

**ECONOMIC ORGANIZATION
OF THE
BRITISH COAL INDUSTRY**

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By

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Chairman of the Royal Commission on the Coal Industry, 1925



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TO MY PARENTS

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FOREWORD

By the Rt. Hon. Sir HERBERT SAMUEL, G.C.B., G.B.E., M.P.
(*Chairman of the Royal Commission on the Coal Industry, 1925.*)

Nature has endowed Great Britain with an equable climate, a fertile soil, many fine harbours, and one vast source of mineral wealth—the extensive deposits of high-quality coal. The working of those deposits and the development of industries based upon them has been the chief factor in the industrial growth and power of Britain. Between three and four millions of our population have been directly dependent for their livelihood upon coal-mining. Coal has provided four-fifths, in bulk, of the outward cargoes of our shipping. The annual value of the product has been in the neighbourhood of £250,000,000. But the coal industry has fallen upon very hard times since the War. For generations it had been the unhappy theatre of disputes between employers and employed, and the depression has increased the friction. At the same time it has brought out very clearly the imperative need for the highest industrial organization in the production of coal and the greatest scientific efficiency in its use. Inevitably these questions have occupied the close attention of Parliament and have become matters of keen political discussion.

Mr. Neuman in this book presents a lucid survey of the course of events in recent years and a clear picture of the present situation. He describes the economic factors that have been at work and the political factors; he traces their interaction and deals with their occasional conflict. Finally, he gives a careful analysis of the marketing schemes under the Act of 1930, and their working.

While I cannot endorse every passage in the book, nor even concur in some of its conclusions, I can commend it as a whole as a thorough and comprehensive study. The writer disentangles the threads of a complicated subject and offers a simple account for the ordinary reader. He has rendered a useful service, both to those engaged in the coal industry itself, and to the wider public who realize its importance to the nation and earnestly desire to promote the restoration of its prosperity.

HERBERT SAMUEL.

3rd January, 1934.

INTRODUCTION

Motto: "Quand le charbon ne va pas, rien ne va"—(Delattre)

The present economic difficulties of the coal industry, in Great Britain as in all coal-producing countries, cannot be analysed in complete isolation from those of other industries. It is impossible to consider the coal industry in a water-tight compartment, faced with economic problems peculiar to itself alone. In fact, the opposite is the truth. There is no such thing as economics of coal industry. Coal, of course, enters into economic equations—it may play there an important rôle, according as its significance in the processes of production and consumption is greater or smaller; it may have some special problems of its own which are chiefly of a technical nature, but economically it is always linked with more general problems and interdependences between the means and the ends which are at our disposal. In this respect one is inclined to agree with two American writers that "to deal with the coal industry in isolation is like trying to cure a plant disease without reference to the soil of its environment".¹

Coal is an article which enters the economic structure in all stages of production. It participates in the highest stages, producing goods for the use of other producers. It participates in the lowest stages by helping to produce consumers' goods. Finally, it constitutes a consumers' good itself in its raw or its manufactured form, which is capable of providing immediate satisfaction of human needs for heat, power, light, etc. Being, therefore, in such a broad way a participant in human economic activity, coal is affected immediately, though in various degrees, by any change in the trade cycle. This ubiquity of coal means that the different sections of the industry producing coal for

¹ I. Lubin and H. Everett, *British Coal Dilemma*, New York, 1927.

various uses participate in the trade cycle in very different ways; each of them according to the characteristics displayed by the demands for their respective products.

As the term "British Coal" covers varying products used in many different ways, it is very difficult for any single section of the industry to alter so as to meet fresh demands. Hence, each producing unit must participate more or less in supplying its respective demand. As Professor Ohlin would probably say, the monopoly of each section of the industry is affected by the nature of its respective demand.¹ Thus the demand for industrial coal for constructional industries was affected by a fall of investments in the earlier stages of production. Several reasons contributed to this decline, by far the most important being a diminution in voluntary savings in Europe² especially in the period just following the War, which was marked by general monetary instability. World production of coal grew very little as compared with the average for 1909-1913; this rise was probably not much larger than the increase of the population.

During the greater part of the post-War period the main World coal producers, together with other industries, felt the depression in the higher stages of production, but those sections of the industry which cater for the consumers and those industries which are nearer to the consumers were in relative prosperity. But of all factors which determine the development of our industry, the most important is the state of the higher stages of production and that of exports. For this reason, the depression in the British coal industry is closely connected with that in other industries producing capital-goods.

In order to throw more light on the position of British coal mining and its particular problems viewed against the screen of other industries, it is necessary to realize that it is largely an exporting industry. Hence, problems arise which are common to all exporting industries

¹ Cf. *The Course and Phases of the World Economic Depression*, Report, presented to the Assembly of the League of Nations, Geneva, 1931, p. 249.

² Cf. A. Loveday, *Britain and World Trade*, London, 1931, p. 19.

having to compete in the world's scramble for markets. When the world is reconstructing its capital equipment, these industries are booming and prosperous. On the other hand, in times of recession they have to reduce both prices and quantities shipped. In addition, the exporting industries of Britain suffer from "weak selling" due to cheaper competition from countries with a lower standard of life and a more flexible, or a less capitalistic cost structure, which allow them to adjust themselves quicker to fluctuations.

British coal, which constitutes a very large part of all coal entering international trade, shares all the advantages and disadvantages arising from it: while in periods of falling international trade there is a glut of coal and some pressure on the home market, on the other hand any revival immediately benefits most of the British coalfields. This is one of the chief problems of the industry.

A coal problem seems to have existed in Great Britain from the very beginning of her mining. In all centuries, economists and politicians were busy discussing the coal dilemma of their day. This dilemma has undergone a long and interesting evolution, and its constituents have varied from time to time in the different periods of history. Now Great Britain is again facing a dilemma, but one very remote from the 1865 prophecies of Jevons, whom M. André Siegfried calls the English Cassandra of his time. The difficulty is now a plethora of coal and the problem is to find a means of reducing this abundance. Jevons greatly feared a shortage.¹

How strange to-day sound the statements of this famous economist about coal, which he thought could never be too abundant! Jevons feared that coal must become expensive because of its scarcity and the possibility of its exhaustion, while recently there have been attempts to make it artificially scarce and dearer precisely on account of its plenty. What a remarkable change! According to

¹ W. Stanley Jevons. *The Coal Question*, 3rd ed., London, 1906, p. 369: ". . . the pre-eminent usefulness of iron places it beside coal and iron as a material of which there cannot be too much—which itself excites and supports population, offering it the means of constant multiplication."

the earlier view,¹ expensiveness was the result of the ultimate working of natural economic forces, according to the latter it is to come as a result of an artificial restriction scheme, stemming the excessively wide stream of coal supplies.

