC ASSISTANCE

In spite of the growth of many new forms of public social provision, poor relief—or public assistance, as it is now called—remains one of our major public social services. It accounted for over 12 per cent of the total amount expended on the public social services, and for 16 per cent of the net public expenditure on these services, in 1934-5. The public assistance service is essentially a "last resort" service. Although it has lost most of its harsh and deterrent features it is a service to which few people have recourse until they have exhausted all reasonable means of meeting their needs in other ways. Nevertheless, over 1,600,000 persons were actually in receipt of poor relief in Great Britain on January 1, 1936 (1,400,000 in England and Wales). This figure includes dependants.

The administration of poor relief is governed for the most part by the Poor Law Act, 1930. This Act consolidated a large number of earlier Acts, ranging from the Poor Relief Act, 1601, to the Poor Law Act, 1927. It has since been amended by the Poor Law Act, 1934. The Act of 1930 requires every public assistance authority to relieve destitution, no matter in what form it may arise. But the Unemployment Act, 1934, provides that a public assistance authority may not grant outdoor relief (other than medical relief) to any person for whom the Unemployment Assistance Board is responsible. This limitation of scope was at first confined to the households of unemployed persons who have exhausted their right to unemployment benefit, but since April 1, 1937, it has been extended to the other classes of able-bodied unemployed for whom the Unemployment Assistance Board has become responsible.*

Within the limits of statutory regulations issued by the central departments,† public assistance authorities exercise a wide discretion in determining whether an applicant for relief is or is not destitute, and in deciding the form and amount of relief to be given. By destitution is meant the absence of material resources necessary for satisfying basic physical needs. But a person may be regarded as destitute who is in need of some particular necessity of life without being destitute in all respects. Thus, for example, a person who is not entirely lacking in the means of subsistence, may yet be destitute in that he is unable to provide for himself the particular form of medical attention or treatment of which he, or some member of his household, is in urgent need. Except in certain cases in which there is a special statutory provision,‡ public assistance authorities are under obligation to take into consideration all means of income available for the support of the applicant and his dependants, when determining whether destitution exists and what form and amount of relief, if any, should be given.

There are two principal ways in which poor relief is given:

(*a*) Indoor relief in an institution, including the relief of the casual poor.

(*b*) Outdoor relief in the applicant's home.

Indoor Relief

Indoor relief is usually provided in special institutions, of which the workhouse, or "Institution," is the representative type. There are, however, other special institutions—infirmaries, hospitals, clinics, casual wards, district asylums, training centres, schools, children's homes, aged people's homes, and institutions for the mentally defective and insane—which have come into existence as offshoots of the original workhouses. Many of these institutions—particularly hospitals and institutions for the mentally defective and insane—have been transferred from the public assistance committees to other committees of the county and county borough councils in England and Wales and of the county and large burgh councils in Scotland under the provisions of the Local Government Acts, 1929, but, even where this has been the case, public assistance committees often continue to use them for the purpose of providing institutional relief.

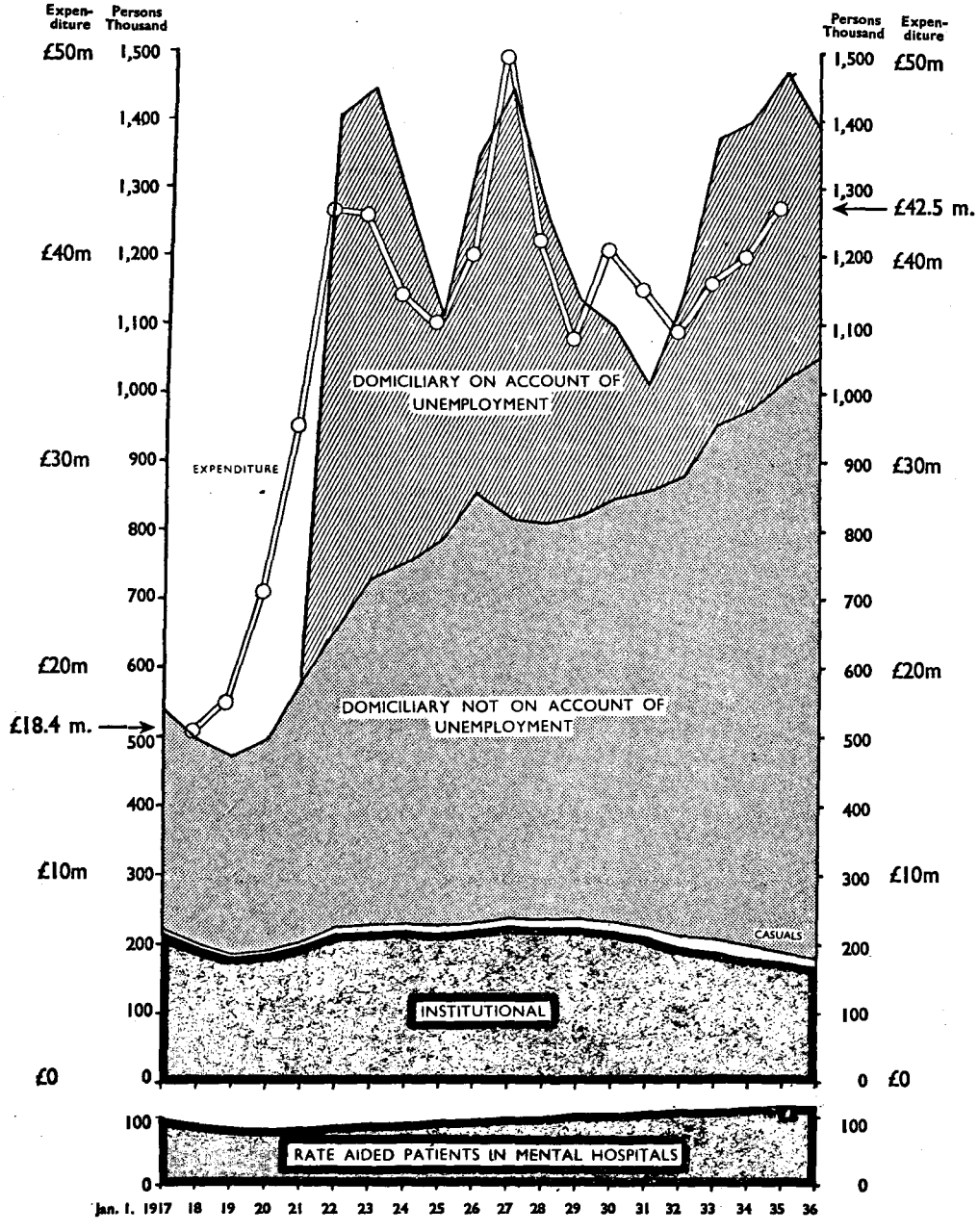
* The public assistance authorities remain responsible in all cases of sudden emergency, but the U.A.B. has to reimburse them for any relief which is granted.

† The Ministry of Health and the Department of Health for Scotland.

‡ Sec. 48 of the Poor Law Act, 1930 (and subsequent amendments).

PERSONS RELIEVED AND EXPENDITURE ON PUBLIC ASSISTANCE

ENGLAND AND WALES—1917-36



The principal types of persons relieved in these institutions are poor persons in need of hospital treatment; the constitutionally infirm and the physically afflicted (including blind and aged people) who have no suitable homes or require more attention than relatives are able or willing to give; mental defectives and lunatics; fatherless children (including deserted and illegitimate children); deserted wives and other members of broken homes; women with illegitimate children and women who have lived by immoral means; families living without means in furnished rooms or common lodging houses, or amid insanitary or immoral surroundings, and who show no prospect of bettering themselves; professional mendicants; and vagrants. A number of able-bodied persons are also relieved in training centres (residential) and in ordinary workhouses, in certain circumstances.

Out of a total of 1,387,720 persons in receipt of poor relief in England and Wales on January 1, 1936, 180,295 or 13 per cent were in receipt of institutional relief. Those who were relieved in institutions included:

61,400 persons suffering from sickness, accident or bodily infirmity;
26,515 persons suffering from mental infirmity;
27,007 children in special children's homes; and
11,247 casuals.*

Destitute wayfarers and wanderers seeking relief are received in casual wards, bathed, issued with clean night attire, provided with supper, breakfast and dinner, detained for two nights and required to perform a task of work on the intervening day.

Domiciliary Relief

The great majority—some 87 per cent—of the applicants for poor relief are relieved in their own homes. Domiciliary relief may take several forms. Usually it takes the form of a cash allowance, based on an assessment of household need made by a relief committee. It may, however, take the form of relief in "kind" or services. Relief in "kind" can only be given by a relieving officer, upon whom is laid, by statute, the duty of affording "such relief otherwise than in money as may be necessary" in cases of sudden or urgent necessity. This is the ultimate safeguard provided by law to ensure that no one dies of starvation. It is also given when some special need is present—such as extra nourishment, medical or surgical aids, or children's boots or clothes in certain circumstances, and also if there is any serious doubt as to the capacity of an applicant to make good use of his cash allowance. Poor relief in the form of services is usually medical relief provided by the district medical officer of the public assistance authority.

The principal categories of persons in receipt of relief in their own homes are as follows:

(*a*) Persons relieved "on account of unemployment." Out of the 1,200,000 persons in receipt of domiciliary relief on January 1, 1936, about 330,000 were relieved "on account of unemployment." Of these about one-third were actually

* Further details are shown in the Appendix.

"unemployed" persons. The rest were dependent wives and children. Those actually "unemployed" included:

(i) Persons in the category which was transferred to the Unemployment Assistance Board on the Second Appointed Day,* including insured persons who applied for relief during the "waiting period" for unemployment benefit, insured persons who had been disqualified from benefit, insured persons who sought to have their benefits supplemented, unemployed persons insured under the widows', orphans' and old age contributory scheme, but not under the unemployment insurance scheme;

(ii) Persons in categories *not* transferred to the Unemployment Assistance Board, such as persons working on their own account, small traders and hawkers, and black-coated workers normally earning more than £250 a year.

(*b*) Persons relieved "on account of sickness, accident or bodily infirmity."

Some 420,540 persons, or 35 per cent of those relieved on January 1, 1936, were relieved on account of "sickness, accident or bodily infirmity." But of this number 219,589, or more than half, were elderly persons over 65, suffering from the infirmities of their years.

(*c*) Persons relieved "on account of mental infirmity."

Some 6,524 persons were relieved in their own homes on account of mental infirmity.

(*d*) "Other persons."

Some 450,456 persons, or 37 per cent of those relieved in their homes on January 1, 1936, were "*not* suffering from sickness, accident, or bodily or mental infirmity." Of this number the great majority were widows, and wives separated from their husbands, and dependent children.

Poor Law Medical Service

It is the duty of every public assistance authority to provide medical attention for those who apply to it for relief, even if they are not destitute in the ordinary sense of the term. For this purpose a special domiciliary medical service has been created by appointing a medical officer in each district whose duty it is to attend and supply medicines to all poor persons requiring medical attendance within the district, at the order of a relieving officer. These district medical officers are usually private practitioners who devote only a part, often a small part, of their time to medical relief work, but there is a growing tendency to appoint full-time officers for this work and to bring them into closer association with the institutional medical services. In some parts of the country, notably in London, the Poor Law medical service includes a system of public dispensaries, where district medical officers see patients who do not need treatment in their own homes. At many of these dispensaries medicines and surgical aids are also supplied. The most recent development of the Poor Law medical service has been an experiment whereby a

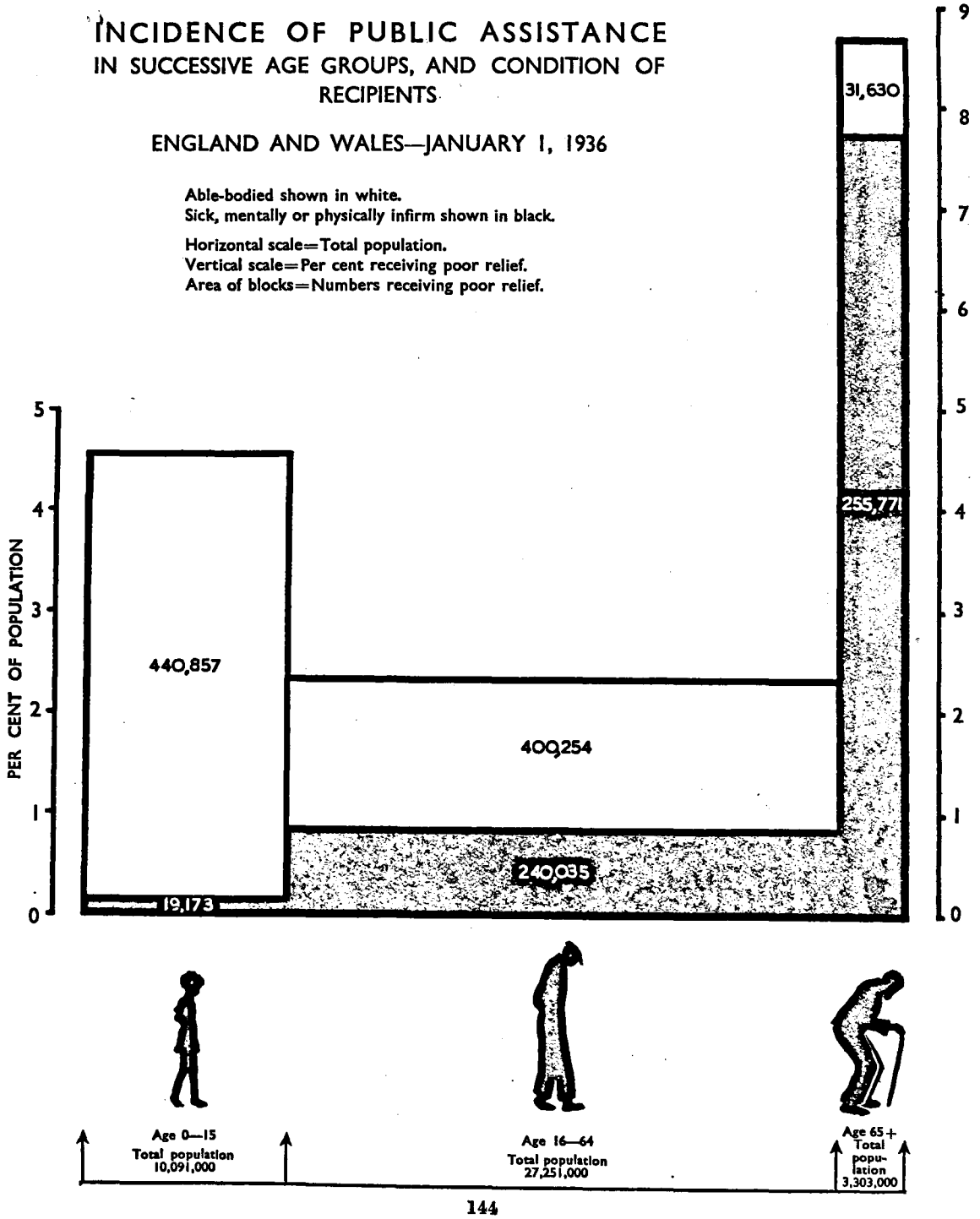
* See note on page 134.

INCIDENCE OF PUBLIC ASSISTANCE
IN SUCCESSIVE AGE GROUPS, AND CONDITION OF RECIPIENTS

ENGLAND AND WALES—JANUARY 1, 1936

Able-bodied shown in white.
Sick, mentally or physically infirm shown in black.

Horizontal scale=Total population.
Vertical scale=Per cent receiving poor relief.
Area of blocks=Numbers receiving poor relief.



panel system, giving each person in need of medical relief a choice of doctor, is substituted for the usual district officer system. Under this arrangement domiciliary medical relief in an area in which such a scheme is adopted is provided by a panel of qualified doctors, with whom the local authority concerned has contracted for the purpose. Schemes of this kind have been sanctioned in certain parts of the counties of Kent, Wiltshire and Glamorgan, and in the county boroughs of East Ham and Newcastle-upon-Tyne.* They may be a significant indication of future developments.

Function of the Poor Law

The Poor Law service is still, as it always has been, a comprehensive "last resort" service, dealing with a wide range of human needs. As other more specialised social services have grown up, the Poor Law service has been apparently shorn of this function and that, and its "break-up" and ultimate disappearance have been looked forward to with hope. But as the other public social services have grown up and have relieved the Poor Law authorities of some part of their burden, the Poor Law itself has mellowed and become more expansive. Instead of the grim Poor Law of the nineteenth century with its rigorous insistence on the principle of "less eligibility" and the workhouse test, we have a liberal and constructive service, supplementing the other social services, filling in gaps and dealing with human need in the round in a way in which no specialist service could ever be expected to do.

* The sanction of the Ministry of Health is required for all schemes of this kind.

VIII. THE SOCIAL ASSISTANCE SERVICES: A GENERAL REVIEW

Order of Discussion—The Scope of the Social Assistance Services—Basis of Provision—The Household Needs Test—Treatment of Personal Income—Scale of Allowances—"Less Eligibility" To-day—Form of Administration—Co-operation with Voluntary Bodies and Voluntary Workers—Finance.

Order of Discussion

The foregoing description of the social assistance services shows that they differ from the constructive community services in that they provide relief for the most part in the form of maintenance and only for those whose resources are either exhausted or insufficient. They differ from the social insurances in that they are not restricted to the members of a contributory class and that the services which they render are conditioned by a test of needs or of available resources: i.e. a means test. The tests, however, vary considerably between the different services. Two of them, unemployment assistance and the Poor Law, can be described as basic relief services, discretionary in their application and intended between them to cover the needs of all destitute citizens irrespective of age or status. On the other hand, non-contributory pensions at 70 are based upon a different conception, more closely resembling a free social insurance, which establishes a legal right to a fixed weekly payment on proof of status. The present chapter will be devoted to an examination of these three services under the following headings:

Scope
Basis of provision
Administration
Co-operation with voluntary bodies and workers
Finance

The Scope of the Social Assistance Services

The non-contributory old age pensions scheme is open to all citizens over 70, whereas the Unemployment Assistance Board covers normal wage-earners between 16 and 65, and the Poor Law has no restrictions of age or status.

The boundaries of the old age pensions scheme are very clearly drawn, and serious problems of eligibility are comparatively infrequent. Difficulties appear to arise most frequently where no reliable evidence of age is forthcoming and where British subjects have spent long periods abroad. Moreover, as the scheme is limited to persons over 70, it does not impinge *directly* on the payment of unemployment allowances and no special difficulties arise where old age pensioners apply for supplementary help from public assistance authorities.

The common boundary of unemployment assistance and public assistance are much less satisfactory, and they call for closer examination. Both the unemployment assistance and public assistance services are poverty or needs services, but the former is restricted in scope to supplying the needs of an arbitrarily defined section of the community, whereas the scope of the latter is unrestricted, except by the boundaries of the unemployment assistance scheme. The purpose of the two services is practically identical, but the territory is partitioned between them. Thus the Unemployment Assistance Board is only concerned with the household needs and welfare of able-bodied unemployed wage-earners, whereas the public assistance committees are responsible for the maintenance and welfare of all other destitute persons and their families. The public assistance committees also remain responsible for relief in cases of the "sudden or urgent necessity" of *any* person, including those within the scope of Unemployment Assistance Board, though they can recover from the Board the cost of the service rendered.

At first sight the division of territory between the Unemployment Assistance Board and the local public assistance authorities appears to be fairly clear-cut. In practice, however, many difficulties have already arisen, especially since the change-over of clientele after the Second Appointed Day. In the first place there are some cases of genuinely unemployed persons who cannot be dealt with by the Unemployment Assistance Board because they were formerly earning at the rate of more than £250 a year, and were, therefore, excluded from the contributory insurance schemes. An unemployed chief clerk formerly earning £6 a week has to apply to the local public assistance committee in case of need, though his juniors would be provided for by the Board. In the second place, there is a good deal of doubt as to the interpretation of the condition "capable of and available for work." The Unemployment Assistance Board's service, being based on *bona fide* industrial unemployment, should have no concern with anyone who is never likely to be employed again for wages. But there has been, up to the present, great reluctance to disqualify anyone from receiving unemployment allowances on this ground. Appeals tribunals often hear appeals from sub-employable persons, yet the question of "scope" is seldom raised. This question has, however, become a matter of great importance since the Second Appointed Day, when large numbers of so-called able-bodied recipients of public assistance were handed over to the Board. Unless the Board is prepared to accept a very low standard of employability, it is not improbable that the public assistance committees may find themselves saddled once more with a large number of the cases to which they have only just said good-bye.

A third difficulty arises when illness occurs. If a man falls sick before he is unemployed, his poverty is a matter for the local public assistance committee; if he falls sick while on the Unemployment Assistance Board's pay roll, he may be carried on for a spell of two or three weeks. The payment of unemployment assistance is, strictly speaking, out of order if the unemployed man is sick and not available for work, but he is carried on for a short period in order to avoid unnecessary transference and administrative complication. Even so, thousands of normal able-bodied persons who are temporarily sick are passed over to the public assistance committees after this short interval and then passed back when they are well. Further, any sickness in the applicant's family is a potential source of overlapping or confusion, wherever the local authority has to deal

with the case. Clearly there was much to be said for the pre-1935 system, which minimised the dualism between the central and local authority in dealing with different kinds of need in the same family.

An even more serious difficulty presents itself when special needs arise for dealing with which the Board is much less well equipped than the local public assistance authority. The Board has no institutions for the care of children, for the sick, for the prematurely decrepit, nor, as yet, for the training, occupation, or recuperative treatment of the able-bodied applicants themselves. All of these are indispensable aids to a well-equipped service of out-relief. All, or most of them, are, in fact, maintained by the best public assistance authorities for use in connection with the relief of unemployed persons and other kinds of poor families who fall to their care.

For example, a woman, the mother of several children, is admitted to hospital. The father, in receipt of unemployment assistance from the Board, is unable to provide proper care and attention for the children and he is obliged to ask for their admission to appropriate homes or schools. This has to be done through the local public assistance committee. Medical relief, as we have seen, is available for insured workers under the national health insurance scheme, but not for their dependants. As the Board does not provide medical relief itself, the sick and dependent children of a claimant for unemployment assistance have to apply to the local public assistance committee for medical attention from the District Medical Officer. Dentures, artificial limbs, spectacles and convalescent treatment cannot be provided by the Unemployment Assistance Board, and, where they cannot be provided from private sources, they must come through poor relief. Thus, in the case of the wife of a claimant for unemployment assistance who needs convalescent treatment, an application has to be made for poor relief. In practice, of course, a large proportion of the Board's applicants go without these things.

There is also a good deal of overlapping between the work of the Board and the public assistance authorities in dealing with the total needs of a single family. The public assistance authority deals with poverty as such, but the Unemployment Assistance Board is concerned only with the needs of the unemployed and their dependants. Thus, in the case of a family consisting of an unemployed man whose unemployment insurance benefit is exhausted, wife and children, including an adult son (a hawker) and an adult tuberculous daughter, the father will receive unemployment assistance allowances in respect of himself, his wife and small children. The son, if out of work, can only get public assistance, and the daughter will be in the same position.

It is plain that the line of demarcation between the work of the Unemployment Assistance Board and the public assistance authorities is very arbitrary, and that there is a good deal of overlapping of function. It gives rise to the question whether there is any case for the continued existence of two separate poverty services operating side by side with such an artificial division of territory.

The local Poor Law must still provide, not only for the non-able-bodied, but also for a margin of "able-bodied" poverty, e.g. hawkers and others who have never been insured, and those applicants who may be rejected by the Board on personal grounds. In fact,

the local authority will have the greater part of the burden of the out-relief of the country still on its hands, not to mention the institutional relief of adults and children. On a rough estimate, the total cost of Poor Law services to the L.C.C. will be four times larger than the cost of the specialised Unemployment Assistance Board service in the same area, and the proportionate burden may be of the same order all over the country, save in half-a-dozen depressed regions. In the latter the case remains strong for a separate and centralised needs service for the unemployed, if only because local finances would be quite unequal to the strain.

Basis of Provision

The only common basis of provision in each of the social assistance services is the test of income or resources. In each case an investigation of the financial circumstances of the applicant is undertaken before any allowance is made. Applicants who have resources of their own in excess of a certain limit are not given any assistance at all; the rest are helped according to their means or need.

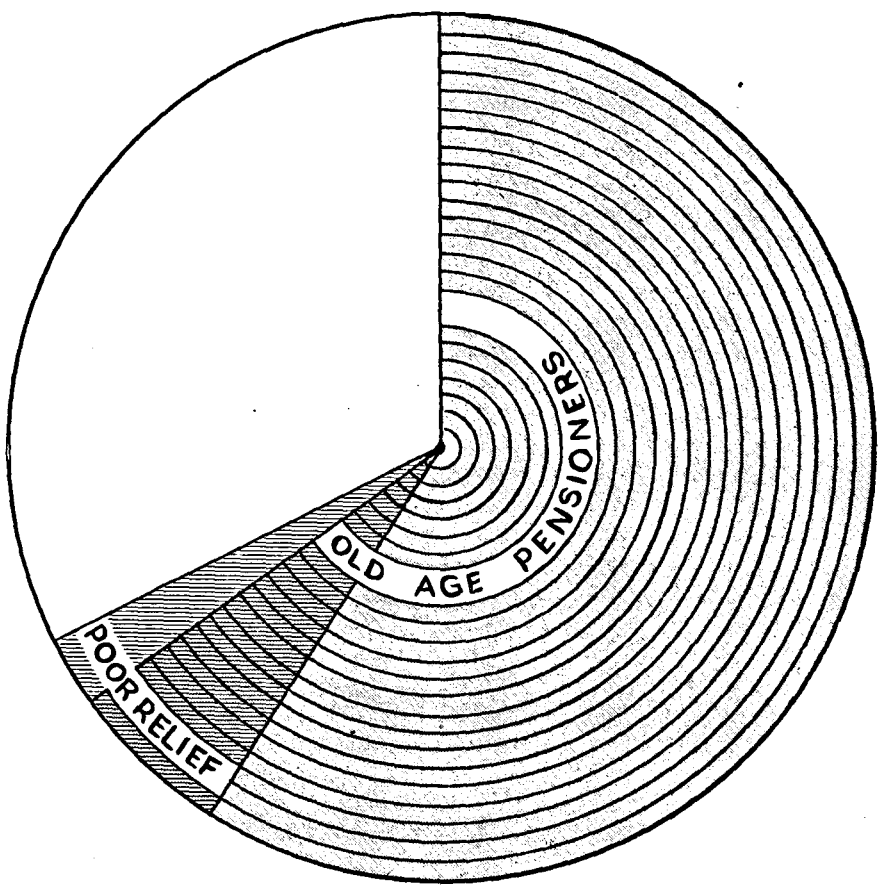
But the non-contributory old age pensions scheme differs widely from the two major social assistance services in having a very simple basis of provision. A standard flat rate of pension—10s. a week—is paid to all applicants who satisfy the conditions of age, nationality and residence, provided that their *personal* income from all sources does not exceed £65 5s. for a single pensioner and £130 10s. for a married couple over 70. Couples with more than £177 14s. coming in from earnings and savings can obtain no pension, and there is a graded scale of pensions in between these incomes. This is not a test of need in any ordinary sense of the word. It is simply a way of drawing a fairly generous line round a class of citizen whose old age the State wishes to comfort. At the same time, there are many with no resources except their pensions. In such cases needs are not satisfied, and though many old people, especially old couples, do manage to live on their pension alone, there is no presumption that it is adequate for this purpose. Public assistance authorities are therefore permitted to supplement it, and do so in about one-tenth of the cases of those in receipt of old age pensions. By contrast both the unemployment assistance service and the Poor Law are charged with the responsibility of providing for all the manifold needs of those who apply to them for help, and their families. In both cases an elaborate investigation of household needs and resources is required in order to assess the nature and amount of assistance which is needed. In neither case is there any question of the amount of assistance given being supplemented in any way by another public authority.

The old age pensions means test makes no attempt to assess the balance of needs over resources; it simply establishes a "ceiling" of income in order to safeguard the use of public funds. No discretion is involved in its administration. The only difficulties are those arising out of questions of fact. The needs test of the Unemployment Assistance Board is based on an elaborate scale of allowances and a voluminous body of regulations and instructions laid down for Great Britain as a whole. Discretionary power is, however,

EXTENT OF STATE PROVISION FOR OLD AGE

ENGLAND AND WALES—1935

TOTAL POPULATION 65+ 3,303,000



Old Age Pensioners
2,157,000
65-70, 31.12.35 691,000
70+, 31.3.35 1,466,000

Persons over 65 receiving

Poor relief and Old Age pensions	202,000
Poor relief only	85,000
	287,000

expressly conferred on the Board's officers and the 138 appeals tribunals. This discretion is used to expand the scale allowances but not to decrease them. The needs test applied by local public assistance authorities varies a good deal in different parts of the country, but is based on certain common principles laid down in Poor Law Statutes and Orders. Except in a few areas where overwhelming numbers of applicants have led to mechanical administration, it is usually administered with a considerable element of discretion in individual cases. Discretion may be used in a restrictive sense.

The Household Needs Test

The Unemployment Assistance Board and the local public assistance authorities are concerned with needs and resources of the applicants' entire household, and they apply a *household* needs test. In the case of unemployment assistance the term "household" is not defined by statute, but is taken to mean "two or more persons who live together under the same roof and share a common table," a conception which is wider than that of the family unit and may include more or less distant relatives and lodgers, or two families living together. This conception of the household is essentially the same as that held by the administrators of the Poor Law, although there is nothing in the Poor Law Acts or in the Ministry of Health's regulations or circulars giving any definition, constructive or otherwise, of what is to be regarded as a household. It is often argued in public discussions of the "Means Test" that it is objectionable to apply a *household* test when administering an *unemployment* assistance service. Unemployment is a personal misfortune over which the sufferer in the great majority of cases has no control. It is argued that the relief of an unemployed person should not be affected by the earnings or other income of other members of his household, especially if they are not members of his immediate family. This is the Family Means Test, and the fundamental question about it is whether any needs service which is true to its name can operate with anything less than the household as the unit of relief.

The answer to this question is hardly open to doubt. The primary needs of an applicant for unemployment assistance or poor relief are food and shelter, and they must be measured with regard to the family unit to which he belongs. A household assessment which takes into account the needs of all members must obviously pay regard also to their resources as a group. Rent is obviously a shared burden, as also may be the support of dependants and of semi-dependants. Any more restricted basis would be an economic fiction and would lead to the nominal transference of resources and other forms of evasion. Nevertheless, it would be wrong to assume that *all* the resources of *all* the members of a household are available for common use. Sons and daughters feel justified in keeping a considerable part of their earnings for their private use, even when their fathers are ill or unemployed. Sometimes there is justification for not requiring any contribution at all. Everything depends upon the particular case.

The original regulations of the Unemployment Assistance Board assumed that a much larger proportion of the income of subsidiary members of an applicant's household would be available for common use than the amounts assumed in the new regulations of November 1936. The unrealistic assumptions of the original regulations were an

important factor in producing the public revulsion of feeling against the new service in January 1935. It is wise of the Unemployment Assistance Board and the public assistance authorities now to disregard a larger proportion of incomes of subsidiary earners and other members of the household in assessing the household resources. The amounts which are regarded as being available towards the support of an applicant for unemployment assistance, and for public assistance are rather different. Thus the Unemployment Assistance Board has a much more complicated scale of excepted incomes than the public assistance committee of the London County Council, and it makes greater distinction between the degree of consanguinity of members of the household to the applicant as an element in determining the amount which it is reasonable to regard them as contributing to the common pool. It is too early to judge the effect of the new regulations upon the liability of other members of the applicant's household. If they prove acceptable, however, it is probable that they will result in a modification of Poor Law practice in the same connection. It is certain, however, that in these complex matters no code of rules devised in Whitehall can ever cover the infinite varieties of human circumstance and family relationships. The best system is that which leaves the largest freedom to the local officers or committees who know the cases at first hand. Fortunately, the number of households where unemployment allowances are reduced on account of family earnings probably does not now exceed 100,000 in Great Britain.

Treatment of Personal Income

Even if the incomes of members of a household other than the applicant for assistance were totally disregarded, as they are in the case of non-contributory old age pensions, the treatment of any subsidiary income possessed by the applicant himself would call for attention. In theory, all such income should be taken into account in assessing need. In practice a great deal of it is disregarded.

The principal justification for disregarding a certain amount of subsidiary income in assessing "need" is the desire not to discourage thrift and self-help. Thus the non-contributory old age pensions scheme disregards the first £39 a year of unearned income (presumably derived from past savings) and a certain amount of earned income. The Unemployment Assistance Board disregards a modest amount of subsidiary earnings; the first £25 of savings treated as capital; the capital value of any interest in a house in which the applicant lives; and the first 5s. a week of sick pay from a friendly society. Public assistance administrators are prevented by law from taking into consideration the first 5s. of any sum received in sick pay from a friendly society or trade union, and they are permitted by law* to disregard the capital value of an occupied house and the first £25 of the capital value of savings. Another justification is the desire to preserve the advantages of contributing to a social insurance scheme. Thus the first 7s. 6d. a week of National Health Insurance benefit and the whole amount of standard maternity benefit must be disregarded both by the Unemployment Assistance Board and the public assistance authorities. A compassionate sentiment lies behind Parliament's logically unjustifiable exclusion from the reckoning of half of the receipts from workmen's compensation and the first £1 a week of "wounds or disability pension."

* Transitional Payments (Determination of Needs) Act, 1932.

In the case of non-contributory old age pensions, the exclusion from the account of a certain amount of income in order not to discourage thrift and a modest amount of self-help is plainly justified. As we have already seen, no question of "need" arises. But in the case of the two "needs" services, the cumulative effect of disregarding so much of the personal income of the applicant in assessing his "need" may be to undermine the "needs" principle itself. Under the modern Poor Law a man may be in receipt of an income of thirty shillings a week or more and yet be "absolutely destitute" and eligible for the maximum scale of relief.

Scale of Allowances

We have already seen that the scale of allowances paid under the non-contributory old age pensions scheme is a simple flat rate scale ranging from 10s. to 1s. a week, according to the means of the applicant. But as the two major social assistance services are concerned with "need" there is an infinite variation in the amounts which they pay, according to the circumstances of particular cases. The Unemployment Assistance Board has a standard scale of allowances, which has been approved by Parliament, but it is possible for the Board's officers to depart from it in special circumstances. These circumstances and the use of "discretion" are themselves the subject of elaborate central instructions. There is no comparable scale in the case of public assistance. The forms and amounts of poor relief, reflecting the variety of human conditions, "achieve practical justice not on any systematic principles or rules of equity, but according to the individual circumstances of each case."* Nevertheless, the majority of public assistance authorities adopt scales of relief for the general guidance of their officers and local committees.