All these recent attempts to introduce some degree of "planned economy" into the fabric of the British coal industry have emphasized the significance of its organization. The structure of the industry comes into special prominence now, when under the marketing clauses of the Coal Mines Act, 1930, the coal-owners are not completely free to conduct their undertakings as they did in the past. This gives scope for a fuller review of the existing forms of organization, and so it must justify our attempt to produce this sketch on the architecture of the coal industry.

The long-continued coal depression, which recently developed into a crisis, has acutely accentuated some of the economic processes in the industry, which in normal times are regulated spontaneously by natural adjustments. Thus the present depression has engendered two major maladjustments: on the one hand disparity between the productive capacity and the actual demand; on the other disparity between market prices and the costs of production. These two disparities are so considerable that many people have been led to doubt whether they could be equalized by the ordinary economic processes of equilibration without artificial assistance from outside. Thus opinion directed attention to the alleged lack of co-ordination in the industry, and the problem of organization became of general importance.

In the British coal industry, perhaps more than elsewhere, one can witness a close race between the forces of

¹ In the evidence before the House of Commons Committee on Coal in 1829, various authorities opposed exports on the ground of the exhaustion of national mines. Thus, the learned Professor Sidgwick "expressed himself as not being prepared to answer the question as to the expediency of exporting coal". But Dr. Buckland of Oxford went much further against the policy of permitting the exportation of coal, which is "permitting foreigners to consume the vitals of our own posterity. I consider coals the stamina upon which the manufacturing prosperity of the country primarily depends, and I think it our duty not to spare one ounce of coals to any person but ourselves" (see "The History and Description of Fossil Fuel", *The Collieries and Coal Trade of Great Britain*, London, 1835, pp. 455-6).

disruption and of integration. These two streams, representing respectively individualism and organization, have always met and contended in all industrial economic activity connected with coal mining. The first of these principles finds its explanation in the policy of the maximization of profits, in the desire to produce the largest tonnage at the highest possible rate of capacity of the mines, in the tendency towards the reduction of costs. The second aims at bringing some degree of economic equalization, at the widest distribution of risk, higher prices of produce leading to higher wages, indirectly at restriction of output, and finally towards mutual assistance in achieving ends common to all.

Here we may point out that in the coal industry the technically optimum size of the producing unit alters as time goes on. Each unit exists first of all in itself, possessing its own individual economic features, ends, and environment, and it enters into larger groups as a member, only when in community it can better satisfy its needs. Thus each colliery undertaking becomes first a part of a large combine, next a participant in its district organization, then probably a member of the area association, and finally it takes its part in national organization. Each of these stages is looser and wider in its scope than the previous one; again we encounter the warring ideas of disruption and integration. Thus one combine competes with another, one district undercuts another's prices, one area contends with another. Carrying this idea further, the same two tendencies of organization are observable even between one country and another. In Great Britain the centrifugal tendency was always strong on account of the very uneven conditions in which her mining was carried on. But the propensity towards integration was well defined and the coal-owners have always met many of their common problems collectively. Moreover the importance of organization was ardently stressed by the labour employed in the British coal industry.

At all times in its past history the forms of organization in the British coal industry were strictly bound up with

its economic development. Economic considerations constituted the origin of the actual organization, which was evolved naturally and spontaneously by otherwise independent contractors. This endogenous activity of the coal-owners was the best guarantee that all partners would reap benefits from organization in conformity with economic laws. To put this in economic terms, the factors of production were free to distribute themselves throughout the coal industry so as to yield the maximum total net product. In such an organization there was no room for coercion from outside, and political forces foreign to the industry were not allowed to perform vivisection on the organism of the coal industry. After the War, however, when the coal depression became prominent and coal ceased to sell itself, as it had done previously, political pressure began gradually to interfere with economic theory. The time was propitious for schemes of reorganization of the British coal industry. "Every decade produces new students of the coal problem, with a panacea, which to them is new but which to the industry is old,"¹ said Mr. Raynes, and in no one period was this observation more true than in the post-War era, when the industry, in addition to economic difficulties, was continually troubled with political interference and threatened with State intervention. The well-established truth that whenever economics was in opposition to politics the latter always hampered natural progress, could not find a better example than in the British coal industry. Political reorganization proved always to be either a complete failure whenever it was divorced from actual reality or harmful in the long run to the welfare of the industry.

It was freely said after the War that economic forces had ceased to operate, and economics had no connection with reality. The coal industry provides the best example for the repudiation of these fallacies, most of which are simply based on inadequate analysis, or insufficient knowledge of data. In no industry has it been more clearly shown that any attempt to interfere with the normal processes

¹ J. R. Raynes, *Coal and Its Conflict*, London, 1928.

INTRODUCTION

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are completely futile. Interference leads only to still further interference which either frustrates the effect of the first laws, or brings the industry further into confusion.

In this study we attempt to show on the one hand the existing organization of the coal industry in Britain in conjunction with the economic forces working behind the industry, and on the other hand we show the influence of political, authoritarian thought on its present structure. After dealing in Part I with the economic factor, we proceed in Part II to stress the significance and extent of the political factor, including a special chapter on the attitudes of the leading political parties on the coal problem.

Finally, in Part III we investigate the clash between the two aspects of organization and evaluate the recent structure of the British coal industry under the Coal Mines Act, 1930.

LONDON,
November, 1933.

APPENDICES

APPENDIX A

HISTORICAL REVIEW OF THE COAL INDUSTRY SINCE THE WAR

This section is not essential to the main argument of the book, nor does it bear directly on the economic aspect of reorganization as we are discussing it here. But it was felt that a brief recapitulation of the history of the coal industry since the War would help the reader to connect the forces at work with the actual events of the past fourteen years.

Year 1919. The industry was working under State control, and prices for home consumers, as well as those quoted for France, Belgium, and Italy, remained under the restriction of maximum schedules. Both costs of production and prices soared high, export prices being particularly excessive. The whole world was badly in need of coal and had to pay whatever price asked. During this period exports increased by nearly 8 million tons compared with 1918, while home demand was 4 million tons less. Coal production was on the whole below the demand and coal consumers had to compete for coal supplies at rising prices. At the same time, however, the cost of living indices were quickly moving upwards. The miners demanded substantial increase of wages, and in February they threatened to go on strike. The miners also demanded an increase in the reinstatement from the Army of demobilized miners, the introduction of a six hour working day instead of the existing eight hour day in order to make room for the demobilized, and finally the nationalization of mines and minerals. In order to avoid labour troubles in such time of general disorganization in the industry, Parliament passed a Bill setting up a Coal Industry Commission, under the Chairmanship of Mr. Justice Sankey (now Lord Sankey). This Commission, which was the central event in the coal industry for years to come, was composed of thirteen members (including the Chairman), representing the miners, the owners, and the employers. After two weeks work, they issued three interim reports—a Chairman's Report, a Labour Report, and a Coal-owners' Report. The Chairman's