The purpose of both unemployment assistance and poor relief is to ensure that all who fall within their scope obtain at least a sufficient income (in terms of food, shelter, fuel and conventional necessaries) to cover their "minimum requirements" according to contemporary standards. The publication by the B.M.A. of a series of minimum standard diets for families of different size and age composition and the existence of certain other minimum standards—fuel, clothing, household accessories, etc.—used by local social survey workers has given us a useful means of forming a rough estimate of the adequacy of existing standards of relief. In present practice both the Unemployment Assistance Board and the public assistance committee allowances compare not unfavourably with the B.M.A. standards in households with no children or only one child, but much less favourably in households with two or more children. It must be remembered, however, that both the Unemployment Assistance Board and the L.C.C. supplement their scales in special circumstances and that neither authority pays much regard, in assessing need, to school meals or food supplied by a maternity or child welfare centre to any member of the applicant's household.

"Less Eligibility" To-day

The reformed Poor Law of the nineteenth century was based on the principle that the position of the person relieved by the Guardians should be "less eligible" than that

* "The Administration of Relief." L.C.C. Publication (P.A. 5), p. 17.

of the lowest class of regular wage-earners in the district. Until the early years of the present century it was believed that if this principle was not respected the incentive to honest work would be undermined, and pauperism would inevitably increase. So long as standards of poor relief were low, its administration fairly rigorous, and its beneficiaries "tainted" in popular regard with the stigma of pauperism, the "less eligibility" of those who were in receipt of poor relief was hardly in doubt. However, as a result of liberalising tendencies during the post-war period, and especially since the establishment of the Unemployment Assistance Board, the position has been reached when the circumstances of thousands of wage-earners in work are less favourable than they would have been if they were in receipt of unemployment allowances or public assistance. The Unemployment Assistance Board has found that "there are already disquieting signs in individual cases that the close correspondence between wages and allowances is influencing some of its applicants." The "wage-stop" provided under the Board's regulations has so far only been sparingly used.* Most public assistance authorities follow a similar practice with respect to their own applicants. Thus where there are large families or special troubles, a conflict frequently arises between the conception of satisfying minimum needs, the *raison d'être* of a *needs* service, and necessity to maintain normal work incentives in the community. It is intolerable in these days that a household should have less than a minimum standard of maintenance. It is hardly less intolerable that the economic position of those who are employed should be less advantageous than those who are not working, although this condition is bound to exist in some degree so long as needs are considered on a household basis and wages are not. The solution of this dilemma is one of the major problems confronting social administrators to-day.

Form of Administration

The administration of both the non-contributory old age pensions scheme and the unemployment assistance service is centralised. The public assistance service, on the other hand, is administered by a large number of local authorities. The central administration of the old age pensions scheme is in the hands of the Commissioners of Customs and Excise, who make the necessary enquiries into the applicant's circumstances through their local Pensions Officers. Unemployment assistance is administered by a semi-independent central authority—the Unemployment Assistance Board, operating by means of a network of local offices. Public assistance is supervised by the Ministry of Health, but the actual administration of relief is in the hands of local elected bodies—the councils of counties and county boroughs in England and Wales and of the counties and cities in Scotland.

As the administration of non-contributory old age pensions is based on a simple national scale and straightforward regulations, involving the exercise of very little discretion on the part of local officials, a centralised system is plainly the most appropriate. There is no question of investigating the whole range of family circumstances or of attempting to relieve household need. Such local knowledge and discretion as are needed in the administration of the service are adequately provided by the system of local pensions

* In general the U.A.B. considers that the allowance granted to an applicant should be at least 2s. below what would be available to him if he were in employment.

committees, who consider and determine all applications. An appeals system is provided by the Minister of Health, who decides any appeal made to him by the applicant, or by the local pensions officer, against a decision of the pensions committee.

It is open to doubt whether a centralised service is appropriate in the case of unemployment assistance, or, indeed, necessary, save in the depressed areas. The Unemployment Assistance Board sets out to provide a genuine *needs* service. But is it possible to satisfy the manifold varieties of human need by the fixed scales and voluminous regulations inevitably associated with a centralised service? Can such a service possess the necessary elasticity to make allowances for local conditions, special kinds of need, and exceptional circumstances? Can it allow to its local officers anything like the same discretionary scope which is allowed as a matter of course to relieving officers, who are responsible to local public opinion? Moreover, is it possible for a centralised service, divorced from the local social services, to make the same all-round provision for need that a locally administered service, organically related to the other local social services, can provide? It is true that the Unemployment Assistance Board has instructed its officers to make the best use of the local social services in relieving need. Moreover, a system of local advisory committees has been established to advise the Board and its local officers on general questions relating to rents and the adjustment of allowances, to provide information and advice on other matters which have a bearing on the administration of the regulations in the area, and to make recommendations concerning the best method of treating certain special types of cases. Nevertheless, the inherent weakness of a centralised system of relief remains. It dare not relax control over its local officials, but must insist upon the rigid observance of central instructions. Even the use of "discretion" has to be largely mechanised by a code of rules, yet it is utterly impracticable to codify the individual and family needs of the poor.

Nor has the political setting of the semi-independent Board proved satisfactory. Inevitably the attempt to "take the dole out of politics" has failed. Two years experience has amply proved that if the care of the able-bodied unemployed is centralised, then Parliament will insist upon more direct control of the service than is consistent with the full devolution of authority contemplated in the 1934 Act. It follows that the Minister of Labour is on the horns of a dilemma: he must in practice answer for the administration of the Board, and accept responsibilities which, under the Statute, he has no power to discharge. Obviously the Government cannot divest itself of responsibility, and the hoped-for analogy between the U.A.B. and other statutory corporations (e.g. the B.B.C.) proves to be a fiction.

The conclusion which emerges is that when Parliament, in 1934, set up this new centralised service of unemployment assistance, it failed to distinguish between two different objectives. Was it establishing a more or less mechanised relief service for the genuine unemployed, which would approximate in methods to the unemployment insurance scheme? Such a policy might have been admirable, but it would have involved a restriction of allowances, both in scope and amount, as under the transitional payments scheme. Or was it deliberately embarking upon a course of centralising the relief of poverty, in other words, nationalising the local Poor Law system? This would have

meant a centralised all-in needs service, freed from restrictions as to age, sickness, etc Indeed, this may yet be the ultimate result of the 1934 Act. Local authorities are already vocal in their demands that the central government should now complete the business and take over the whole care of poverty as such. Logically there is a strong case for unifying the administration of all three social assistance services, without necessarily changing the terms on which the diminishing number of non-contributory pensioners receive their old age pensions. The creation of a single comprehensive social assistance service covering all forms of residual need may not be practical politics at the moment, but it should certainly be envisaged as part of a long-term programme of social service development.

Hitherto for 330 years the British people have accepted as an article of faith and common sense that a needs service for the poor should be locally administered. That has not necessarily meant a narrow parochial system. The abolition of the old Boards of Guardians and the unions of parishes was a desirable reform. It eliminated a vast number of small and unsuitable units of administration and brought poor relief into much more effective relationship with the other local social services organised on a county or county borough basis. It also went some way towards equalising indefensible local variations in the financial burden of poor relief. The question arises whether it would not be possible to extend the areas of public assistance administration still further without losing the peculiar advantages of local administration and local responsibility. Many public assistance authorities are very small, and some of them are much less efficient than they would be if they operated over a wider area and could employ superior personnel. It is significant that one of the most reasonably generous and best administered public assistance authorities in Great Britain is also the largest. The London County Council administers poor relief over an area containing a population of 4½ millions with conspicuous success. It has succeeded in combining a high degree of administrative efficiency with a humane spirit and a jealous consideration of the special needs of the poor of the metropolis. Judging from the success of the London arrangements, it is not unreasonable to suppose that many areas of administration of poor relief in other parts of the country could with advantage be extended. It is important, however, that public assistance areas should conform to the administrative areas for education, public health, blind welfare, mental deficiency and the other local social services.

Co-operation with Voluntary Bodies and Voluntary Workers

Reference has already been made to the work of the local pensions committees in determining applications for old age pensions, and to the local advisory committees set up by the Unemployment Assistance Board. Both types of committee are, of course, official, but they are both manned by voluntary members. The former exercise minor executive functions, the latter are purely advisory. But the *raison d'être* in both cases is to temper the keen wind of a centralised bureaucracy to the shorn lamb applying for assistance. The public assistance service proceeds somewhat differently. It appoints co-opted members (i.e. voluntary workers) to its committees and sub-committees. Most public assistance authorities also co-operate with voluntary bodies of different kinds. In some cases large subscriptions are made to voluntary agencies, such as the Discharged

Prisoners' Aid Societies, which perform services difficult for an official body to undertake, and save the authority considerable time and expense. In other cases, public assistance authorities use the institutions of voluntary agencies—homes for cripples, border-line mental defectives, the blind and the deaf, tuberculosis sanatoria, and so on—for their own cases, in return for payment. In most places there is close co-operation between public assistance committees and local personal service organisations, councils of social service, clothing guilds and the like, and in a few places a scheme of mutual registration of cases has been adopted. It is very desirable that these forms of co-operation should be extended, but it is important that the use of voluntary agencies should only be made with a clear understanding of the respective functions of the official and the non-official body.

Finance

Non-contributory old age pensions and almost all the costs of unemployment allowances are financed directly by the Treasury out of national taxation.* The cost of poor relief is borne by the local rates eked out by a share of the block grant paid annually by the Ministry of Health to all local government units. Thus the burden of old age pensions and unemployment allowances is distributed throughout the community in rough measure according to the tax-payer's capacity to pay, whereas the burden of poor relief falls most heavily on those communities which are most seriously depressed. The cost per head of population of non-contributory old age pensions was 18s. 8d., and that of unemployment allowances was £1 throughout Great Britain in the year 1935. The cost per head of population of poor relief in the same year ranged from 8s. 0d. in Coventry and Blackpool to 44s. 5d. in Merthyr Tydfil and 49s. 4d. in Liverpool. De-rating and the payment of special grants to authorities in depressed areas have gone some way to equalising the burden actually falling on the local ratepayer, but flagrant anomalies still exist. Theoretically, the simplest solution of the problem would seem to be to "nationalise the Poor Law" as unemployment assistance has been nationalised. But this could only be carried out at the expense of all the advantages of local elasticity and responsibility which were discussed in the last section. It remains to discover a more acceptable system of Poor Law finance which is not incompatible with a large measure of local control over the administration of relief.

* The local authorities are charged with 60 per cent of the average cost of poor relief in respect of the persons transferred on the Second Appointed Day. These persons are, of course, only a small minority of the clients of the U.A.B.

IX. THE SIGNIFICANCE OF PUBLIC SOCIAL SERVICES

What are Social Services for?—Social Services and the Individual—Popularity of the Contributory Method—New Administrative Mechanisms—Economic Repercussions of the Social Services—Impact of Social Services on Wages—Regional and Local Variations—Needs and Capacity to Pay—Problem of the Family—Limits of Public Social Services—Priorities for Future Development of Social Services—Need for Co-ordination with Economic Policy—Problem of Control—Areas and Units of Operation—Relations with the Volutary Social Services—The Personnel of Social Service Administration—The Voluntary Social Worker

What are Social Services For?

An attempt has been made in the foregoing chapters to describe as briefly as possible the existing public social services of Great Britain and to indicate the voluntary social services which are most closely linked with them. We have grouped all these under the three broad headings of constructive community services, social insurances, and social assistance services, with the object of bringing out their underlying principles, instead of keeping within the well-worn grooves made for each service by the accidents of historical development. In the present chapter we must attempt to assess the significance and function of the social services, present and future, in the life of the individual and of the community.

What are public social services for? From one standpoint they may be regarded as a set of devices for providing people whose incomes are low or precarious, or both, with as many as possible of the more essential facilities and resources which well-to-do families would naturally obtain in case of emergency. Obviously, a man who can still live comfortably on private resources in the event of losing his job has no need of unemployment insurance. A family which can meet any possible doctors' bills and nursing home expenses has no need to worry on its own account about special provision against ill-health. Where there is enough money the question of an old age pension, or of provision for taking care of a crippled or lunatic member of the family, is considerably simplified. But the number of contemporary risks is so great, the determination to cope with them so widespread, and the level of incomes generally so low, that only a small minority can adequately meet out of their private fortunes the financial burdens involved in, for instance, sickness, unemployment and old age.

The feeling that it was intolerable that so many people should be crushed by these burdens has been the great driving force behind the growth of the public social services, whose chief object is to minimise the number and scale of the impacts of common types of misfortune upon the life of the individual, the family and society. Four distinct elements are traceable in these services: the charitable urge to help out people in suffering or dis-

tress by personal or voluntary effort; the social motive of setting minimum standards of, for example, hygiene and education in the interests of the community; the democratic tendency towards reducing inequalities of status and opportunity; and the "self-help" philosophy of encouraging or compelling people, by schemes of organised thrift, to acquire protection against risks to which they are exposed. These four elements have been visible in some form at every stage in the development of the British social services, although their blending has varied from time to time. The great recent advances in the technique of financing and administering mass social services, the incentive (reinforced by education, broadcasting, press and cinema), towards a higher and more secure standard of life, the partial disintegration of social or class barriers, and the emergence of a very large group of wage-earners and salary-earners having a margin of income over and above their basic needs, have helped to determine the present pattern.

Social Services and the Individual

In what circumstances does a man, woman or child require the help of public social services? Broadly speaking, such contingencies fall into two groups. In the first place, a person having a small, often insecure income, needs help and encouragement in obtaining a minimum of provision against universal or common risks, such as unemployment, ill-health and destitution in old age. The State in these cases limits itself to seeing that adequate provision is, in fact, made, on an impersonal routine basis involving the payment of cash or rendering of services as a right in certain clearly specified contingencies. How the facilities are used remains the responsibility of the individual.

In the second set of circumstances, the community has not only to make a service available, but to take definite responsibility for guiding a person who, on account of extreme poverty or misfortune, serious or dangerous ill-health, old age or youth, is not considered capable of looking after himself. Examples of this second group are the chronically unemployed man who may require transfer or training for some new occupation, the child who needs education, and the blind person without sufficient means. Whether or not it is desirable in principle that the community should paternally direct the lives of its individual members it is evidently only possible in practice to carry out this complex and exacting task at all well on condition that the number of cases to be dealt with is kept within bounds. Effective education involves giving a certain amount of attention to individual pupils, but this is quite out of the question when classes are very large. Sound social assistance involves the careful examination of all the relevant circumstances in individual cases, but when numbers are large in relation to the available staff "mass-production" methods have to be employed, and it is frequently impossible to give to every case the patient and sympathetic treatment which is called for. On the other hand, it makes very little difference to the administrator how many people are contributing to, or drawing insurance benefit, or pensions. In the case of the administration of the social insurances the question of individual treatment and discretion hardly arises.

The small salary-earner or wage-earner, and the free-lance worker of small means need and are able, up to a point, to pay for impersonal routine social security services for themselves and their dependants. They do not need, and would in many cases resent,

any sort of personal supervision or guidance. In their case the State simply happens to be a more efficient and convenient agency for risk-spreading of a type which in other income groups is satisfactorily carried out by private enterprise. It would, of course, be impossible to draw any hard and fast line. If Workmen's Compensation had been made compulsory in, say, 1917, instead of twenty years earlier, it would no doubt have been established as a public social service linked to health insurance, instead of as a liability against which each employer insures privately as he chooses.

Popularity of the Contributory Method

Some types of social service, especially those which entail the provision of cash payments in certain contingencies, lend themselves readily to finance on the contributory method: others are more conveniently paid for out of taxation. While the compulsory contributory method was originally adopted for reasons of financial and administrative convenience, it has proved surprisingly and increasingly acceptable. The population is becoming insurance-minded. Wage-earners naturally want the benefit of as many as possible of the comforts and specialised services which are available to the well-to-do. They want these services as a right, not as a charity, and are prepared to pay substantial sums to get them, even where provision is entirely voluntary. For instance, although compulsory health insurance covers no less than 18 million persons, there are at least 5 million voluntary contributors paying an aggregate of some £2½ millions a year, over and above any compulsory contributions due from them, to the various hospital contributory schemes, and this in spite of the fact that the same hospital treatment could be obtained by a number of them free, or at nominal rates, on a means test or recovery of costs basis. An even more striking example of the popularity of contributory insurance was the demand for a special unemployment insurance scheme for agricultural workers, in spite of the fact that unemployed families would often get more under the Unemployment Assistance Board scale, without having contributed a penny, than they would receive in benefit after contributing for years. Recovery of cost is unpopular, both because it exposes the non-contributor to some sort of inquiry into his means, instead of allowing him to claim treatment as a right for which he has paid, and also because it is liable to involve a relatively large unforeseen item of expenditure at a time which is, in any case, likely to be one of acute financial stringency.

The popularity of the contributory method of financing the public social services suggests that it is an exaggeration to point to these services as steadily undermining self-reliance and creating a huge class of people who habitually use their voting power to sponge upon the general taxpayer and ratepayer. There is no evident reluctance on the part of the wage-earners of this country to pay their share of the cost of the public social services, either in the form of weekly contributions or in national or local taxation. Moreover, there is no clear evidence to show that the finance of the public social services involves any *large scale* transfer of income from "rich" to "poor."

New Administrative Mechanisms

Whatever may be thought about these points it is unquestionable that a great part of the recent expansion of the social services has only been made possible by the develop-

ment of social and administrative invention. New services often involve new institutions, such as the maternity and child welfare clinic, the nursery school and the employment exchange; new administrative machinery, such as the Unemployment Assistance Board, with its local advisory committees; and new forms of finance, such as the "recovery of cost" system and the contributory method. Thus an immense and highly organised mechanism has gradually come into existence, dealing with a considerable range of human needs. The standard of human life in this country has been substantially raised in consequence. But much still remains to be done before we achieve the social and administrative institutions and technique appropriate to the services which have to be rendered.

There is, in fact, a danger, which increases as the various large routine social services grow older, that they may through their very size and administrative elaboration drift out of contact with human needs. Once erected to a certain design, and imbued with a certain spirit and philosophy, a great organisation is liable to cling to these after they have served their purpose. This danger has not yet become acute because the chief social services started twenty to thirty years ago were well ahead of their time, and are still probably at the height of their popularity. Such popularity, however, must not be allowed to obscure the fact that the needs which social services fill or should fill are constantly changing, and therefore demanding continuous and fundamental study with a view to carrying out the necessary adjustments in good time. For instance, so far as the individual is concerned, the absolute and the relative importance of the various risks are constantly altering. Unemployment during the past twenty years has dominated the scene, but it has been a much smaller risk in the past and may well be a smaller risk again in the '40's and '50's of this century. Even now it is a many times more serious risk in some industries and in some areas than in others, and there are millions of British workers who have not experienced it in any serious form. On the other hand, the risk of an old age uncovered by adequate pensions provision faces a far larger number of people in a far more acute form now than at any previous period. Apart from such changes in risk, there are developments in the type of assistance which can be made available by technique and organisation, and in the extent of the services and facilities demanded by public opinion.

Economic Repercussions of the Social Services

It is outside the scope of this Report to investigate in detail the economic repercussions of the public social services, but it seems desirable to indicate very briefly the importance of these repercussions and to call attention to the need for studying them. Economically, the social services are important in at least two distinct ways. In the first place, they represent an elaborate mechanism for the redistribution of income, which is collected from certain groups of taxpayers, ratepayers, insurance contributors, beneficiaries and others, and is paid out or made available in kind to those affected by specific contingencies, such as sickness, unemployment, destitution and old age. The nature of the transfer and its economic results are highly complex. There is reason to believe that on the whole the beneficiaries themselves, or the income groups to which almost all of them belong, contribute through central and local taxation and weekly

insurance contributions a sum equivalent to the greater part of the total cost of these services. But the transfers, if any, between different groups come out at various figures according to the different assumptions adopted regarding, for instance, the incidence of direct taxation, or the payment to be credited to various classes of taxpayer towards general national expenditure such as defence charges.*

A more neglected and probably more important aspect is the transfer of income, already mentioned, as between one section and another of the groups chiefly benefiting —for instance, how much the transport worker or printer in steady employment is taxed for the benefit of the casually employed docker or tinplate worker. A further aspect is the extent to which the social services deduct from a worker's earnings in the prime of life in order to spread part of his income over periods of sickness, unemployment or old age. In a year of recovery for instance, such as 1935, the Unemployment Insurance Fund accumulated a net surplus of as much as £1 million a month, whereas in the slump of 1931 it was paying out nearly a million a week more than it received. This balancing of wage-earning income as between slump and boom years is credited with having contributed substantially to the relative stability of the British home market through the depression years, and the subject deserves fuller examination by economists.

The second economically important aspect of the social services is their indirect effect in contributing to the accumulation of an enormous capital sum under Treasury control. By the end of 1935 the Treasury had amassed in various ways approximately £1,000 million. This huge sum was chiefly made up of the balances of the Post Office and Trustee Savings Banks (£390 million and £109 million respectively), and "other Government Securities" in the Issue Department of the Bank of England (£246 million). But the National Health Insurance Fund (including the "Central Fund"—£119 million; the Unemployment Insurance Fund—£23 million; and the Treasury Pensions Account —£20½ million) made a joint contribution of £163 million†.

The management of this great mass of funds gives to the Commissioners of the National Debt (that is, in practice, the Treasury, acting with or without the approval of the Bank of England) very great powers and responsibilities. These are not lessened by the fact that, as far as a large part of these funds is concerned, there is scope for the exercise of choice in the manner of their investment, since there is no obligation on the Commissioners to obtain the highest possible yield which is compatible with long-run security of capital.

Moreover, the mere existence of these funds, representing as they do both compulsory and voluntary savings by the community, not to speak of the policy with regard to their investment, may be of the highest importance. It is plainly desirable that their variations from year to year should be carefully watched and that more information should be made available concerning the manner of their disposal.

Impact of Social Services on Wages

The social services are, moreover, so intimately bound up with the economic condition of the community that every change in price and wage levels, or in habits of life,

* See Chapter II, page 58.

† The balance of the £1,000 million was made up of a number of miscellaneous funds, including the Indian and Palestine Currency Reserves, the balances held by the Public Trustee and the Treasury Chest Fund.

must have repercussions upon them. This is particularly conspicuous in the clash between rates of earnings in the lower paid occupations, rates of insurance benefit, and rates of unemployment assistance or public assistance. The same family may draw its income from each of these three sources in turn, and it not infrequently happens that the wage income determined by external factors, such as export prices, may actually be lower than the Unemployment Assistance Board's scale, at any rate, if rent happens to be rather more than the average. A South Wales miner with five children, paying a rent of 10s. a week, might well receive as

Unemployment insurance benefit .	41s. 0d.
Wages (in an average working week)	45s. 0d.
Unemployment assistance . .	46s. 0d.

In many other even more poorly paid occupations the average weekly wage might well be several shillings below unemployment assistance in the case of a family with more than three children. But a mere comparison of weekly wages and rates of benefit and assistance does not tell the whole story. Benefit and assistance are certain and more or less fixed in amount, and there are no deductions. Wages, on the other hand, are by no means certain or fixed in amount, and there are substantial deductions. Employment is often irregular, short-time is frequently worked, bank holidays mean short money, statutory insurance contributions are deducted from wages and trade union and other subscriptions often have to be paid. On the other hand, the needs of employed men are normally greater than their needs during unemployment. The wear and tear of clothing and foot-wear is a considerable item in some occupations. Transport to and from work is sometimes a very heavy charge. And it is usually found that the food bill in homes with members of the family working is much greater than when they are unemployed. Thus there may be a considerable net advantage in being out of work even though wage rates are a few shillings higher than benefit or assistance rates.

The impact of social services on wages is met in a rather different form in the elderly age groups, where owing to the failure of the community to arrange for adequate retirement pensions, large numbers of old age pensioners hang on in the labour market, often undercutting the wages of other workers. Yet another cause of friction is the abuse of unemployment insurance by groups of employers and workers who deliberately arrange to draw as much out in benefits and to pay as little in contributions as the scheme permits. The South Wales tinplate industry, the Lancashire cotton industry and docking at the great ports have earned a very bad name in this respect; in fact, it has been estimated that on an average each docker draws 4s. a week from the Unemployment Fund and only pays 9d. a week into it. In certain areas, notably the Outer Hebrides and Highlands, amazingly high percentages of unemployment are recorded, ranging up to 60 per cent or more of the insured population, owing to the systematic acquisition of titles to benefit and their exploitation to the utmost permissible limit by persons many of whom are not and never have been genuine industrial or distributive workers. If the State compels the spreading of risks it can hardly shirk the responsibility for ensuring that payments are only made in *bona fide* cases. Groups which deliberately exploit the insurance schemes to extract a concealed subsidy from employers and workers in other areas or

in other industries, can hardly be regarded as a fair risk, and it is surprising that their costly depredations should be regarded with so little concern by the State and by other contributors.* They are a real challenge to the high standard and efficiency of our administration. The suppression of these practices and the enforcement of a more responsible labour policy in the offending industries would set free very large sums for more proper purposes. A similar situation exists in health insurance. Certain factories and offices are so unsatisfactorily arranged or operated that they give rise to excessive numbers of sickness claims. Under the National Health Insurance Act of 1911, powers were taken to survey the health of local communities and to penalise employers responsible for high sickness rates, but these powers have never been used. There is at present no mechanism for ascertaining reliably what the sickness absence rate of particular establishments is. Even private enterprise insurance companies, notably the Metropolitan Life in the United States, have been led to take a very broad view of their functions in helping to reduce disease and accidents, and it is regrettable that those in charge of the great public social insurances of the United Kingdom, with their enormous annual burden of avoidable interruptions of income, and with their great opportunities of analysing and bringing their influence to bear on the causes, should have been so little alive to this aspect.

Regional and Local Variations

Among other repercussions of the social services on the general social and economic life of the community, mention must be made of the very wide differences in rents, as between rural and urban areas and as between different regions, which contributed to the initial breakdown of the Unemployment Assistance Board. While there is a rapidly growing tendency to national uniform scale and standards of administration, the role of the social services, however they may be standardised, varies according to the particular environment in which they are at work. For instance, in many parts of South-East England the Unemployment Assistance Board has, in practice, only to deal with a small residue of workers who are, for one reason or another, verging on the unemployable; whereas in South Wales or Durham the Board's clients are workers often of a high standard who are chronically unemployed in large numbers owing to loss of markets and other causes over which they have no control. Again, health insurance, which does not cover dependants, is a different matter in, say, Nottingham or Oldham, where the number of insured workers per family is high, owing to female workers, from what it is in a mining or iron and steel area, where fewer members of the family are likely to be covered. Financially, again a depressed area may have to levy a rate of nearly 10s. in the £ in order to give its children an education inferior to that which a more prosperous area can provide for 1s. 6d. in the £.

Needs and Capacity to Pay

Ideally, the charges or scales of contributions and the benefits or services should be adjusted to capacity to pay on the one hand, and to standards of living on the other. This principle cannot, however, be adopted in practice except within very wide limits.

* They may, of course, have a case for State aid of some other sort.

For instance, in the case of hospital treatment a system of recovery of costs is liable to favour the patient in proportion to his fecklessness rather than in proportion to his capacity to pay measured over a substantial period; while, on the other hand, a contributory system at a flat rate represents a much heavier proportionate tax on earnings at the lower end of the range than at the higher end. Adult males at present pay in compulsory State insurances of all kinds nearly 5 per cent of their incomes if they are earning under 35s. a week, and less than 2 per cent if they are earning over 80s.

In considering whether there is any potential or effective demand and capacity to pay for further extensions of the social services, it is important to observe the extent to which British workers are, in fact, voluntarily contributing for pensions, hospital and health benefits, life insurance and similar objects over and above their present compulsory contributions. In a sample at Stockton-on-Tees, 46 families with net incomes of 25s.-35s. a week were found to be paying out an average of 7¾d. a week, or over 2 per cent of their income, in doctors' payments, and at higher levels the payments ranged as high as 1s. 7d. Dr. M'Gonigle, who gives these figures in "Poverty & Public Health," shows that an additional 5 per cent of incomes in the group between 25s.-35s. a week is accounted for by voluntary insurance premiums. In 1935 alone, industrial assurance companies and societies collected, from working-class and lower middle-class families in the British Isles the huge sum of £64 million or nearly £1¼ million a week, and paid out in claims and surrenders some £32 million; their management expenses totalling £22 million, or about 3s. per policy in force at the end of the year. This sum alone, which is being voluntarily saved almost entirely by people with small incomes, represents an average of well over £5 per family per year, greatly exceeds the entire cost of the National Health Insurance Scheme and almost equals Unemployment Insurance, the comparison being:

(Millions 1935)

	Income Excluding Interest	Benefits or Payments to Contributors	Management Expenses
Industrial Assurance . .	64	32	22
Unemployment Insurance .	66	41	5
National Health Insurance .	34	31	6

These figures will sufficiently indicate the very large sums which working-class families find it worth while to pay and, in fact, are paying voluntarily for social insurances which could undoubtedly be provided at much lower cost by the State,

It may, of course, be found that while a large proportion of wage-earners could and would pay increased contributions in order to obtain enhanced security or improved services, there are many others who, however much they want such things, cannot afford a penny a week more, if, indeed, they can afford their existing contribution. It is, of course, misleading to consider the whole wage-earning class as being on the same level in this respect, or to assume that capacity to pay contributions remains the same throughout the working life of a man whose wages are more or less invariable in amount. But two obvious devices which would go some way towards meeting these considerations are either to adopt a sliding scale of contributions based on income, or to subsidise social

insurances to such an extent as to cover the difference between what the lowest income contributors can afford to pay and the level of benefits or services considered desirable. There is, of course, a further issue which has considerable theoretical, if not practical, importance. On whom does the incidence of social insurance contributions ultimately lie? To what extent is the employer's contribution actually paid by the employees, or the employee's contribution by the employer, in the long run? And how much of the joint charge is eventually passed on to the consumer? There are, obviously, no simple answers to these questions. What they may be in particular cases will depend very largely upon the bargaining strength of the respective parties in wage-negotiations, and on the elasticity of the demand for the products of the industry concerned. But it is hardly practicable for social insurance administrators to enter this highly controversial territory.

Problem of the Family

To a very large extent families falling below the poverty line do so on account of the number of dependants, especially children, and it is the failure of the wage system to take any account of disparities in family responsibilities which forms one of the greatest obstacles to further extensions of social provision. The obstacle is double. First, there is the difficulty of asking even a penny a week more, for whatever purpose, from families whose income per head in full employment is not enough to enable them to buy a satisfactory diet and to rent satisfactory accommodation. In this way the low-paid worker with several children, by his limited capacity to pay, may hold up the provision of extra services which other wage-earners can well afford and which no one needs more than himself. Even if this obstacle could be overcome by subsidy or some other device, the barrier of "less eligibility" would still remain. We have reached a position in which no political party attempts to defend the payment as relief on a strict needs basis of incomes per head as low as those which many unskilled workers with large families are, in fact, earning in full employment. Theoretically, the most obvious way of surmounting this difficulty would be an upward readjustment of wage-rates in the lower-paid occupations to such a point that earnings would adequately cover the needs of any normal number of dependants, but such a step would be quite impracticable, because it would dislocate the whole structure of differential rewards for labour according to skill, lay an impossible tax on many industries exposed to international competition, and would, moreover, increase rather than diminish the contrasts in standards of living between workers in the same occupations with and without wives and children to maintain. Another theoretically attractive expedient would be to introduce into the general wage and salary system of the country the principle of family allowances, which would involve pooling of a part of the normal payroll and redistributing it according to numbers of dependants, so that each man's earnings would depend on a combination of his economic bargaining strength and his family responsibilities, instead of as at present on the first alone.

The principle has been widely adopted on the Continent and is used in a few cases in Great Britain, notably for Wesleyan ministers, who have been paid in this way for more than a hundred years. The growing recognition that the nation is faced with a steep decline of population is bound to bring this issue into prominence, and some direct

method of adjusting earnings to size of family may well gain acceptance as the problem becomes better understood. This would amount to a new social service which would not only have a direct value in itself, but would enormously facilitate the development of other social services by partially removing one of the greatest drags which is pulling families below the poverty line, and therefore making them a more serious liability, not only to public assistance, but to education and many other social services. The cost of paying adequate family allowances in respect of every child out of the proceeds of general taxation would, of course, be overwhelming.* But there is no need to proceed to such lengths in the immediate future. Mr. Seebohm Rowntree has suggested that a limited scheme involving the payment of 5s. a week in respect of each child after the third in every family should be tried as an experiment.† Such a scheme would cost rather less than £7 million a year if it were adopted throughout the United Kingdom.

In the meantime, something might be done through the existing social service mechanism to readjust the burden. In many countries, for instance, contributions to social insurances are graduated according to income and such a system, combined with the existing British unemployment scheme practice of paying dependants' allowances, provides a large measure of adjustment to capacity to pay on the one hand, and to family needs on the other. It does not, however, avert the collision between low earnings in employment and high rates of relief for unemployment in the case of large families, and in the absence of increased earnings or of family allowances the only other obvious alternative would be a system of large-scale taxation relief or of subsidies for families containing more than two or three children. Housing is outside the scope of this report, but here again the dilemma arises of the large family needing more accommodation and not being reasonably able to pay more rent, if, indeed, it can pay as much as the smaller family with the same total income. The modern growth in the poundage of local rates, the derating of industry and the increase of indirect taxation are proving disturbingly regressive elements in our fiscal system, and here again the advantage lies with earners who have few or no children and can live in flats or small houses, consuming smaller quantities of dutiable tea, sugar and other articles, than larger families have to buy. To sum up this part of the argument public social services must either consciously be used as an agency for adjusting burdens as between large and small families, or else they will tend more and more to reinforce those commercial and other agencies which are steadily making it less attractive for the average citizen to rear a family. The State cannot indefinitely shirk the responsibility for using the public social services as well as taxation and other instruments, in the effort to check population decline before it results in a serious modification of the age-structure—too many elderly people, too few young people—and begins to assume alarming proportions.

Limits of Public Social Services

If the State is compelled by anxiety about future population to reduce the burdens on parents, any financial obstacle which may at present stand in the way of a considerable

* The cost of providing allowances for *every* working-class child at the rate of 5/- a week would be about £100 millions a year in England and Wales, and £13 millions a year in Scotland, assuming that the allowance were accepted in every case. In practice, the cost would probably be rather smaller.

† B. Seebohm Rowntree, 'The Human Needs of Labour' (revised edition, 1937).

extension of public social services will be removed. Whether such extension is financed by the contributory method or otherwise, the wage-earning and small salary-earning classes as a whole have shown by the scale of their voluntary provision that they want and can afford more comprehensive schemes of social security. The question therefore arises what are the limits of possible and desirable extensions, as regards both classes of beneficiaries and the nature of the services provided?