Report, which reconciled the extremes of the other two Reports, advocated the introduction of a seven hour shift, and some increase in wages of all classes of miners. After the issue of the Report the danger of a strike was temporarily averted, and the Government introduced a Bill reducing the time of work to seven hours. During spring the Commission again began to hear evidence on the reorganization of the industry. There was much talk of nationalization and unification of mines, and elaborate proposals were laid before the Commission recommending drastic changes in administration of the industry. On the 23rd June four final reports were issued, none of which constituted the views of the majority of the Commission ; three of them were in favour of different forms of nationalization, the fourth recommended only the establishment of a Government Mines Department, but rejected all compulsory reorganization. So the recommendations pointed in several directions, while the Commission itself proved to be a very useful buffer between divergent opinions. The nationalization controversy was widely ventilated and received greater publicity than ever before. This was especially due to the " Mines for the Nation " campaign, inaugurated at the end of the year by the miners. The second half of the year was less rich in events owing to the still greater demand of the market and the rising prospects of prosperity. The only important event was a wage dispute in Yorkshire, which led to a three weeks' strike.

The Year 1920 was one of those years when the coal industry of this country had no necessity to look for consumers. It was a year of unprecedented coal hunger, probably on a scale unknown in the annals of coal history. Both at home and in the export section coal was in permanent demand. At all British ports ships were waiting in queues for their turn to coal. All countries looked to Britain to provide supplies. Europe yearned for coal. Many of the chief European basins were producing at a reduced rate or had been destroyed by the War. French and Belgian collieries were still in process of reconstruction. The Upper Silesian coal-field was disorganized owing to the uncertainty of the future of that country, which then strongly desired to be united with Poland. In Milan, Signor Luzatti wrote on 9th March desperately asking for coal : " Italy looks at present to England alone for the greater part of that coal supply of which she is in dreadful need, and England should not refuse it, not only for the sake of old friendship and alliance in

the war, but also in order to enable Italy to pay her debts. . . . We know the difficulties of the coal industry in England, but they should not bar the possibility of devising a scheme for supplying Italy with 100,000 tons monthly and giving her some help in her urgent economic reconstruction."

But England herself was in bad need of coal, not being able, in spite of all pressure, to increase her output above the level of the preceding year. Hence the foreigners had to satisfy their requirements with a restricted supply, which was, in fact, about $7\frac{1}{2}$ million tons smaller than in 1919, this corresponding exactly to the increased consumption at home. As the prices of coal for export were not restricted they soared very high, in some cases reaching over ten times the pre-war quotations, which, even allowing for the depreciation of the pound, meant a six-fold rise in terms of gold. Home prices, being under strict control, did not soar to such an extent. Under the Coal Mines Control Agreement (Confirmation) Act, 1918, and the Coal Mines (Emergency) Act, 1919, all profits were pooled and divided between the districts, and the State was obliged to make up all losses. In such circumstances the miners were sagaciously demanding that the prices should be reduced, arguing that would lead to a general reduction of prices and consequently in the cost of living. At the same time they continued the "Mines for the Nation" campaign, which they desired to enforce by means of direct action with the help of the Trades Unions. The latter, however, declined to lend their support to violent action. When political aims failed, the miners began to press for an increase of wages. Special pressure came from exporting districts, where prices and profits soared. The Welsh miners, with their motto "Let's share the Swag," demanded participation in the profits.

The whole of the year 1920 is one of permanent demand for higher wages, threats, strikes, rising prices, and rising costs. The miners went from strength to strength in putting forward their demands; but in the quickly changing conditions they could not press both for higher wages and nationalization, hence we can perceive waves of political demands, which soon give way to economic demands.¹ The wise policy noticeable at the beginning of the year to oppose any rise in the price of coal soon gave way to the demand for an increase in wages. In practice, all increases demanded were granted. In November, the granting of the last

¹ For details see G. D. H. Cole, *Labour in the Coal-mining Industry (1914-1921)*, Oxford, 1923, p. 120, and *The Times*, 13th March, 1920.

rise after a short strike was specially important, since it created a scale combining the increases with an additional premium depending on the tonnage of the total national output.

In the field of organization certain important changes took place during this year. The Mining Association of Great Britain, the redrepresentative body of the coal-owners, was changed into a Federation of district associations, so that henceforward individual owners could not become members as before. The ceaseless demand by the miners for public ownership and joint control led the Government to make them certain offers in the field of organization, but anything short of nationalization was not acceptable. In August, the Mining Industry Act, 1920, was passed, creating, in Part I, a Mines Department attached to the Board of Trade. Part II was intended to give some form of joint control in management of the industry by creating Joint Pit Committees, Joint District Committees, Area Boards, and the Joint National Board, but the miners boycotted this part of the Act. Part III, among other provisions, instituted a levy of 1*d.* per ton on output, which was to build up a Miners' Welfare Fund. The year finished with renewed demands for effective joint control and for a National Wages Board.

The chief event *in* 1921 was a sudden cessation of State control on 1st April, and the return of the normal reign of private ownership. This sudden decontrol came in tragic commercial conditions, and for some time threw the industry into turmoil. Already, from the beginning of the year, it had become obvious that the hunger for coal was satiated and that the short spell of industrial activity was giving way to depression. Both at home and abroad the demand greatly decreased. The home consumption figures showed a much greater fall, probably due to the fact that British export was previously restricted and unable to satisfy all the demand abroad, which had, in consequence, attracted large consignments of U.S. coal to Europe. Prices fell rapidly, especially the uncontrolled quotations for export, and debit balances appeared throughout the whole industry, with the result that the Government had to pay out of the Exchequer a sum of approximately £34,000,000 to make good the losses and guaranteed profits. With the end of State control the owners had now again to become responsible for the whole management and to face the economic realities of the moment. Thus it became quite obvious that drastic reduction of costs was essential and, in the first place, that

high wages would have to come down. The miners, reinforced now by the so-called Triple Alliance with the railwaymen and transport workers, passed from the offensive attitude of 1920 to the defensive, protecting first their wages and the principle of national wage regulation. With the ebbing tide of prosperity in the industry, the owners announced a reduction of wages from 1st of April, which was followed by a severe and prolonged stoppage lasting through the whole June quarter. During the negotiations the miners aimed at the principle of enforcing National regulation of wages and a National pool, by which richer mines and more prosperous districts would subsidize the less prosperous. This, however, was not accepted by the owners. After protracted negotiations the Government offered a subsidy of £10,000,000, and an agreement was finally reached. National and District Wages Boards were to be established and all the proceeds of the industry were to be divided on district bases between labour and capital in an agreed proportion, with the provision that wages should never fall below a minimum, which was fixed as equal to a standard wage in each district plus 20 per cent. The proceeds of the industry had to be ascertained in each district by accountants appointed by the owners and miners. The agreement was to last to the end of September, 1922.