In view of the popularity of the social insurances their initial restriction to persons working under a contract of service at remuneration below about £5 a week has been felt as a hardship by many who are excluded from their benefits. For instance, the small shopkeeper or farmer whose income may be of the same order as a shop assistant's or farm worker's, has been denied the right to take part even in health insurance. The Government's new Widows', Orphans' and Old Age Contributory Pensions (Voluntary Contributors) Bill, permitting independent workers and workers earning between £250 and £400 a year, to enter the pensions scheme, will start to remove this anomaly and to throw the vital social insurances open to all citizens except the comparatively well-to-do. It is, for obvious reasons, impossible to admit workers on their own account and small employers to unemployment insurance, but the Government is considering including in it employed persons earning £250 to £400 a year, in order to avoid the anomaly of the unemployed junior clerk going on to unemployment benefit while the unemployed senior clerk who has earned £6 a week may find himself compelled to choose between public assistance or nothing. The greatest single gap in the coverage of public social services is, however, the failure to extend the insurance medical services to the dependants of the existing insured persons and others of the same income group.

While Unemployment Insurance and Unemployment Assistance apply to entire families of insured persons, the present health insurance scheme covers only the actual contributors. It is, therefore, the rule rather than the exception to find that the wage-earners of a family are entitled to valuable cash and medical benefits, while their dependants must rely on voluntary provision. There are, moreover, wide and arbitrary variations between the benefit afforded, according to the position of the particular approved society in question. Out of three "insured persons" taken at random, all paying exactly the same contribution, one may be entitled only to cash and ordinary medical benefit and medicines in case of illness, while a second, belonging to a more flourishing society, can get a large range of extra benefits, such as dental and ophthalmic treatment; and a third who is still more fortunate is covered in addition for hospital treatment, nursing and convalescent home allowances.

Even professional social service workers find it difficult at times to master the complexities and anomalies of the present health insurance scheme, and a good deal of hardship and discontent arises from the differences of treatment between one society and another. If these differences represented decisions of policy democratically arrived at by the membership there might be some justification for them, but in the case of the larger societies, at any rate, control by the members is practically non-existent. It is estimated that the cost of extending medical benefit to dependants would be between £7 million and £10 million, and might be met by an increase of 2d. or 3d. in the contributions divided between the worker and the State. This is not the place to go into a

detailed scheme, but P E P has worked out the figures and will be publishing them shortly in a Report on the Health Services. Here we must be content to point out that

(*a*) the present health insurance scheme creates wide and irrational divergences between the advantages offered to contributors of different approved societies;

(*b*) these divergences could be removed and a greater uniformity attained at a moderate cost;

(*c*) owing to the failure to cover their dependants, the scheme deals with barely half of the ill-health risk of those contributing to it;

(*d*) the scheme fails to provide any cover to large numbers of persons in equal need, such as small shopkeepers;

(*e*) those concerned are voluntarily paying out very large annual sums to make good, at a higher cost, these gaps in public provision.

Similar needs for extended coverage arise in other social services. A notable instance is the absence of sufficient accommodation for children up to the age of five in nursery schools or otherwise. The social cost of permitting this deficiency in the child welfare services is to be seen in the returns of the School Medical Service, showing the high percentage of preventable physical defects and ailments found in young children at the first school medical examination.

Priorities for Future Development of Social Services

If we accept the view that there is a large range of gaps in the constructive community services and in social insurance which could with advantage be filled, and that the financial resources to fill them can only be made available by degrees, the question of listing needed improvements and of determining priorities between them at once arises. We have indicated in the course of this Report many of the most commonly accepted requirements, and we attach great importance to the emergence of a mature philosophy and a broad strategy of the social services which can take the place of piecemeal political and administrative improvisations.

While less is heard now of the old reproach that extensions of social services represent simply the attempts of rival political parties to bribe the electorate, it is true that the order and occasions chosen for the adoption of new measures are often unduly influenced by purely vote-catching considerations, or alternatively, by the accidents of vigour among the permanent officials in one department and apathy in another. Governments tend not to be interested in long-range considerations reaching beyond their own terms of office, and some civil servants are prepared to sacrifice much-needed innovations to their desire for a quiet life. Such factors tend to distort the balance and structure of the public social services, and they point to the virtual absence of even a small enlightened and informed minority who are constantly alive to the need of a comprehensive social service policy, and able to demonstrate its advantages.

It would be premature to attempt to suggest any order of priorities, but we may perhaps indicate here one or two of the principles which might help to guide a more rational choice. The first consideration of social service policy should, we believe, be the progressive reduction in size of the public assistance and unemployment assistance class, by concerted measures to prevent people from being forced down into, or kept in, that class. Such measures would include the extension of social insurances to larger groups of the population, to a wider range of risks and to more adequate provision for risks already covered, so that, for example, no person need ordinarily come on to social assistance on account of lack of a sufficient old age pension, or lack of resources during illness. They would also include the analysis of experience of unemployment, ill-health, accidents and so forth, with a view to securing adjustment of economic or labour policies leading to heavy rates of unemployment, and adjustment of working or other conditions leading to a high sickness incidence. Carrying the task further still away from the salvage end, much greater attention should be devoted to equipping the whole population mentally and physically in such a manner as to help everyone to avoid falling into the "misfortunes" of unemployment, destitution or ill-health. Such a principle would in itself suggest a broad strategy applicable to the social services as a whole, which would have the same end as the early Victorian poor law—to minimise the number of people in the community who cannot stand on their own feet—but would use exactly the opposite means of attaining that end, because instead of trying to "cure" the social assistance class by harsh repressive measures, the policy would be to "prevent" people from subsiding into this class by equipping them with adequate protection at earlier stages. This, after all, is simply to formulate as a conscious purpose what is at present a fairly strong, but largely unconscious, tendency, and its financial implications are also in line with current trends, because they involve a development of social services away from the stage of representing mainly a compulsory redistribution of wealth from rich to poor, and towards the stage of representing a carefully worked out system of group provision chiefly paid for on easy terms by the beneficiaries themselves, with a State subsidy in recognition of the general public interest in improving standards of health, education and social security.

Need for Co-ordination with Economic Policy

If such a policy is to succeed, however, it must be brought into co-ordination with the entire national economic policy. Such large sums are now involved in the financing of the social services that they cannot be considered independently of the general economic position of the nation and the policy which is being followed in relation to it. On the other hand, it may be necessary to modify national economic policy in order to permit certain desirable developments in the public social services. It was the failure to realise the inter-dependance of national economic policy and social service policy with regard to the relief of unemployment that led to the crisis of 1931. The finances of unemployment insurance and assistance are affected not only by the generosity of the scales of benefit and relief and the conditions under which benefit or relief is given, but also by the numbers of the unemployed, which are considerably influenced by Government policy in relation to monetary questions, tariffs, public works and national development. The same considerations apply to National Health Insurance which is also based on

employment. The lapsing of the benefit rights of contributors who had been unemployed for a long time produced a minor crisis in 1932 and illustrated once again the dangers of making provision against one contingency such as sickness, dependent on another contingency such as employment which is not under public control.

These difficulties and dangers can only be faced with confidence provided that other steps are taken to prevent mass long-term unemployment from reaching a scale which not only threatens the foundations of the social insurances, but also overwhelms and distorts the administration of the social assistance services.

Problem of Control

At one point after another it appears that the greatest need of the social services is for more effective co-ordination with one another and with the rest of national policy. Next in importance is the need to re-examine the forms of democratic control and public accountability in the social services. In some cases, at least, democratic control over administrative policy as well as over detail has, to a large extent, been lost, and the bureaucracy finds itself in practice accountable to no one save in exceptional circumstances. The abuses of the old locally elected Boards of Guardians on the one hand, and the difficulties caused by the attempt to take unemployment out of politics through the device of the Unemployment Assistance Board on the other, illustrated the dilemma which constantly arises in the social services between excessive political influence or, as an alternative, a bureaucracy out of touch with public opinion. The fact that it has been found necessary to introduce experiments such as the recent innovation in the County of London of transferring to salaried officers under remote control discretionary functions formerly exercised by elected committees, shows that social inventiveness is still needing to be exercised in combining professional and elected elements in administration to the best advantage. The fictitious democracy of the approved societies, and the lack of control of members over the vitally important allocations of additional benefit have already been mentioned.

Areas and Units of Operation

Both control and administration of the social services raise in an acute form the problem, discussed in earlier chapters, of areas and units of operation. To a large extent these have been determined by accident. Unemployment insurance had to be national; health insurance was entrusted to approved societies only partly national in character; unemployment assistance has recently been transferred from local to central control; while the tendency with many social services has been to attach them to the omnibus local authorities, and especially in recent years to the counties and county boroughs. In some cases local authorities have exercised their powers to form joint authorities for specific purposes, but with few exceptions there is no choice between operating on the basis of counties or county boroughs, which may be too small for the needs, or on the basis of England and Wales, if not Great Britain as a whole, which may well be too large a unit. The problem has recently been boldly treated by the Royal Commission on Local Government in the Tyneside Area, the Majority Report of which finds that over a wide range of social services even the largest units of present-day government are too small

for full efficiency to be attained. We cannot enter here into the question of reconstruction on a regional basis, on which we hope to issue a Report at a later date, but we are convinced that this aspect will need to be thoroughly examined if the most satisfactory units and areas of administration are to be found.

Relations with the Voluntary Social Services

Next we come to the relationship between public social services and those not publicly administered, which may for convenience be termed the voluntary social services. The voluntary social services cover an extraordinarily wide range, from the great teaching hospitals and friendly societies to small local charities and welfare committees. They enlist the services of thousands of paid workers and many more who give their services voluntarily. They are responsible for the expenditure of many millions of pounds every year. Broadly speaking, they may be classified in much the same way as the public social services considered in this Report. Thus, there are constructive community services, such as voluntary and endowed schools of many different kinds, voluntary maternity and child welfare organisations, the teaching hospitals and a large number of other voluntary hospitals, clinics, sanatoria and convalescent institutions, and societies and institutions for the welfare of the blind and defective. Secondly, there are the voluntary social insurances provided by the Friendly Societies and organisations such as the Hospital Savings Association. And lastly there are the voluntary social assistance services provided by bodies such as the Personal Service League and a multitude of charitable societies. It is, however, useful for the purposes of this Report to classify the voluntary social services according to their different relationships to public authorities. The following types are to be distinguished:

(i) Voluntary organisations which have no financial or administrative relations with any public authority (such as the Charity Organisation Society and the majority of small local charities).

(ii) Voluntary organisations which perform specific services for public authorities in return for payment (such as voluntary hospitals which carry out the statutory duties of local authorities, and children's homes and orphanages which receive Poor Law children).

(iii) Voluntary organisations which receive sums of money from public authorities in consideration of the general character of the services which they perform. Thus local Discharged Prisoners' Aid Societies often receive financial aid from local public assistance committees in recognition of the fact that their constructive after-care work frequently relieves the Poor Law authority of the necessity to grant assistance.

(iv) Voluntary organisations to which important tasks, closely related to the administration of the public social services, are delegated with financial assistance. Thus the National Council of Social Service undertakes certain responsibilities with regard to the welfare of the unemployed and receives a large annual grant; and in some areas voluntary societies act as the agents of the local authority in carrying out duties in respect of mental deficiency, blind welfare, child welfare, etc.

(v) Voluntary organisations such as the Land Settlement Association, created to undertake certain tasks which it is felt are not appropriate subjects for administration by public authorities. The work of the Land Settlement Association receives a £ for £ grant from the Development Commission for certain work and a hundred per cent grant from the Commission for Special Areas for other work.

(vi) Voluntary organisations which are an integral part of the administrative structure in the case of particular social services (such as the governing bodies of voluntary schools and voluntary child welfare organisations).

This classification is tentative but it does bring out some of the major variations in the relationships which exist between voluntary social service organisations and public authorities. There are, of course, wide local differences. Thus, in such a case as the mental deficiency service, the degree of voluntaryism varies enormously in different areas. Some local authorities undertake all the work themselves; but others, such as Liverpool, delegate a considerable part of it to a voluntary organisation. While there has been a natural tendency for the public social services to take the place of voluntary social services over a wide range of activities during the last thirty years, this period has been marked by the development of many new forms of voluntary effort and by a growing disposition of public authorities and voluntary bodies to enter into some form of partnership. Meanwhile, certain activities on the borderline of the social services, such as the prevention of cruelty to children and to animals, and the national lifeboat service, remain entirely on a voluntary footing, no doubt largely because their humanitarian appeal is ample to insure their financial independence where less spectacular causes have to seek support from public funds. Similarly industrial assurance, hospital contributory schemes and private schools (including those known as the Public Schools) are able to survive as voluntary charities, or as commercial enterprises owing to their superior ability to raise the necessary income by private appeal or by selling their services.

Such questions as the justification of the retention of the voluntary principle in particular circumstances, and the most satisfactory relationship between public authorities and voluntary organisations where they exist in the same field, are extremely complex and it is not possible to consider them adequately in this Report.* It may be said, however, that there are certain general conditions under which the provision of social services by voluntary bodies seems appropriate. While it is probably impossible to frame a hard and fast definition of the sphere of voluntary organisations, it appears that the essentially *voluntary* social services are those which

(i) are of an experimental or controversial nature at the time, and therefore probably also doing a pioneer job with an element of risk;

(ii) demand exceptional freedom of opinion and experiment, for teaching or research purposes;

(iii) involve giving individual attention to intimate personal problems;

(iv) cater for a demand which can be and is met by private enterprise, and do not need to ask for support from public funds.

* For a discussion of these questions see T. S. Simey, 'Principles of Social Administration,' 1937. Oxford University Press.

These general conditions are stated tentatively, for the question is one of *relative convenience*, and of the state of opinion at a given time, rather than of an absolute and permanent division of territory. Moreover, the advantages and disadvantages of voluntary social provision cannot be rightly assessed without taking account of certain imponderable factors: elasticity, goodwill, self-sacrifice, enthusiastic service on the one hand; untidiness and some measure of hypocrisy and "humbug" on the other hand, which frequently weigh down the scales on one side or the other whatever the theoretical merits of the case. Incidentally it is of considerable interest to observe that while the public services tend more openly to borrow from voluntary experience and personnel, an opposite tendency is visible in the growth of a salaried bureaucracy of the voluntary services. According to the 1931 census, persons employed by "social welfare societies" in England and Wales had almost reached 10,000, and the category in which they were included showed an increase of no less than 84 per cent since 1921. These voluntary societies by 1931 could offer paid employment to as many persons as the blast furnaces, or as the manufacture of linoleum, of butter and cheese and condensed milk, or of explosives. Evidently, the salaried staff of the voluntary social services is still growing, and its influence is increasing in spite of the expansion in the personnel of the public social services which is also taking place. We must, therefore, anticipate some convergence in points of view, as the need for special training and the conditions of service and pay bring the fields of recruitment of the public and voluntary social services closer together, and as the working of various partnership arrangements leads to increased interchange of experience and of personnel. The voluntary social services would offer scope for a report as large as the present one, and we must be content here to have indicated very briefly the nature of their contact with the public services which are our present subject. The relations between the two appear to be settling themselves not unsatisfactorily by trial and error, but when the public social services come to be authoritatively examined, as we hope they will, the future of the voluntary services must be taken into account.

The Personnel of Social Service Administration

The administration of the public social services considered in this Report involves the employment of a vast army of public servants and others who serve in a professional capacity. In many cases the quality of this personnel is of the highest order, but it cannot be said that the existing arrangements for the recruitment and training of officers for some forms of social service work is entirely satisfactory. The recruitment and training of local government officers in general has recently been reviewed by a Departmental Committee,* and it is unnecessary to repeat the pertinent criticisms made by that body. It is sufficient to note that little or nothing has been done to implement its recommendations since its Report was issued in 1935. But the need for improved recruitment and training is not confined to the local government service. It is to be doubted, for example, whether the investigating officers of the Unemployment Assistance Board are, as a body, sufficiently well chosen and trained to carry out their very difficult and important social work in the homes of unemployed people. But as the Unemployment Assistance Board is still a very new institution, charged with the responsibility for a vast number of cases,

* Departmental Committee on the Recruitment and Training of Local Government Officers, under the Chairmanship of Sir Henry Hadow.

it is perhaps unfair to make much of this point at this stage. In some other cases, where formal training requirements are made, it is a serious weakness that these requirements are very narrow and rather overweighted by technical questions arising out of statutes, regulations and codes of instructions. In view of the importance of home contacts in some of the constructive community services and of the home visitation involved in the administration of the social assistance services, there is plainly a real need for a comprehensive course of training in social case work, to be taken by all who wish to engage in this career. The health visitors' training course and the recently adopted training course for probation officers are good examples well worthy of attention in this connection. Some of the voluntary social services which have become so large scale in character as to have a considerable professional personnel also provide examples of excellent qualifying courses and examinations. Thus the supply of women house-property managers and hospital almoners (serving with voluntary and public authorities) is maintained at a very high professional standard as a result of examination requirements which now obtain and the qualifying courses which prepare for them.

The Voluntary Social Worker

It is not always appreciated that in addition to the many thousands of paid workers engaged in the administration of the public and voluntary social services, there are also vast numbers of voluntary workers performing a multitude of useful tasks in connection with public as well as voluntary bodies. The public education service finds employment for thousands of voluntary workers as co-opted members of education committees and sub-committees, members of juvenile advisory committees, and after-care committees, school managers, and governors of secondary schools. Maternity and child welfare organisations, even when operated exclusively by public authorities, frequently use the services of voluntary welfare committees, who take a personal interest in particular centres or clinics, and in the mothers and children who attend them. Similarly, there are large numbers of voluntary workers associated with the administration of the blind welfare and mental deficiency services. In Liverpool alone investigation showed that apart from all elected members of committees (another form of voluntaryism) there were recently some 3,000 co-opted workers voluntarily participating in and helping to shape the local public education service. It is believed that a similar investigation in London would show that there were about 7,000 voluntary workers associated with the public education service of the London County Council. There are about 10,000 members of the local employment committees of the Ministry of Labour, and about 3,000 members of the Ministry's juvenile advisory committees. The membership of the local advisory committees of the Unemployment Assistance Board numbered about 2,600 in May 1937. This voluntary element, whether it is employed on executive or advisory committees, or in performing small tasks in day to day administration, forms a buffer between the professional staff and local opinion, and is of the highest importance in maintaining the acceptability of the social services on terms consistent with administrative needs.