This new agreement, though it preserved the principle of regulating wages which existed before the War, nevertheless introduced the novelty of general division of all proceeds between labour and capital in a proportion adopted for the whole country.

In the September quarter immediately following the stoppage, the reduction of wages was not much felt by the miners, owing to the State subsidy, but in the last quarter the actual reductions were severe. The average earnings in the quarter ending March, 1921, were £58 per man, in the September quarter they amounted to £48, while in the December quarter they fell to £28. Equally drastic were the reductions in employment, especially in view of the fact that during 1920 the number of miners was rising quickly, reaching in January, 1921, the figure of 1,224,000. This figure was in the course of one year reduced to about 1,045,000.

The Year 1922 can be called a year of consolidation of the industry. It was the first "normal" year since the return of the mines to private administration. New colliery developments took place on a wide scale and the reconstruction of the industry

for the first time since the War¹ became visible, especially in the exporting divisions of the Midlands and in Kent. Output per man was rising.

In the first half of the year production was slack, but towards the end demand substantially increased and good profits were reaped. The industry was again reviving and full of hopes. Export was greatly stimulated by a coal stoppage in the U.S.A. which lasted nearly four months and allowed Britain to make up some of her lost markets. For the first time 4,000,000 tons of British coal went to Canada and Central America. Exports reached the high figure of 87,000,000 tons, which compares favourably with pre-War shipments. Home demand for coal, though greater than in 1921, was not very large however, remaining at 162,000,000 tons. *Pari passu* with the improvement of trade towards the end of the year unemployment decreased by 68,000 men, i.e. from 10·4 per cent in January to 4·6 per cent in December, while the average figures for all trades were 16·2 per cent and 12·2 per cent, respectively. In September the wage agreement was tacitly prolonged for another year.

In 1923, as in the previous year, the chief feature in the situation was an excellent demand from foreign countries, caused by the occupation of the Ruhr coalfield by the Allies and the consequent stoppage in that district, which cut out practically 70 per cent of its normal production. British exports, including bunkers, rose to 104,500,000 tons, constituting a record never attained before, while the country's total output of 276,000,000 tons had only been surpassed on one occasion, in 1913, when it had reached 287,000,000 tons. Home consumption, however, did not display such a brisk improvement as the foreign section, but it was considerably better than in the previous two years. The prices, which had been falling all the time, now began to go up, chiefly in the exporting areas. The industry earned a total net profit of about £27,500,000. Average profit per ton for the year amounted to 2s. 2d., but wages did not rise more than 1d. per ton, owing to the working of minimum scales in 1922 which had then the effect of bolstering up wages above the ratio of division between profits and wages adopted in the agreement of 1921. But as more shifts were worked, the yearly earnings were actually £9 higher than in 1922. Taking the individual districts, some were working at minimum scales, and some showed substantial

¹ For details see the Second Annual Report of the Secretary for Mines, and the Annual Report of H.M. Chief Inspector of Mines.

increase in wages per shift (Scotland 1s. per shift, South Wales 4d. per shift, Northumberland 1s. 3d., Durham 10d. per shift). The Midlands paid about 10d. per shift less than in 1924. Prosperous undertakings in the exporting districts carried out extensive development works and sinkings and the Mines (Working Facilities and Support) Act, 1923, gave large privileges to the owners for developing their mines. Of the two parts of the Act, Part I is by far the more important. Its aim is to overcome certain difficulties in the working of minerals which cannot be arranged privately with the Royalty owners. Part II amended an old Act of 1845 dealing with minerals under or near railways.

The Year 1924 is a transition period from excellent market conditions to a position considerably more difficult. During the first five months of the year, the prosperity which prevailed during the whole of the preceding year continued. Weekly output substantially exceeded 5,500,000 tons, reaching nearly 6,000,000 tons in April. Home and export prices were rising. This high pitch of production was due not only to the continued demand of foreign countries, but also to the increasing needs of home consumption, which for the whole year absorbed nearly 12,000,000 tons more than in 1923. This growing home demand produced a rise in the proceeds of those areas producing for home use; but the output of exporting districts in the later part of the year decreased very substantially. There was no external event to assist the exporting section, like the American coal strike in 1922, or the occupation of the Ruhr area in 1923. On the contrary, all competing districts started to work with increasing regularity and to intensify their sales. Hence the whole balance rested now more on home demand than on foreign exports. This situation remains practically the same to-day. In spite, however, of the great fall in foreign demand, which amounted to nearly 12,000,000 tons, thanks to the improved demand for industrial, transport, and all other internal uses, the total output did not fall by more than 8,500,000 tons. Improving demand for home consumption gave a fillip to fresh developments in the home areas, chiefly in South and East Yorkshire and in Kent, but in South Wales, Scotland, and the North-East Coast important schemes were also carried out.

In the second half of the year, both home and export prices were on the downward trend, and profits were greatly reduced. For the whole year profits went down to 3d. per ton, as against 2s. 11d. for the previous year. In many districts losses were

recorded. These losses were not only due to falling revenue, but also to greater costs, since the miners, who wanted to have a larger share in the proceeds, succeeded in enforcing better terms for themselves in the new wage agreement which became effective from May. This new agreement was preceded by the Report of a Court of Inquiry on the Question of Wages, under the chairmanship of Lord Buckmaster. After a short investigation the Report recommended a speedy resumption of negotiations between owners and miners. These negotiations gave to the miners a greater minimum wage and a larger share in the proceeds than before. As a result of these advances the minimum wage rates went up to approximately 10 per cent above the 1921 level. Unfortunately this advance in wages synchronized with the turn of the prosperity tide, and occurred indeed when the most difficult period was about to come. With increased cost of labour and with a reduced working day the industry had now to strive against the coming hardships.

The year 1925 was a year of grave events in the industry. It was perhaps, together with 1928, the most difficult year since the War. While in the previous year there had already been signs of falling demand and prices in the foreign market, yet home demand was well maintained owing to the good condition of industry as a whole. During this year, however, both markets were greatly depressed and prices continued to fall. The revenues of the industry were everywhere reduced, and losses were common, especially at the beginning of the year. On the whole those districts which had carried out recent development works were relatively less affected than the others. The depressed state of the industry was reflected immediately in the volume of unemployment which rose from 7·9 per cent at the end of 1924 to 25 per cent in June, 1925, when conditions were at their worst.