X. IMMEDIATE NEEDS

Eliminating Sectionalism—The Case for a Royal Commission on the Public Social Services—The Case for a Permanent Statutory Committee

Eliminating Sectionalism

It remains to discuss what immediate steps might be taken towards improved co-ordination of the public social services. Our first and most essential proposal, which we have ourselves begun to implement in issuing this Report, is that all those interested should now take stock of their assumptions and ideas on the subject, and endeavour to work out an approach adapted to present and future rather than to past conditions. After a period of intensive growth the social services are settling down into the life of the nation. They are at present popular, and each taken by itself runs fairly smoothly, but they are creations of compromise and of improvisation, and every year that passes carries away more of the conditions on which they were based. A dangerous divergence therefore arises between the social and economic background (which corresponds less and less closely to that which the older social services were framed to meet) and the outlook and methods of administration which naturally tend to become less flexible as the service settles down to its routine. As everyone can observe, conditions and terms of treatment which are thought reasonable or inevitable at one period may come to be regarded as inhuman or intolerable a few years later. What is regarded as the minimum standard of provision, how far individuals should be assisted to provide against certain contingencies, and how far claims for assistance should be made against members of the family; how long people are prepared to wait for attention; what financial arrangements are thought reasonable and so forth, alter from time to time.

It is an illusion, therefore, to suppose that schemes and provisions which are acceptable and even popular now will necessarily continue so, unless those responsible are constantly on the watch to see where the rub is felt and to adapt them accordingly. This is a responsibility of social service specialists and administrators, who alone can keep public opinion abreast of changing needs. The responsibility is especially heavy because in relation to the enormous number of persons affected the number of expert authorities on the social services is relatively minute, and, even among these, few, if any, can claim to know at all thoroughly more than a restricted part of the whole field. In preparing this Report, we have been seriously impressed by the compartmental outlook and experience characteristic of those engaged in the administration of the public social services at this stage. There are many men and women who are extremely well informed about particular branches or aspects, but it is rare to find anyone who has given much thought to the inter-relations of the social services with one another, to their repercussions on social or economic life, and to their lines of development. This sectionalism is natural and probably unavoidable in view of the recent rapid growth, but the time has come when it

needs to be remedied. Our first and most urgent proposal is, therefore, that those concerned with particular aspects or subjects should start thinking intensively about the place of their own specialism in the whole scheme of the social services. We have tried to suggest some such lines of thought in Chapter IX. Only when more people have paid attention to this aspect of the problem will any advance become effective.

The Case for a Royal Commission on the Public Social Services

In view of the vast range of problems concerning the public social services which still await solution, the most urgent need seems at first sight to be a comprehensive and thoroughgoing official investigation by a Royal Commission, which would hear evidence from all interested parties and arrive at a considered view. It is now nearly 30 years since the last comprehensive inquiry into public social provision in Great Britain. The Royal Commission on the Poor Law was appointed in 1905 and, after sitting for four years, reported in 1909. It was an exhaustive inquest, not only on Poor Law administration, but on the handling of a wide range of social problems, from the care of orphan children and the growth of blind alley occupations in the juvenile labour market, to the protection of old age. It proceeded by hearing evidence and examining witnesses, but it was characterised by its use of the technique of special inquiry (under the influence of the Webbs). Social workers, trade unionists and others throughout the country were mobilised to supply information, to conduct investigations, and to prepare reports. The result was an invaluable collection of social data, including several studies (notably Mr. Cyril Jackson's Report on Boy Labour) which were of first-rate importance.

Since the Poor Law Commission reported, the whole face of British social service provision has been changed: social expenditure has quadrupled; the social insurances have been created; local government and the Poor Law have been considerably changed; the "special areas" have become a problem, and the Unemployment Assistance Board has come into existence. A whole host of new problems never contemplated by the Poor Law Commissioners has been created. But there has been no attempt to make a comprehensive review of the results of the disordered growth of services and expenditure during the last few years. There have been numerous official inquiries into special problems, notably the Royal Commission on Local Government; the Hadow Reports on Education; the Royal Commission on National Health Insurance; the Royal Commission on Unemployment Insurance, and the recent Committee on the Scottish Health Services. But there has been no examination of the principles on which the public social services are based, or of their results, or their inter-relations.

In spite of these considerations it is by no means certain that the Royal Commission technique would be altogether satisfactory for dealing with the enormous range of subject-matter with which any comprehensive enquiry into the social services would be faced. It would be extremely difficult to frame terms of reference which were at once wide enough to produce significant and useful results and narrow enough to be practicable. The finding of suitable, competent Commissioners whose judgment would command respect in every field with which they would be concerned—from education and public health to unemployment insurance and public assistance—would be a formidable task.

The staffing of the secretariat to the Commission might also present some difficulties in view of many separate departmental interests involved. But the most serious objection to relying on the Royal Commission method is that it would inevitably take a very long time to do its work thoroughly and to arrive at well considered conclusions. Meanwhile, events might have taken place which would have made it necessary to make important changes in the system while it was under examination. In spite of the great interest and value of its work, the history of the Royal Commission on the Poor Law is, in many respects, a serious warning of which it is important to take account. Thus, for example, the constitution of the Poor Law Commission was such that a great deal of time was wasted on fruitless controversy based on fundamental differences of attitude on the part of its members. In due course the Commission, in effect, split itself into two rival Commissions following parallel courses, and eventually produced two separate voluminous Reports. The very thoroughness of the Commission's work also added to the long period of time which elapsed between its appointment and the publication of the two Reports. Meanwhile, events had been moving very rapidly. Old age pensions were introduced while the Commission was sitting; Labour Exchanges were set up in 1909, and the ground was being prepared for the revolutionary developments of 1911-12, which cut right across the recommendations of both Majority and Minority Reports. The Royal Commissions on Local Government and on Unemployment Insurance were, for different reasons, equally unsatisfactory.

It is evident that a Royal Commission on the Public Social Services would produce a useful report or series of reports in the course of time but, in our opinion, it would be too cumbersome an instrument to use for the clarification of immediate issues and for the solution of urgently pressing problems.

The Case for a Permanent Statutory Committee

Having rejected the Royal Commission for the reasons which have been given, it remains to discover some other method of reviewing the public social services as a whole and of recommending necessary changes in their structure or their method of operation. It appears to us unquestionable that Parliament, in view of the expenditure of £300 million a year on the public social services, should have the guidance of an independent authoritative body able to call for the fullest information and charged with the duty of ascertaining and reporting how far the money has been spent to the best advantage, and what extensions or additions should form the first charge on any savings that can be effected or upon any extra funds which may become available. The need for such a co-ordinating advisory body is not peculiar to the social services. The same need arose in an acute form over the rearmament programme, and in order to meet it, Sir Thomas Inskip was appointed Minister for the Co-ordination of Defence. While it is understood that this particular arrangement has yielded results, it would be undesirable for a fresh Cabinet Minister to be added each time such a problem arises, and we do not consider that a permanent task of no exceptional urgency, as this is, would justify appointing either a separate Minister or a separate Cabinet Committee. Both these devices would add to, rather than relieve, the congestion at the centre, which is largely responsible for the long-term aspects of the problem being neglected at present.

Probably the best precedent for such a body is found, however, actually in the field of the social services. Under the Unemployment Act of 1934, a committee was established called the Unemployment Insurance Statutory Committee, to give advice to the Minister in connection with the discharge of his functions under the Unemployment Insurance Acts, and to perform certain other duties. Every year, not later than the end of February, this committee has to make a report to the Minister on the financial condition of the Unemployment Fund at the end of the preceding year. The committee must, if the fund is becoming inadequate, recommend amendments calculated to restore equilibrium, or if the reserve appears to be becoming excessive the committee may recommend how the surplus should be allocated. The Minister is bound to lay the report before Parliament within a specified time, and before making any regulations under the Acts (with certain exceptions) he is bound to submit a draft to the committee, who must report on it forthwith. Another section laid on the committee is the duty of putting up to the Minister proposals for bringing agricultural workers under Unemployment Insurance. Under the chairmanship of Sir William Beveridge, this committee has worked very successfully and has introduced a welcome element of objective study and long-range planning into a subject which had become notorious for piecemeal and short-sighted treatment based on the political situation of the moment.

Another precedent of a rather different kind and in another sphere is that of the Law Revision Committee, which is a valuable part of our constitutional machinery. It is a statutory body consisting of distinguished jurists and lawyers, charged with the duty of making recommendations for the reform of the law on particular topics referred to it by the Lord Chancellor.

The success of these bodies is evidence that the method of the permanent reviewing committee is both convenient and fruitful, and it seems to us that there is a very strong case for using it for the purpose of watching the operation of the public social services as a whole. As we conceive it a Social Services Statutory Committee would not be responsible for administering any social service funds, but would require sufficient authority to make thorough inquiries about their administration from as wide a standpoint as, say, the Estimates Committee of the House of Commons. It would have to be under statutory obligation to report, and the Ministers to whom it would report would have to have corresponding statutory obligations to consider its recommendations, while naturally being free to depart from them for reasons they were prepared to state and defend in Parliament. Its basic duties would be largely related to finance—to report annually on the finances of all the social services, to study the efficiency of grant-aided work done by local authorities, and to secure explanations from them where necessary, and to carry out the long-overdue review and co-ordination of rates of contribution to the social insurances. It should, however, be free to go far beyond merely financial issues and to give its view on the general working, efficiency, and benefits or defects of the services.

It should, in fact, act as an advisory General Headquarters Staff

(i) giving thought in the course of its work to the basic principles governing the relationships of the various public social services one to another and of the social services as a whole to social and economic policy;

(ii) considering lines for overhauling the administrative and financial structure of the services in order to secure more efficient and economic working; and

(iii) drawing attention to the main anomalies and gaps to be dealt with, and recommending priorities for dealing with them.

It would not, of course, be possible for a single committee effectively to do all the detailed work of reviewing the whole of the public social services. This difficulty would, however, be overcome by the technique adopted in similar circumstances by the Import Duties Advisory Committee. That is to say, the Statutory Committee for the Social Services would legally and constitutionally be a single body, and would report as such, but in practice would use powers to co-opt and to work through sub-committees in such a manner as to break up the task of supervision into manageable sections. The Unemployment Insurance Statutory Committee could be worked into the general pattern without interfering with its special status and independent functions. We are convinced that the establishment of such a body would greatly assist Parliament and public opinion in keeping intelligent and progressive control over a complex of services so important that they vitally affect the great majority of British citizens, and so unwieldy at present that they are virtually uncontrollable without some such assistance.

APPENDIX

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Table I—Number of Local Authorities of each type now and before the operation of the Local Government Acts, 1929

	Before Operation of Act (April 1, 1930)	December 1, 1936
England and Wales:		
Administrative Counties	62	62
Metropolitan Boroughs (including City of London)	29	29
County Boroughs	83	83
Municipal Boroughs	256	289
Urban Districts	783	650
Rural Districts	650	485
Council of the Isles of Scilly	1	1
Parish Councils	about 7,150	7,200
Parish Meetings	„ 5,600	4,100
Scotland:		
County Councils	33	33
Large Burghs	—	24
Town Councils	201	171
District Councils	—	201
District Committees	98	—
Standing Joint Committees	33	—
Commissioners of Supply	33	—
Parish Councils	869	—
Education Authorities	37	—
District Boards of Control	27	—
Distress Committees	9	—

Table 2—Administration and Finance of the Public Social Services.

Service	Administration				Chief Methods of Finance	Basis of Provision
	England and Wales		Scotland			
	Central	Local	Central	Local		
Constructive Community Services						
EDUCATION						
Elementary .	Board of Education	All County Boroughs and County Councils *Pt. iii Authorities*, i.e. 146 M.B.s, 24 U.D.s	Scottish Education Department	4 Cities and all Counties (4 counties in 2 combinations)	Rates Grants on formula Additional grants in depressed areas and Highlands and Islands Voluntary funds	Free Compulsory to 14+
Higher . .	Board of Education	All County Boroughs and County Councils	Scottish Education Department	4 Cities and all Counties (4 counties in 2 combinations)	Rates Percentage grants Voluntary funds Fees	Fees covering part cost Some free places
University .	Board of Education University Grants Cttee.	Self-governing	Secretary of State for Scotland University Grants Cttee.	Self-governing	Endowments Central and local government grants Fees Voluntary funds	Fees Scholarships
Agricultural .	Ministry of Agriculture	Local Education Authority	Dept. of Agriculture for Scotland	Local Education Authority	Central funds Rates	Nominal fees
Approved Schools	Home Office	—	Scottish Education Department	—	Central funds Rates	Compulsory. Payment by court order in some cases
Junior Instruction Centres	Ministry of Labour	Local Education Authority	Ministry of Labour	Local Education Authority	Central funds Rates	Free Compulsory in some areas.

Medical Services						
Maternity and Child Welfare.	Ministry of Health	All Metropolitan Boro's, C.B.s and C.C.s 147 M.B.s 86 U.D.s 10 R.D.s	Department of Health for Scotland	All large Burghs and Counties	Rates and block grants Some fees Voluntary funds	Recovery of cost at local authority's discretion Recovery for institutional care
School Medical Service . .	Board of Education	All C.B.s and C.C.s 146 M.B.s 24 U.D.s	Department of Health for Scotland	4 Cities and all Counties	Rates Percentage grant Education grant in Scotland	Inspection free Treatment-recovery of costs
Infectious Disease . . Hospitals	Ministry of Health	*Fever* / *Small-pox* Joint Boards 88 / 10 Isolation Hosp. Cttees. 75 / 8 Voluntary combinations 40 / 43 *and* C.C.s 6 / 11 C.B.s 81 / 48 M.B.s 88 / 43 U.D.s 122 / 34 R.D.s 84 / 32 Port Sanitary Authorities 7 / 9	Department of Health for Scotland	All Large Burghs and Counties (some combinations)	Rates and block grants	Recovery of cost at local authority's discretion
Tuberculosis .	Ministry of Health	*England:* All C.B.s and C.C.s (3 joint committees) *Wales:* King Edward VII Welsh National Memorial Association	Department of Health for Scotland	All Large Burghs and Counties (some combinations)	Rates and block grants Voluntary funds	Mainly free
Venereal Diseases .	Ministry of Health	All C.B.s and C.C.s	Department of Health for Scotland	All Large Burghs and Counties (some combinations)	Rates and block grants	Free
General Hospitals, apart from Poor Law .	Ministry of Health	39 C.B.s 10 C.C.s 1 M.B. 1 U.D.	Department of Health for Scotland	3 Cities, 1 County	Rates and block grants Recovery of cost	Free, with powers of recovery
Industrial Health	Home Office Factory Dept. Board of Trade Mines Dept.	— —	Home Office Factory Dept. Board of Trade Mines Dept.	— —	*Inspectors'* central funds *Certifying factory surgeons* paid by employers Central funds	

Table 2—Administration and Finance of the Public Social Services—*continued.*

Service	Administration				Chief Methods of Finance	Basis of Provision
	England and Wales		Scotland			
	Central	Local	Central	Local		
BLIND WELFARE	Ministry of Health	All C.B.s and C.C.s	Department of Health for Scotland	All Large Burghs and Counties (some combinations)	Voluntary funds Rates and block grants Sale of products	Free
MENTAL HEALTH SERVICES						
Mental Disorders	Board of Control	23 single C.B.s City of London Corpn. 19 single C.C.s 29 combinations, involving 53 C.B.s 45 C.C.s 14 M.B.s	General Board of Control for Scotland	All Large Burghs and Counties (some combinations)	Rates and block grants	Some recovery of cost
Mental Deficiency	Board of Control	63 C.B.s 57 C.C.s 4 combinations, involving 20 C.B.s 6 C.C.s	Scottish Education Department	Education Authorities Public Assistance Authorities (some combinations)	Rates and block grants	Some recovery of cost
EMPLOYMENT SERVICES	Ministry of Labour	396 Local Exchanges 231 Employment Offices 391 Branch Employment Offices	Ministry of Labour	56 Local Exch. 41 Employment Offices 73 Branch Employment Offices	Central funds	Free
Juvenile Employment	Ministry of Labour	257 Exchanges and 124 Offices, dealing with juveniles 163 Juvenile Advisory Cttees.	Ministry of Labour	55 Exchanges and 26 Offices, dealing with juveniles 32 Juvenile Advisory Cttees.	Central funds	Free