Important developments were also taking place in the international markets, which in the immediate future were to affect British exports. On 15th June, Germany suddenly prohibited the import of coal from Poland, who at that time had been sending about 550,000 tons monthly. This drove Polish coal north towards the Baltic, where it met and competed with British coal. We must also add the return of Britain to the gold standard during the year, which arrested to some extent conditions in the export markets, especially in France, where the franc was then depreciating. Meanwhile, the discouraging

result of the first months of 1925 led the British coal-owners¹ to realize the acuteness of the depression. June especially was a bad month, showing a mean loss of 2s. per ton.² This deplorable condition brought the owners and miners together to discover some way out of the impasse, but the joint negotiations gave no result; the miners rejected the proposal for longer hours and for the discontinuation of minimum district percentages. In such critical conditions the Government appointed a Court of Inquiry,³ under the chairmanship of the Right Hon. H. P. Macmillan, whose report however failed to give any solution of the deadlock. In view of imminent labour difficulties the Government decided to grant a nine months' subsidy to the industry which would make it possible for the minimum wages to be continued, and which allowed for small profits⁴ up to the maximum of 1s. 3d. per ton in each district. Meanwhile a Royal Commission was set up to investigate the whole economic position of the Coal Industry and report before the end of April, i.e. when the subsidy expired. The Royal Commission was composed of four members, all outside the coal industry, under the chairmanship of Sir Herbert Samuel. By the end of the year the Mining Industry (Welfare Fund) Act, 1925, was carried through, providing for the continuation of the Miners' Welfare Fund for a further period of five years.

Owing to the depressed state of the industry there was no important event during the year in the field of technical development. The direct result of State assistance was a very bad one, since pits which were closed owing to losses were re-opened again, and some 44,000 men were added to the colliery books. The subsidy created an artificial reduction of wage costs which in fact was not effected.

The Year 1926 was abnormal, not only for the British but for the whole world's coal industry, owing to the consequences of the great British stoppage in the last two quarters. Only the first four months of the year and the last three weeks can be considered as normal; during the rest of the year the industry was in a state of turmoil. During the period of the subsidy,

¹ During the June quarter the owners were losing, on the average, 1s. per ton. The exporting districts were considerably worse off than that.

² *Vide* Cmd. 2478, Report of Enquiry concerning the Coal Mining Industry Dispute, 1925.

³ Court appointed under Industrial Courts Act.

⁴ The profits were paid on the average district basis, and did not allow each individual marginal colliery to make profits. Thus the principle of district average was maintained.

which lasted to the 1st May, production was on the level of the previous year, i.e. about 22,000,000 tons monthly, and owing to the subsidies the industry could show, on the average, a profit of more than 9*d.* per ton, in spite of the slightly downward trend of prices. Employment actually increased up to that date by about 25,000 wage earners. During the pre-stoppage period, there was a slight improvement in the output per man-shift of about $\frac{1}{2}$ cwt., and costs of production fell by 6*d.* per ton. The fall in prices was greater than that, and affected chiefly the profits of exporting districts, which actually absorbed £16,000,000 out of the total subsidy of £23,000,000. So much for the first part of the year.

The second period, which revolutionized the whole nation's industrial life and had consequences in all spheres of world economic life, started with the publication on 10th March of the Report of the Royal Commission on the Coal Industry. The Commission, which had been sitting continuously since August, 1925, and had heard evidence from all possible parties, had before them the difficult choice between a drastic reconstruction of the industry along the lines proposed by the miners, leading eventually to nationalization, or a reduction of costs along more conservative lines. The Report took the middle course, and while recommending preliminary changes in the structure of the industry, such as the nationalization of royalties, the hastening of amalgamation, some steps toward co-operative selling agencies, the establishment of profit-sharing schemes and Joint Pit Committees, it retained the chief outlines of the existing organization. But all the recommendations referred to long period reconstruction, which would take months and years to carry through; and they did not solve the burning, imminent problem of costs of production after the period of subsidy came to an end. So, though it was a document of value, particularly as a mine of information about the industry, it did not succeed in smoothing out the accumulating difficulties, nor did it provide any way of averting the coming storm. Even the promise of a further Government subsidy did not induce the owners and miners to come to a permanent settlement. The great and thorny problem of adjustment of costs of production to the possibilities of the market was destined not to be solved by peaceful methods. The gap was too wide to bridge by concessions. Matters of principle were involved; the most important being national versus district regulation of wages. After painstaking negotiations and mediation by the Government,

no settlement had been reached, and on 4th May the General Strike began and lasted eight days; the miners, however, remained out of work until December. We shall not describe the well-known and tragic developments during the stoppage. We may only add that it finished with the complete loss and surrender of the miners. Gradually more and more miners returned to work, accepting the terms on a district basis, with the result that by the end of the year nearly 950,000 were back in employment and about 90 per cent of the industry, covering the larger basins, had concluded district agreements. These agreements contained an extension of the working day ranging from $\frac{1}{2}$ to 1 hour and a reduction of all wage contracts. Such an extension of hours was made permissible by the Coal Mines Act, 1926, which was passed in July.

While the main struggle over immediate reduction of the cost of production was left to the owners and miners, the Government decided nevertheless to give effect to some of the recommendations of the Samuel Report. In July they appointed a Departmental Committee headed by Sir Frederick W. Lewis, to study the practicability of developing co-operative selling in the industry. The Committee issued in December two reports. The majority report recommended the establishment of co-operative selling and the application of very moderate pressure on dissenting owners, while the minority report was opposed definitely to the whole principle. The recommendations of the Samuel Commission on amalgamations were carried through in the Mining Industry Act, 1926, which received the Royal Assent on the 4th of August. The Act was divided into six parts. Part I was the most important—its aim was to facilitate the amalgamation or absorption of undertakings in spite of objecting parties. Part II amended the existing provisions facilitating the working of mineral rights. Part III imposed a levy on the royalty owners. The money was to be spent on pit-head baths in connection with the Welfare Fund. Part IV regulated certain questions connected with recruitment of new miners. The remaining two parts dealt with minor matters, *inter alia*, with permissive profit-sharing schemes and with joint committees at pits. Towards the end of the year the industry resumed its normal working on new principles. Thus the tragic conflict was settled with great losses to the miners, the owners, and the whole nation. During 1926 it had been necessary to import 20,000,000 tons of coal and 1,000,000 tons of coke and manufactured fuel. Most of the districts made arrangements on the basis of an eight

hours' working day; only Yorkshire, Nottinghamshire, Derbyshire, and Kent agreed on a $7\frac{1}{2}$ hour basis, whilst the North-east coast introduced $7\frac{1}{2}$ for hewers only. Wages had been reduced in most districts.

In the first part of 1927 the industry was healing its wounds after the longest and most acute stoppage in its history. The depleted stocks required replenishing and this alone provided a good demand at the beginning of the year. This demand secured to the industry during the first quarter a mean profit of over 1s. per ton. But when the first rush for coal was satisfied, it soon became clear that trade was not as easy as it looked in the first quarter, and that prices could not be maintained. This was especially true of the export section, as ominous congestion of coal was apparent in many markets. New competitors appeared. Polish and German coal was competing against British coal, whilst the notorious import restrictions to protect native coal industries had already begun in France and Spain. Prices were falling all the year, both at home and still more abroad. Not having any subsidy to rely on, the industry had to bear the heavy losses which occurred during the last three quarters of the year itself. Quantitatively the results were not as bad as they appeared from a survey of profits. Output amounted to 251,000,000 tons, which was about 8,000,000 more than in 1925. Exports were on the level of 1925, while home demand rose by 10,000,000 tons, which actually exceeded the average of 1909-1913.

The lengthening of the working day, however, with consequent rise of output per man-shift, as well as the slackening of trade in the second half of the year, caused a reduction of employment by nearly 62,000 workers. Some 500 pits, chiefly of exporting districts, were closed down and one-fifth of the men employed in those districts prior to the stoppage in 1926 were now out of work. Of all the exporting areas, the Humber ports displayed the greatest fall. Wages, which were regulated now on a district basis, had been arranged on similar principles to the agreement of 1921, but reductions were effected everywhere. The heavy debit balances, which in the last quarter surpassed 1s. for the whole country, drove the owners to take steps towards co-operative action designed to stem the tide of losses. The result of these only became apparent early in the next year, but they originated from 1927 conditions. For the advancement of new organization in the industry the schemes

in South Wales, Scotland, and in the Midlands are of the most importance. Apart from these, a certain number of amalgamations took place in an attempt to reduce costs. During the year the industry took full advantage of the clauses of the Mining Industry Act, 1926, facilitating amalgamations and making freer the use of minerals.

With the exception of the last few months, the trade *during* 1928 was still more gloomy than in 1925 or 1927. Total output shrank to the very low level of 237,000,000 tons, i.e. 14,000,000 tons less than in the preceding year. This time the whole decrease was in the home trade; iron, steel, and other industries were chiefly responsible for this fall in demand. With the sole exceptions of Durham and Kent, all districts shared in the decrease of output. The extremely keen competition abroad and the small demand at home depressed all prices, but when comparison is made with the previous year, it must be remembered that in the first months of 1927 prices were very high and afterwards fell considerably. The fall in home prices was sharper than in exporting sections, where the volume of shipments was maintained at the previous level of 71,500,000 tons. During the year the coal industry secured further economies in costs and Durham, Northumberland, and Shropshire reduced the minimum percentage addition to basic rates of wages. A marked improvement took place in the output per man-shift amounting to 3.3 per cent more than in 1927. Regularity of work also improved, but unemployment rose by 76,000 men. Marked progress was evident in the advance of mining technique, but wages in all districts remained at the minimum level. All the year the industry worked at a loss, which for the whole country amounted to 11*d.* per ton, 5*d.* more than in 1927. Some improvement came at the end of the year and the debit balance of 1*s.* 4*d.* in the summer and autumn months was reduced to a debit of only 3*d.* per ton in winter. In order to relieve the industry of its heavy burdens the Government passed the de-rating scheme, which abolished three-quarters of the ordinary payable local rates. Moreover, a rebate of 7*d.* per ton on railway transport was granted as from 1st December, 1928. The most important changes, however, took place in the sphere of organization, where co-operative schemes for coping with the excess capacity and ensuing losses were put into operation in South Wales, the Midlands, Scotland, and in a loose form on the North-East Coast. Moreover, the amalgamation of colliery undertakings made

great strides. From August, 1926, to the end of 1928, 172 pits employing normally 126,000 workers¹ were included in amalgamation schemes.

The *Year 1929* was one of general improvement, both at home and abroad. For certain foreign nations this year brought the highest record in their yearly output.² Great Britain was not so fortunate as to beat her previous record, or even her post-War record, but nevertheless she increased her output by 20½ million tons, of which 10½ million went to home consumption and the rest to enlarge exports. This general revival of trade was partly stimulated by an excessively hard winter and partly by an intensified demand from other industries, chiefly iron and steel. On the whole, the revival of demand was much greater in the exporting sections than at home, with the result that Northumberland and Durham experienced their highest production since the war. On account of the slow trade in the cotton industry Lancashire alone was in a relatively bad position. Prices in all sections were on the upward swing. From the average of 12s. 10d. in 1928 they moved to 13s. 5d. in 1929; while the average declared prices f.o.b. for export had risen from 15s. 7d. to 16s. 2d. Employment was better than in the previous year; more than 50,000 additional workpeople were reabsorbed by the industry.

Wages in most of the districts did not display great changes in comparison with 1928, though in a few minor districts they rose above the minima. In South Wales a reduction of subsistence-wage took place as a result of an award by the independent chairman of the conciliation board. Profits were well maintained throughout the whole year, owing both to an increase in proceeds and to a general diminution of costs. For the whole country profits of 4½d. were secured. In the field of organization we must record certain events both at home and abroad. In the League of Nations' Report which followed an inquiry by the Economic Committee, an international arrangement between coal-owners was very strongly recommended, thus giving an incentive to achieve national organization. Another important international event was the Hague Agreement of August, 1929, settling the problem of German reparations, and

¹ *Vide* Report by the Board of Trade under Section 12 on the working of Part I of the Mining Industry Act, 1926, H.M. Stationery Office, 1928. Cmd. 3214.

² In France, output amounted to 66½ million tons, in Poland 45½ million, in Germany to 160½ million tons, exclusive of brown coal.

in which the Italian Government undertook to purchase during three years British coal for the State railways. Equally important events happened at home, the chief of which was the coming into power of the Labour Government, with its proposed reforms in the industry. In fact, in December, the Government introduced into Parliament the famous Coal Mines Bill, 1929, which was only to become law in July, 1930.

The co-operative marketing schemes which had their origin in 1927-8 were now developing reluctantly and displayed certain difficulties. The Scottish scheme for closing down inefficient mines was not renewed after the 31st March, 1929; the Midland scheme which succeeded in expanding the Humber exports by 54 per cent lost its partners in Lancashire and Cheshire, as these counties withheld from the scheme. South Wales modified its statute to include both the regulation of output and prices. Conversations on the centralization of all schemes were conducted, but without great progress. Yet the amalgamations proceeded further, affecting during the year sixty-one pits with 44,000 men. By the end of the year a report was published by the Standing Committee on Mineral Transport,¹ in which was recommended, among other things, a speedy introduction of wagons of not smaller capacity than 20 tons, a more efficient conveyance of coal, and the pooling of mineral wagons.