	Ministry of Labour Board of Education	108 Education Authorities exercising powers having— 145 Juvenile Employment Cttees., with— 155 Juvenile Employment Bureaux 81 Juvenile Branch Bureaux		—	75% Ministry of Labour grant 25% Rates	
Social Insurances						
Widows, Orphans and Old Age Pensions.	Ministry of Health	—	Department of Health for Scotland	—	Contributions Central funds	Contributions based on employment ("pre-Act widows," husband's employment only)
Health Insurance	Ministry of Health	146 Local Insurance Cttees. 6,253 Approved Societies and Branches	Department of Health for Scotland	54 Local Insurance Cttees. 368 Approved Societies and Branches	Contributions Central funds	Contributions based on employment
Unemployment Insurance	Ministry of Labour	Local Employment Exchanges	Ministry of Labour	Local Employment Exchanges	Central funds	Contributions based on employment
Social Assistance						
Old Age Pensions	Ministry of Health Customs and Excise	1,288 Local Pensions Cttees. and Sub-Cttees.	Department of Health for Scotland Customs and Excise	228 Local Pensions Cttees. and Sub-Cttees.	Central funds	Test of age, nationality, residence, personal means
Unemployment Assistance	Unemployment Assistance Board	24 District Offices 206 Area Offices	Unemployment Assistance Board	4 District Offices 34 Area Offices	Central funds	Household needs test
Public Assistance	Ministry of Health	All C.B.s and C.C.s	Department of Health for Scotland	All Large Burghs and Counties	Rates and block grants	Household needs test Recovery from relatives

Table 3—Gross Expenditure on Public Social Services in Great Britain, 1900-35

(£ millions)

	Constructive Community Services							Social Insurances				Social Assistance				
	Education	Approved Schools	Maternity and Child Welfare	Hospitals and Treatment of Disease	Lunacy and Mental Deficiency	Unemployed Workmen Act	TOTAL	National Health Insurance	Unemployment Insurance	Contributory Pensions	TOTAL	Old Age Pensions	Transitional Benefit and Unemployment Assistance*	Public Assistance	TOTAL	TOTAL
1900-1	19.5	0.5	—	1.6	1.0	—	22.6	—	—	—	—	—	—	12.8	12.8	35.4
1910-1	33.7	0.3	—	2.2	1.5	0.21	38.0	—	—	—	—	7.4	—	16.7	24.1	62.1
1920-1	88.8	1.5	2.1	8.6	3.0	0.11	104.1	29.9	10.8	—	40.6	20.8	—	35.6	56.4	201.1
1921-2	92.4	1.4	2.4	8.6	3.0	0.10	107.9	29.6	71.2	—	100.9	22.0	—	46.8	68.8	277.6
1922-3	88.2	1.4	1.8	8.7	2.3	0.06	102.5	29.4	49.0	—	78.4	22.4	—	47.2	69.6	250.6
1923-4	86.6	1.0	1.8	7.8	4.0	0.06	101.3	30.9	48.0	—	79.0	24.0	—	41.9	65.9	246.2
1924-5	89.4	0.9	1.9	7.2	4.8	0.08	104.3	32.4	50.6	—	83.1	25.8	—	40.4	66.2	253.6
1925-6	92.0	0.8	2.1	7.5	5.1	0.07	107.5	36.5	49.8	1.6	88.0	28.0	—	44.1	72.0	267.5
1926-7	93.3	0.8	2.5	7.8	5.2	0.07	109.7	40.9	56.2	7.5	104.7	30.9	—	55.0	85.9	300.3
1927-8	94.4	0.8	2.3	8.3	5.0	0.06	110.8	37.6	42.8	11.9	92.3	33.7	—	45.5	79.2	282.3
1928-9	97.0	0.7	2.5	8.5	5.0	0.05	113.8	39.9	53.8	23.8	117.6	34.9	—	43.9	78.8	310.2
1929-30	100.5	0.7	2.7	8.8	5.3	0.04	117.9	38.6	53.3	26.4	118.3	35.8	—	45.0	80.7	317.0
1930-1	104.2	0.7	2.6	8.9	5.4	—	121.8	38.6	81.3	34.6	154.5	37.5	20.3	42.5	100.3	376.6
1931-2	103.3	0.7	3.2	10.6	5.6	—	123.3	37.5	90.4	39.7	167.6	38.6	32.4	41.2	112.2	403.1
1932-3	100.8	0.6	3.3	12.1	5.9	—	122.8	37.5	63.9	40.8	142.2	40.4	53.8	44.0	138.3	403.3
1933-4	101.7	0.6	3.4	13.0	6.2	—	124.9	36.0	49.3	42.2	127.5	41.1	52.2	46.1	139.3	391.7
1934-5	105.7	0.6	3.4	13.8	6.6	—	130.1	36.7	52.9	43.2	132.8	42.4	46.2	49.2	137.8	400.8

*Transitional Benefit till April 1, 1934. Transitional Payments April 1, 1934—January 7, 1935. Thereafter Unemployment allowances.

Table 4—Income and Expenditure of Local Authorities in England and Wales, 1933-4

(£000)

	INCOME				EXPENDITURE		
	Fees, Rents, Recoupments, etc.	Specific Government Grants	Balance met by Rates and Block Grants	Total	Maintenance, etc.	Loan Charges	Total
Social Services:							
Elementary Education	982	30,318	31,844	63,145	58,968	4,177	63,145
Higher Education	3,111	8,178	8,918	20,206	18,420	1,786	20,206
Maternity and Child Welfare	456	4	2,617	3,077	2,987	90	3,077
Hospitals, Sanatoria, Dispensaries, etc., for:							
Tuberculosis	123	—	3,576	3,699	3,417	282	3,699
Venereal Diseases	3	—	432	436	431	5	436
Other Infectious Diseases	171	1	3,352	3,525	3,184	341	3,525
General Hospitals	460	1	4,199	4,660	4,144	516	4,660
Notification of Disease, Disinfection, Vaccination, etc.	36	1	627	665	656	9	665
Salaries of M.O.H.s, Health Visitors, etc., not allocated	7	—	1,788	1,795	1,794	1	1,795
Welfare of the Blind	86	—	1,018	1,104	1,093	11	1,104
Mental Hospitals and Mental Deficiency	2,139	14	9,223	11,376	10,478	898	11,376
Relief of the Poor	2,338	24	31,529	33,891	32,922	969	33,891
Other Services:							
Public Libraries and Museums	186	1	2,137	2,324	2,193	131	2,324
Parks, Pleasure Grounds, etc.	1,208	167	4,175	5,549	4,107	1,442	5,549
Baths, Wash-houses and Open Bathing Places	1,233	44	1,278	2,555	1,980	575	2,555
Sewage, Refuse Disposal and Public Conveniences	1,459	1,371	16,640	19,470	12,921	6,549	19,470
Other Health Services	229	70	1,087	1,386	1,123	263	1,386
Housing and Town Planning	26,846	13,148	2,778	42,772	11,816	30,957	42,772
Road and Street, Lighting, etc.	4,550	8,585	40,008	53,143	43,554	9,590	53,143
Fire Brigades	281	14	2,166	2,462	2,216	246	2,462
Police	624	10,293	10,614	21,531	21,332	199	21,531
Agriculture and Fisheries	1,577	1,057	1,645	4,279	2,261	2,018	4,279
Administration, etc.	6,068	428	14,139	20,635	18,936	1,699	20,635
Deficit on Trading Services	—	—	2,838	2,838	2,838	—	2,838
TOTAL	54,176	73,718	198,629	326,524	263,771	62,753	326,524

EDUCATION

Table 5—Types of Educational Institutions in England and Wales, 1934-5

	Approximate Ages of Attendance	Number of Institutions	Pupils on Register (Average 1934-5 or certain dates in 1935)	
			Full Time	Part Time
Nursery Schools	2–5	65	4,781	—
Elementary Schools	5–14+	20,907	5,474,894	—
Special Schools for				
Blind	2–16	73	3,810	—
Deaf	2–16	47	3,632	—
Mentally Defective	5–16	161	15,022	—
Physically Defective	2–16	329	29,811	—
Secondary Schools recognised by Board of Education:				
On Grant List	5–19	1,380	456,783	—
Not on Grant List:				
Secondary	5–19	395	69,573	—
Preparatory	5–14	319	21,150	—
Other Secondary Schools in "Public Schools Year Book" or "R.C. Directory"	12–19	428	41,600	—
Other Preparatory Schools in the Association	5–14	240	12,000	—
Junior Technical Schools	13–18	208	24,532	—
Junior Art Departments	13–18	36	2,150	—
Day Continuation Schools	14–18+	38	—	17,318
Technical Day Classes	14–18	189	2,331	8,770
Art Schools and Classes	14–18	263	2,647	18,652
Senior Full-time Courses in Colleges	14–18	65	2,544	592
Evening Classes	14–18	4,957	—	396,945
TOTAL UP TO 18	—	—	6,168,000	442,277*
Technical Day Classes	18+	189	732	17,429
Art Schools and Classes	18+	263	3,075	37,641
Senior Full-time Courses in Colleges	18+	65	4,207	1,313
Evening Classes	18+	4,957	—	495,459
Adult Education	18+	—	—	49,223*
Courses for Teachers (evening or vacation)	—	48	—	54,348
Universities and University Colleges	18+	22	40,392	9,611
Teachers' Training Colleges (not University Departments)	—	110	11,032	—
TOTAL 18+	—	—	59,438	665,024*

* May include duplication.

Table 6—Types of Educational Institutions in Scotland, 1935-6

	Approximate Ages of Attendance	Number of Institutions	Pupils on Register, 1935-6	
			Full Time	Part Time
Primary Schools:				
Primary Departments*	5–14+	3,034	554,327	—
Post-primary Departments	11–18		87,595	—
Secondary Schools:				
Preparatory Departments	5–14+	(204)	67,516	—
Secondary Departments	11–18+	251	92,075	—
Special Schools	5–16+	62	9,637	—
Special Classes	5–16+	(47)	1,804	—
Continuation Classes	14–18	798	—	73,256
	18+		—	68,690
Adult Education	18+	60	—	5,341
Central Institutions	18+	11	4,689	3,301
Evening, Saturday Afternoon or Correspondence	18+		—	10,650
Universities and University Colleges (1934/35)	18+	5	10,246	3,474
Teachers Training (Sept. 1936) (General Certificate)	—	4	1,856	—

* Includes 134 "Side Schools" with an average of less than 6 pupils each, in remote areas.

Table 7—Types of Elementary School, England and Wales, March 31, 1935

	Schools	Per cent	Depts.	Average Number on Register	Per cent
1. *Maintained by L.E.A.s:*					
(i) Voluntary:					
Church of England	9,197	43.9	11,065	1,273,226	23.2
Methodist	122	0.6	145	19,796	0.4
Roman Catholic	1,230	5.9	1,884	393,652	7.2
Jewish	13	0.1	19	5,251	0.1
Other Voluntary	204	1.0	232	27,095	0.5
Total	10,766	51.6	13,345	1,719,020	31.4
(ii) Council	10,088	48.2	16,244	3,749,940	68.5
2. *Not Maintained by L.E.A.s*	53	0.3	55	5,934	0.1
TOTAL	20,907	100.0	29,644	5,474,894	100.0

Table 8—Size of Classes in Maintained Public Elementary Schools, England and Wales

Size	Number of Classes			
	1924	1933	1934	1935
Up to 20 .	13,191	11,647	11,679	12,508
21-30 .	27,929	26,818	27,553	29,715
31-40 .	40,497	49,528	52,474	54,077
41-50 .	40,602	55,661	54,061	49,877
51-60 .	24,469	8,226	6,138	4,218
Over 60 .	489	70	56	44
TOTAL .	147,177	151,950	151,961	150,439

Table 9—Progress of Reorganisation of Elementary Schools in England and Wales, March 31, 1935

	Council		Voluntary		Total	
	Depts.	Pupils	Depts.	Pupils	Depts.	Pupils
Reorganised Departments:						
Infants . . .	4,039	845,118	2,079	262,672	6,118	1,107,790
Junior . . .	3,739	976,267	2,476	311,449	6,215	1,287,716
Senior . . .	2,389	732,575	355	74,874	2,744	807,449
All Ages . . .	691	183,552	613	115,528	1,304	299,080
TOTAL . . .	10,858	2,737,512	5,523	764,523	16,381	3,502,035
Unreorganised . .	5,386	970,804	7,822	929,213	13,208	1,900,017
Percentage of Departments which were unreorganised in Urban and Rural Districts:						
Urban Areas . .	21.2	20.9	43.1	46.4	29.2	28.0
Rural Areas . .	63.6	58.4	74.3	77.7	70.0	67.4
All Areas . . .	33.2	26.2	58.7	54.9	44.6	35.2

MATERNITY AND CHILD WELFARE SERVICES

Table 10—Provisions made by Local Authorities and by State-aided Voluntary Bodies, 1935

ENGLAND AND WALES

	Provided by		Total
	Local Authorities	Voluntary Bodies	
Ante-natal Clinics	1,311	285	1,596
Infant Welfare Centres	2,490	813	3,303
Health Visitors	3,109	2,575	5,684
Equivalent in Whole-time Services	2,157	536	2,693
Maternity Institutions and Hospitals providing Beds	500	141	641
Number of Beds	6,030	2,203	8,233

SCOTLAND

Ante-natal Clinics	182	10	192
Infant Welfare Centres	240	14	254
Health Visitors:			
Whole Time	462	—	462
Part Time	623	—	623
Total	1,085	—	—
Maternity Institutions and Hospitals providing Beds	55	33	88
Number of Beds	671	637	1,308

Table 11—Extent of the Provision of Maternity and Child Welfare Services, 1935

(i) ENGLAND AND WALES

	Numbers Benefiting	Per cent of Possible	Number of Attendances or Visits
Ante-natal Clinics . . .	288,079	46	1,140,708
Infant Welfare Centres:			
Children under 1 . .	351,149	59	—
Children under 5 . .	—	—	8,657,901
Health Visiting:			
Expectant Mothers . .	193,815	31	557,578
Children under 1 . .	584,645	97	3,284,972
Children from 1-5 . .	—	—	4,407,415

(ii) SCOTLAND

Ante-natal Clinics . . .	30,908	34	128,081
Infant Welfare Centres:			
Children under 1 . .	32,573	37	276,804
Children from 1-5 . .	19,864	6	186,536
Health Visiting:			
Expectant Mothers . .	24,410	27	61,527
Children under 1 . .	74,738	85	529,172
Children from 1-5 . .	109,599	34	414,301

THE SCHOOL MEDICAL SERVICE

Table 12—Provisions of the School Medical Service, England and Wales, 1935

	Authorities Making Provision	School Clinics Provided	Hospitals working under Arrangements with L.E.A.s	Defects Treated	
				Under L.E.A. Schemes	Otherwise
Treatment:					
Minor Ailments	312	1,160	14	929,182	49,214
Dental	314	1,362	15	1,474,083	—
Ophthalmic	315	694	120	259,619	10,525
Nose and Throat:					
Operative	287	68	546	59,004	16,688
Non-operative				46,964	
Ringworm	203	35	74	837	108
Orthopædic	245	324	130	...	...
Artificial Light	105	93	27	...	...

Number of authorities organising school medical service, 316.

Table 13—Staff of the School Medical Service, England and Wales, 1935

	Number	Equivalent in Whole Time Services	Numbers Employed Full Time in Public Service	
			School Medical only	School Medical and other Public Health Work
School Medical Officers	1,412	687	275	766
Specialists	962	...	—	11
Dentists	852	646	—	574
Nurses	5,644*	2,386	1,527	1,864

* Includes 2,215 district nurses. The extent of their services cannot be ascertained.

Table 14—The School Health Service, Scotland, 1935-6

Staff	Full Time	Part Time
Medical Officers	43	89
Local Practitioners	—	50
Specialists	—	60
Dentists	47	39

Defects	Authorities making Provision	Defects Treated
Teeth	35	152,670
Vision	35	29,354
Diseases of Eye	...	11,816
„ „ Ear	...	9,086
„ „ Skin	...	47,437
Ringworm and Favus	25	611
Adenoids and Tonsils	31	5,149
Deformities	21	1,214
Other Diseases and Defects	...	35,913
		293,250

Number of Children Examined:	
At Routine Examinations	243,240
At Special Examinations	157,640
Number on Registers of Inspected Schools	808,110

Authorities organising school health service—Counties, 31; Cities, 4.

Six county councils have made use of the provision made by the Local Government (Scotland) Act, 1929, by which they can make arrangements to use the medical and nursing staff, clinics and hospitals of the large burghs for school health services. About 70 hospitals are involved.

TUBERCULOSIS SERVICES

Table 15—Extent of the Tuberculosis Service in England and Wales, 1935

Total number of cases known to Medical Officers of Health in 1935 was 340,488

	Diagnosis	Treatment	Total
Number of cases, Dec. 31, 1935:			
In Residential Institutions .	1,106	25,327	26,433
On Dispensary Registers. .	11,857	195,273	207,130
TOTAL	12,963	220,600	233,563

Table 16—Accommodation in Residential Institutions in England and Wales, 1935

	Local Authorities		Voluntary Organisations		Total	
	Institutions	Beds	Institutions	Beds	Institutions	Beds
England:						
Sanatoria and Special Institutions	174	15,153	116	7,600	290	22,753
Isolation Hospitals . .	40	1,861	1	50	41	1,911
General Hospitals . .	45	2,298	177	573	222	2,871
Wales:						
King Edward VII Welsh National Memorial Assoc.	—	—	—	—	17	1,517*

* A number of beds were also rented in institutions not belonging to the Association. The expenditure on this item was £13,300,

MENTAL HEALTH SERVICES

Table 17—Distribution of Persons suffering from Mental Disorders, January 1, 1936

	England and Wales	Scotland
In County and County Borough Mental Hospitals . . .	127,813	13,514
In State Criminal Asylums . .	787	87
In Institutions under Poor Law .	15,062	1,308
In Other Institutions . . .	5,887	3,568
Under Private Care . . .	4,222	1,257
TOTAL	153,771	19,734

Table 18—Distribution of Mentally Defective Persons, January 1, 1936

		Number	Per 1,000 of Population
(i) *England and Wales:*			
Total known to Local Authorities . .		116,434	2.88
of whom children 14-16 informally reported .		3,528	
Total Statutorily Notified		112,906	
of whom "Ascertained Subject to be dealt with"		84,599	2.09
of whom			
In Institutions provided under the Mental Deficiency Act, 1913	40,256		
"Under Guardianship or Notified" . .	3,645		
"Under Statutory Supervision" . .	34,840		
Total Under Care		78,741	1.94
(ii) *Scotland*			
Total "Ascertained Subject to be dealt with"		8,150	1.64
of whom			
In Certified or State Institutions . .	2,974		
In Private Dwellings	1,440		
Total Under Care		4,414	0.89

EMPLOYMENT SERVICES

Table 19—Number of Vacancies Notified and Filled by Ministry of Labour Employment Exchanges in the United Kingdom

	Vacancies	
	Notified	Filled
1913* . .	1,222,828	921,853
1922 . .	859,340	715,737
1923 . .	1,060,293	917,242
1924 . .	1,368,526	1,164,948
1925 . .	1,509,765	1,306,085
1926 . .	1,323,084	1,156,428
1927 . .	1,457,226	1,272,670
1928 . .	1,536,329	1,351,516
1929 . .	1,864,536	1,632,585
1930 . .	1,965,664	1,764,255
1931 . .	2,158,514	1,985,975
1932 . .	2,039,741	1,878,856
1933 . .	2,459,007	2,224,421
1934 . .	2,655,094	2,331,993
1935 . .	2,933,555	2,533,456

* Including territory which is now the Irish Free State.