The Year 1930 marked a striking contrast to the propitious year 1929. Owing to the advance of the industrial and financial depression the demand for coal greatly diminished. All the chief exporting countries curtailed their production. British exports declined by 8.5 per cent, compared with a 12.7 per cent decline in Germany and 19 per cent in Poland. Home demand and foreign exports each declined by 7 million tons, making the total amount of coal consumed at home equal to 166½ million tons in 1930, against 173½ million tons in 1929. In the exporting districts this diminution of exports was felt relatively more strongly than in the home areas, the only exception being the first months of the year. Though the tonnage of coal fell considerably, prices on the contrary went slightly up, noticeably in the exporting sections. For the whole year this rise over the average of 1929 in coal shipped abroad amounted to 6*d.* per ton, while at home to only 2*d.* per ton. This compensation for the fall in tonnage should probably be explained by the operation of the co-operative schemes and by the price arrangement among the

¹ *Vide* Cmd. 3420, 1929.

coal-owners. A subsidy on exports payed by the Midland collieries concealed the reduction of prices, which actually had a marked downward inclination from the very high level of 17s. 2d. in January to 16s. 4d. in December. Generally the fall of prices was greater in coal exported from the Eastern ports than from the South and West, owing to the keen determination of cheap Polish coal to defend the new position acquired since 1925 in the Baltic area.

A special delegation of British coal-owners and experts, under the leadership of the Secretary for Mines visited Sweden, Norway, and Denmark to investigate the possibilities of enlarging British sales in those countries. The delegation found certain inadequacies in the methods of marketing British coal in Scandinavia, they also advised the paying of more attention to actual treatment and transportation of the coal. Moreover, they recommended the industry to come to some satisfactory agreement with other competing countries. In fact, soon afterwards, in October, the Secretary for Mines (Mr. Shinwell) held separate conversations with the delegates of the Polish and German Governments with a view to concluding some form of understanding. These conversations, were, however, only of a preliminary nature. Other important events in the international field took place at Geneva during the International Labour Conference in June, where the question of a reduction of hours by a quarter of an hour in spite of strong pressure from the delegates of the British Government was defeated by a narrow majority. Only in the following year was sufficient support found to carry it through. By the reduction of hours of work it was intended to attain two objectives; first to restrict the supply of coal, and secondly to make room for more miners in the industry. During the year the number of employees had diminished from 950,000 in the first quarter to about 890,000 in the last.

Owing to sluggish trade, wages remained at their minima throughout the whole period with a few exceptions in the first quarter, which was relatively more prosperous than the others. Some alterations were made in wages in December owing to the introduction of a uniform 7½ hours' shift for the whole country, in accordance with the Coal Mines Act, 1930. They took place in Northumberland, Durham, and South Derby, but in the last district they lasted only four weeks, up to the introduction of the "spread-over" of hours over a week. In the last month of the year important changes in time of work were effected in the majority of the districts in connection

with new legislation, which prescribed a statutory limit of $7\frac{1}{2}$ hours underground, spread-over, if desired, on a weekly basis. While most of the districts worked provisionally on the spread-over, Scottish miners refused to follow, and they went on strike for a week. In the meantime a general strike threatened, but this proposal failed to command a majority among the miners. The Miners' Federation on the suggestion of the Prime Minister raised the ban on the spread-over of hours, thus allowing the conclusion of temporary agreements on this principle in most of the districts. Wage costs in the whole period measured per ton of coal commercially disposable increased by $3\frac{1}{2}d.$, other coal by $\frac{1}{2}d.$ Small profits in nearly all districts had been secured, the country average being $4\frac{1}{2}d.$

The passing of the Coal Mines Act, 1930, which came into force on 1st August, constituted the chief event in the province of organization, not only during the year 1930, but probably during the last decade. This Act instituted a compulsory regulation of production and prices by the coal-owners; as already mentioned it reduced the time worked underground by half an hour with a permissive spread over an hour; finally it set up a National Industrial Board for wages questions and a Coal Mines Re-organization Commission entrusted with the duty of fostering the amalgamation of collieries. During the second part of the year both the Government and the coal-owners were busy setting up the bodies necessary to administer the schemes called into being by the Act, especially the Central Council and the District Boards. In the Midlands, five districts were merged together forming one Midland (Amalgamated) District Scheme, covering roughly the area of the old cartel known as the Five Counties Scheme. But the schemes did not operate until the beginning of the next year. Hence we can safely conclude that this year 1930 was free from compulsory regulation other than that coming from voluntary agreement amongst the owners. It was the last year of *laissez-faire* in the British coal industry.

During 1931 the production of British mines was the lowest on record since 1901 (excluding the years 1921 and 1926 of abnormal stoppage). The world-wide financial and industrial crisis was responsible for this position in the coal industry. Demand, falling to a very low ebb, caused a drop in production of more than $23\frac{1}{2}$ million tons from the previous year and of nearly 38 million tons from 1929. Throughout, the industry was under strict control of both output and prices. But the former

was virtually without any practical effect on the industry since during the whole period the allowed allocations were much in excess of actual output, which amounted only to 220,100,000 tons. Home demand absorbed $10\frac{1}{2}$ millions less than in 1930, exports were responsible for a relatively much higher decrease of $13\frac{1}{2}$ million tons. The fall in value of exports amounted to £12,500,000. Even the abandonment of the gold standard on 21st September did not stimulate foreign trade to any visible extent, owing to the network of restrictions operating in most of the European markets. The regulation of prices by the District Boards prevented a substantial fall, with the result that the average selling price recorded at pit decreased only by $1d.$, i.e. to $13s. 5d.$, while export prices, not subject to such a degree of control, declined by $5d.$ The greatest decline in foreign shipments was noticeable at the Humber ports, where it amounted to more than 30 per cent. Of all markets the Scandinavian and the Baltic show the greatest decline. At home the decrease in tonnage sold was due to a decline in industrial demand, chiefly from iron and steel plants.

In the second half of the year certain events operated to assist British export of coal,—The war debts moratorium,—the so-called President Hoover Moratorium,—suspended German payments in kind chiefly composed of coal exports. Further assistance came from the abandonment of the gold standard by this country, to which reference was already made; and from the passing at Geneva of the draft International Convention shortening hours all round by a quarter of an hour. All benefits which might have arisen from these measures have since been thwarted. The labour convention has not been ratified, while the import restrictions in Europe have prevented all expansion. Discussions between coal-owners of the chief producing counties took place in London towards the end of September, soon after the departure from the gold standard, when British owners expected easily to recapture the foreign markets. They, however, yielded no practical result.