Table 20—Ministry of Labour Training and Instructional Centres in Great Britain, 1930-36

Year	Entered	Premature Terminations	Completed Course but Unplaced	Passed into Employment	Total Passed Out
TRAINING CENTRES					
1930 . . .	8,608	1,611	1,044	5,160	7,815
1931 . . .	7,979	1,709	2,880	4,290	8,879
1932 . . .	5,236	1,047	1,403	3,440	5,890
1933 . . .	5,254	844	704	3,728	5,276
1934 . . .	6,970	1,134	268	4,819	6,221
1935 . . .	10,168	1,663	146	7,059	8,868
1936 . . .	14,250	3,083	295	10,398	13,776
INSTRUCTIONAL CENTRES					
		(a)			
1929 . . .	3,518	1,029 117	29	1,608	2,783
1930 . . .	9,886	2,487 188	597	6,530	9,802
1931 . . .	7,652	1,724 67	392	5,667	7,850
1932 . . .	6,654	736 50	1,748	2,815	5,349
1933 . . .	10,545	855 165	8,064	1,406	10,490
1934 . . .	16,248	1,280 127	12,205	2,475	16,087
1935 . . .	18,474	2,609 14	12,214	3,085	17,942
1936 . . .	20,872	3,959 416	13,013	3,896	21,284

(a) Transferred to training centres or special schemes.

NATIONAL HEALTH INSURANCE

Tabel 21—Persons Covered by the National Health Insurance Scheme in 1935

	England and Wales		Scotland		
	Men	Women	Men	Women	TOTAL
Members of Approved Societies:					
Employed Contributors . . .	9,257,000	4,744,600	1,127,500	568,100	15,697,200
Voluntary Contributors . . .	468,800	77,600	45,000	10,700	602,100
H.M. Forces (Maternity Benefit only) .	181,000	—	18,000	—	199,000
Deposit Contributors:					
Individual Accounts Section:					
Employed Contributors . . .	113,250	121,050	7,500	6,400	248,200
Voluntary Contributors . . .	3,250	850	100	100	4,300
Insurance Section	3,850	3,250	300	200	7,600
Navy, Army and Air Force Fund:					
Serving Forces (Maternity Benefit only) .	106,000	—	*	—	106,000
Dishcharged Men:					
Employed Contributors . . .	13,000	—	*	—	13,000
Voluntary Contributors . . .	900	—	*	—	900
Exempt Persons (Medical Benefit only) .	7,700	6,100	2,400	1,000	17,200
Total Contributors (full or partial) . .	10,154,750	4,953,450	1,200,800	586,500	16,895,500
Others Entitled to Certain Benefits:					
Women who have Ceased Employment on Marriage but remain Insured for 2 years	—	319,200	—	46,000	365,200
Insured Persons over 65 . . .	889,300	231,000	115,000	28,000	1,263,300
TOTAL INSURED	11,044,050	5,503,650	1,315,800	660,500	18,524,000

* This fund is administered from London. Men living in Scotland are included in the England and Wales figure.

Table 22—National Health Insurance Finance, Great Britain, 1935

Income	£000	Expenditure	£000
Contributions of Employers and Workpeople	27,380	*Benefits:*	
Interest, etc., on Funds	6,196	Sickness and Disablement	16,555
Parliamentary Votes and Grants	6,668	Medical	10,387
		Others	4,154
		Administration:	
		Central Departments	1,045
		Approved Societies and Insurance Committees	4,552
		Surplus:	
		Addition to Accumulated Funds	3,551
	£40,244		£40,244

WORKMEN'S COMPENSATION

Table 23—Cases and Payments in certain Industries Making Returns, United Kingdom, 1935

	Numbers Employed	Cases		Amount Paid	
		Disablement	Fatal	Disablement	Fatal
				£	£
Factories:					
Cotton	397,463	8,162	18	91,466	4,104
Wool, Worsted and Shoddy	237,032	4,040	13	38,806	3,137
Other Textiles	285,497	3,722	12	40,031	2,736
Wood	148,451	6,205	28	97,697	8,310
Metals (Extraction, etc.)	375,803	28,071	102	249,620	28,650
Engine and Shipbuilding	456,516	19,310	82	218,411	23,211
Other Metal Work	833,138	43,405	125	397,729	30,138
Paper and Printing	374,315	6,331	29	87,586	8,008
China and Earthenware	79,861	1,714	10	15,349	2,446
Miscellaneous	2,426,332	71,374	293	761,351	77,535
Total Factories	5,614,408	192,334	712	1,998,046	188,275
Docks	102,651	10,471	88	250,018	23,581
Mines	826,169	161,513	1,235	2,070,742	376,141
Quarries	67,915	6,580	69	90,021	18,577
Constructional Works	202,346	8,853	68	153,259	23,304
Railways	443,202	18,359	208	181,123	62,471
Shipping	170,700	8,470	271	196,800	77,769
GRAND TOTAL	7,427,391	406,580	2,651	4,940,009	770,118

N.B.—It is estimated that the total charge to all industries and employments under the Workmen's Compensation Acts amounted to "something under £11 millions" (Home Office Return, Cmd. 5077), but no detailed figures are available except for the industries shown above.

Table 24—Relative Importance of Unemployment Assistance and Insurance Benefit in Different Parts of the Country

Persons aged 18-64 *receiving Insurance Benefit (general scheme) and Unemployment Allowances, April* 19, 1937

	Men		B as per cent of A+B	Women		B as per cent of A+B
	A Benefit	B Allowances		A Benefit	B Allowances	
London	78,803	29,242	27.0	20,969	2,570	10.9
South-Eastern	32,060	13,759	30.0	6,896	772	10.1
South-Western	37,842	18,740	33.1	6,781	935	12.1
Midlands	44,575	46,464	51.0	19,844	1,898	8.7
North-Eastern	51,618	56,849	52.4	13,898	2,340	14.4
North-Western	81,592	115,194	58.5	33,547	14,315	29.8
Northern	33,905	90,632	72.7	5,431	2,134	28.2
Scotland	59,742	111,538	65.1	19,248	12,665	39.6
Wales	38,689	86,774	69.1	4,453	2,068	31.7
Great Britain	458,826	569,192	55.3	131,067	39,697	23.2

Table 25—Composition of Unemployment Statistics in Great Britain, before and after the Second Appointed Day

March 15 *and April* 19, 1937

	Drawing Benefit		Drawing Allowances	Under Consideration	Drawing Nothing	Total
	General	Agricultural				
March 15						
Insured Persons:						
Men	545,068	13,225	521,121	27,315	108,675	1,215,404
Women	145,334	3,031	31,446	7,052	31,583	218,446
Juveniles, 16 & 17	24,325	795	—	2,559	10,300	37,979
14 & 15	—	—	—	—	14,739	14,739
TOTAL	714,727	17,051	552,567	36,926	165,297	1,486,568
Others on Register:						
Men	—	—	—	—	51,303	51,303
Women	—	—	—	—	30,287	30,287
Juveniles	—	—	—	—	33,043	33,043
TOTAL	—	—	—	—	114,633	114,633
April 19						
Insured Persons:						
Men	458,826	8,312	550,792	20,951	53,022	1,091,903
Women	131,067	1,044	34,201	7,254	26,497	200,063
Juveniles, 16 & 17	21,425	408	2,102	2,469	7,500	33,904
14 & 15	—	—	—	—	13,791	13,791
TOTAL	611,318	9,764	587,095*	30,674	100,810	1,339,661
Others on Register:						
Men	—	—	18,400	1,883	28,825	49,108
Women	—	—	5,496	1,209	20,258	26,963
Juveniles, 16 & 17	—	—	799	331	7,639	8,769
14 & 15	—	—	—	—	29,942	29,942
TOTAL	—	—	24,695	3,423	86,664	114,782

* It is estimated that approximately 60,000 of these were receiving public assistance before April 1.

PUBLIC ASSISTANCE

Table 26—Persons Relieved and Expenditure on Public Assistance in England and Wales, 1914-36

	Institutional		Domiciliary			Casuals	Total	Per 10,000 of Population	Expenditure	Average Expenditure per head of Population
	Number	Per 10,000 of Population	On Account of Unemployment	Others	Per 10,000 of Population					
	000's		000's			000's	000's		£000	s. d.
1914	264	70	389		106	8	661	204	15,056	8 2¾
1919	183	49	287		76	1	471	148	18,424	9 10
1920	185	48	306		79	2	494	150	23,501	12 6½
1921	199	52	376		96	4	579	170	31,925	17 0¼
1922	216	55	745	439	277	7	1,406	357	42,273	22 3¾
1923	217	56	722	501	341	8	1,447	423	41,934	21 11¾
1924	219	56	525	526	282	8	1,278	365	37,882	19 8¾
1925	217	55	326	560	235	8	1,111	317	36,842	19 0¼
1926	222	56	487	626	258	8	1,343	341	40,083	20 7¼
1927	226	57	632	580	441	11	1,449	526	49,775	25 5¾
1928	226	56	450	577	248	11	1,263	333	40,919	20 10
1929	225	56	313	587	228	12	1,136	314	39,671	20 1¼
1930	221	55	250	617	216	11	1,099	300	40,631	20 6¼
1931	212	53	156	636	193	12	1,015	276	38,561	19 4½
1932	197	50	263	670	216	12	1,143	296	36,817	18 5
1933	194	48	418	748	271	16	1,376	350	38,924	19 4½
1934	185	46	425	778	287	15	1,403	364	40,155	19 10¾
1935	178	44	452	831	295	13	1,473	372	42,507	21 0
1936	169	42	330	878	287	11	1,388	361	—	—

Number of persons relieved are for January 1 each year.
Number per 10,000 of the population are weekly averages for the year ending March 31. Expenditure is also for the year ending March 31.

Table 27—Persons Relieved and Expenditure on Public Assistance in Scotland, 1914-1936

	Sane Poor					Other than Sane Poor	Per 10,000 of Population	Expenditure	
	Indoor	Outdoor		Total	Per 10,000 of Population			£000	Per Head of Population
		Able-Bodied	Others						s. d.
1914	13,015	74,438		87,453	180	16,671	35	1,576†	6 8†
1918	7,653	58,913		66,566	140	16,931	35	1,538	6 5
1927	13,486	110,290	96,561	220,337	450	18,322	37	5,621	23 2
1928	13,202	91,424	100,594	205,220	420	18,711	38	4,888	20 2
1929	13,077	73,722	105,299	192,098	390	18,858	39	4,603	19 1
1930	11,748	40,593	110,283	162,624	330	19,135	39	4,674	19 4
1931	12,309	50,069	124,907	187,285	380	19,380*	40	5,173‡	21 4‡
1932	12,526	83,690	141,851	238,067	490	19,783	41	5,573	22 10
1933	12,153	113,421	163,379	288,953	590	20,125	41	6,322	25 9
1934	11,706	214,091	180,554	406,351	830	20,501	42	7,071	28 8
1935	11,255	143,911	202,241	357,407	720	20,915	42	8,233	33 2
1936	10,972	117,309	213,246	341,527	690	21,152	43	—	—

Numbers include dependants, and relate to May 15, each year.
* From 1931 these figures are January 1.
† 1913.
‡ *Expenditure on Insane Poor*: before 1931 only proportion applicable to Parish Councils included. From 1931 total included Difference in 1930, £741,000.

Table 28—Persons Receiving Different Types of Public Assistance in England and Wales on January 1, 1936

(i) Domiciliary and Institutional Relief

	Domiciliary			Institutional	Total
	On Account of Unemployment	Others	Total		
Men . .	105,172	233,194	338,366	83,363	421,729
Women . .	81,657	365,039	446,696	59,265	505,961
Children .	143,076	279,287	422,363	37,667	460,030
Total . .	329,905	877,520	1,207,425	180,295	1,387,720

(ii) Mental and Physical Condition

	Domiciliary (not on account of Unemployment)		Institutional (including Casuals)		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Sick and Infirm	420,540	48	61,400	34	481,940	46
Mentally Infirm	6,524	1	26,515	15	33,039	3
Others . .	450,456	51	92,380	51	542,836	51
Total .	877,520	100	180,295	100	1,057,815	100

(iii) Children Receiving Domiciliary Relief

	Number	Per Cent
Relieved on account of Parents' Unemployment . .	143,076	34
Living with Fathers Receiving Relief	166,314	39
Fathers Receiving Institutional Relief	6,654	2
Dependents of Widows or Wives living apart from husbands	93,360	22
Children of Single Women	6,776	2
Orphans	2,130	—
Others	4,053	1
Total	422,363	100

(iv) Children Receiving Institutional Relief

Sick and Infirm Children:	
In Hospitals or Sick Wards administered under the Poor Law Acts	5,491
Others	635
Mentally Infirm Children	1,031
Other Children:	
Under 3	2,799
Aged 3-16 in:	
Grouped Cottage Home Schools	3,768
Other Separate Schools (including Training Ship)	1,500
Grouped Cottage Homes other than Schools	5,840
Scattered Homes	6,908
Other Homes	3,991
Other Specialised Establishments	5,000
General Institutions:	
Children's Wards	448
Other Wards	217
Casuals	39
Total	37,667

(v) Persons over 65 Receiving Relief

	Numbers			Per Cent of Persons of all ages receiving Relief		
	Institutional	Domiciliary	Total	Inst.	Dom.	Total
Sick and Infirm	29,155	219,589	248,744	47	52	51
Mentally Infirm	6,777	250	7,027	26	4	21
Others	25,617	4,958	30,575	28	1*	6
(Total excluding Casuals)	61,549	224,797	286,346	34	26*	27
Casuals	1,055	—	1,055	9	—	9

N.B.—Persons over 65 comprise 8 per cent of the population.
* Per cent of persons relieved *not* on account of unemployment.

(vi) Persons over 65 Receiving both Relief and Old Age or Widows' Pensions

	Number	Per Cent of Assisted Persons over 65, Receiving Pensions
Institutional	25,403	41
Domiciliary	196,394	87
Casuals	18	1
Total	221,815*	77

* Number receiving widows' pensions 19,377.

Table 29—The Distribution of the Burden of Public Assistance

	Number in Receipt of Relief per 10,000 of Population, Jan. 1, 1936				Public Assistance Rate 1934-5		Expenditure on Public Assistance per head of Population 1934-5	
	Institutional (excluding Casuals)	Domiciliary (excluding Casuals)		Total (including Casuals)				
		On account of Unemployment	Others					
County Boroughs:								
Highest Proportion of persons assisted per head of population:					s.	d.	s.	d.
Liverpool	51	621	533	1,205	7	4.4	49	4.0
Merthyr Tydfil	50	326	745	1,123	15	0.8	44	5.2
Bootle	71	369	514	954	7	7.4	45	1.6
Sunderland	42	275	594	914	7	3.2	31	7.1
Gateshead	51	323	445	819	8	8.4	34	9.1
Lincoln	43	173	577	798	6	8.5	41	0.1
Norwich	63	426	282	773	7	4.4	40	1.0
Newcastle-on-Tyne	50	324	394	769	4	2.7	33	4.4
Sheffield	32	229	491	753	6	8.9	36	10.6
Kingston-upon-Hull	52	164	482	699	7	1.7	34	1.8
Lowest Proportion:								
Oxford	47	6	30	90	1	0.4	9	8.4
Halifax	32	6	73	115	1	8.3	9	4.1
Coventry	22	6	94	124	1	4.5	8	0.1
Bournemouth	35	13	99	149	0	10.2	12	0.0
Blackpool	19	59	77	155	0	7.8	8	0.1
Administrative Counties:								
Highest Proportion:								
Durham	27	137	598	763	9	3.5	29	5.8
Glamorgan	29	64	595	689	8	7.3	28	0.4
Monmouth	23	70	489	584	7	5.1	21	11.6
Brecknock	29	101	326	462	4	3.6	19	4.7
Anglesey	34	149	277	461	5	8.4	17	5.4
Lowest Proportion:								
Sussex, West	36	4	63	109	1	6.8	13	0.8
Surrey	36	15	63	116	1	2.8	12	5.0
Bedford	34	6	67	117	2	0.0	10	11.3
Buckingham	32	10	83	132	1	6.6	9	7.2
Sussex, East	50	9	66	133	1	6.8	13	7.4

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