During the year the state of employment in the industry deteriorated, the number of workpeople declined from 883,000 at the outset of the year to 840,000 at the end. Wages, with two small exceptions, remained at the minima agreed in the districts. Some of the districts reduced their minimum percentage additions to standard rates as the result of shorter of hours work (South Wales, Bristol, Scotland). In South Wales and Bristol stoppages occurred as a result of the reductions at the beginning of the

year. With the exception of Scotland and Durham, all districts worked with credit balances ranging from 1s. 4½*d.* in South Derby, Leicestershire, Cannock Chase, and Warwick to ¼*d.* in South Wales. The average proceeds were 3½*d.* There was very little progress during this period in the concentration of undertakings; only three amalgamations were carried through. All schemes for the regulation of production and prices worked smoothly. Except for some minor shortages of special brands of coal in the Midland area there were no great frictions. Price regulation, however, which was throughout the whole year unco-ordinated between the districts, caused a certain amount of difficulty. The maximum length of the working day—7½ hours—was maintained for another year by the Coal Mines Act, 1931, which postponed the reversion to the 7 hour day to the next year and preserved the existing minimum additions on basic rates. The Mining Industry (Welfare Fund) Act, 1931, maintained the levy of 1*d.* per ton to the Miners' Welfare Fund.

In 1932 the position was even worse than a year before. Output fell to 209 million tons, that is 10 million tons less than the year before. This was the lowest output in Great Britain during the whole twentieth century, excluding, of course, the two years of strike, 1921 and 1926. Exports also fell compared with 1931, reaching 57 million tons. This fall, however, was much less rapid than in the two previous years. These results were exceedingly bad, and were, of course, accompanied by exceedingly depressing unemployment figures. Employment averaged only about 800,000, hence unemployment among the insured workers reached about 20 per cent. The highest point recorded was in October, when it rose to 23·1 per cent. Comparing the fall in output in the exporting and in the home districts, we notice that for the first time for several years the home districts were as badly affected as those exporting. This was due to the falling industrial consumption of coal at home. Compared with other coal-producing countries, Great Britain was even in a relatively favourable position. Her exports were partly assisted for a few months by the depreciation of the £, but as the corollary to this came a further deflation abroad and other countries soon brought down their costs to competitive levels. In this brief period, whenever coal could be traded freely without quotas and restrictions, British exporters recaptured a part of their trade. Thus, in the Baltic and Scandinavian markets, British coal exports rose from 3·6

million tons in 1931 to 4·8 million in 1932. Similarly, in the same period, an increase in exports took place to U.S.A., Canada, and South America from 4·2 to 4·8 million tons. In nearly all the remaining markets greater or smaller losses must be noted, owing to the appalling state of depression, and in consequence of restrictions on imports. Total British exports actually fell by 4·5 million tons. The political dispute between this country and the Irish Free State, which imposed a duty of 5s. a ton on all British coal imported, was partly the cause of a fall in exports of $\frac{1}{2}$ million tons. About 140,000 tons of coal was supplied to Ireland from Poland and a large quantity from Germany. Export prices were, on the average, well maintained, though in the best qualities and in anthracite the quotations were downwards. The average prices of coal at pit fell by 3*d.* to 13s. 3*d.*, while the tonnage exported fell by 7·5 per cent and revenue declined by 7·8 per cent, which expressed in gold pounds shows an enormous fall. This happened in spite of the operation of the compulsory marketing schemes for the regulation of output and fixing of prices. The low prices prevented the industry from reaping high profits, proving once more the well-established maxim that coal can only be prosperous when it is sold in large quantities and relatively cheaply. Profits were secured only by the home districts, while the exporting areas went on making losses.

No important Government action took place during the whole year, except the statutory prolongation of the 7 $\frac{1}{2}$ hour working day until the ratification of the International Convention on Hours of Labour adopted at Geneva in June, 1931. Moreover, by the same Act, Part I of the Coal Mines Act, 1930, was prolonged for another period of five years. A working agreement was concluded between owners and workers, becoming for one year the *status quo ante* for wages. The Coal Mines Re-organization commission was busy framing proposals for large amalgamations of mines; by the end of the year the owners of Fifeshire, Cannock Chase, and North Wales were officially requested to submit voluntary schemes for complete amalgamation of their undertakings. A large part of the industry proved adamant to these proposals. The owners, however, formed a Coal Utilization Council to foster the uses of coal at home by propaganda and research. Spontaneous amalgamations did not increase to any significant extent. Some small progress was made in the treatment of coal for the market. During the year a Departmental Committee of Inquiry on the Miners' Welfare Fund was in session; it issued

a majority report¹ recommending a reduction of the levy on output paid to the fund to $\frac{1}{2}$ d. per ton and its continuation for twenty more years; moreover, they suggested the discontinuation of the sharp division between general and district funds.

Such a quick film of the developments in the coal industry will clarify the advancement of the organization movement with which we are dealing in this work and project sidelights on the struggle between the economic and political conceptions of re-organization.

¹ *Vide* Miners' Welfare Fund, Departmental Committee of Inquiry (1931), Report to the Secretary for Mines. Cmd. 4236, 1933.

APPENDIX B

A COAL CARTEL OF THE EIGHTEENTH AND NINETEENTH CENTURIES

Report of the Select Committee on the State of the Coal Trade,
1836, vol. xi.

The Select Committee appointed "to inquire into the State of the Coal Trade, as respects the Supply of coal to the Port of London and the adjacent counties, from the Rivers Tyne, Wear, Tees, and other places; and into the Charges added to the Price of Coal"; and to whom two Petitions, one from the County of Middlesex, and the other from the Inhabitants of Westminster, were referred; and who were empowered to Report their Opinion, together with the MINUTES of EVIDENCE taken before them, to The House;—Have examined the Matters referred to them and have agreed to the following Report:—

MINUTES OF EVIDENCE.

Tuesday, 14th June, 1836.

Members Present :

Mr. Hume	Mr. Wason
Mr. Pusey	Mr. Aaron Chapman
Mr. William Crawford	Mr. Ingham
Mr. Lambton	Major Beauclerk
Mr. Hector	Mr. Edward Curteis
Mr. Pease	Mr. Humphery

Mr. Hume in the Chair.

Robert William Brandling, Esq., called in, and examined.

- Q. 1. Chairman : Are you chairman of the committee of coal-owners at Newcastle?—I am.
- Q. 2. Are you also an owner of any collieries?—I am part owner in three collieries, two in the County of Durham, and one in the County of Northumberland.
- Q. 66. Chairman : You stated you were chairman of a meeting of coal-owners in July, 1833?—Yes.
- Q. 67. Were not resolutions come to at that meeting?—If

there was a meeting I have no doubt there were resolutions.

- Q. 68. Have you any doubt about being Chairman in July, 1833?—I cannot speak as to the time, or what the resolutions were.
- Q. 69. Look at that paper, and say if you believe those are the resolutions that were come to [handing a paper]?—I will read them.

Coal Trade Office, Newcastle-upon-Tyne, 13th July, 1833.
General Meeting of the Coal-owners, held this day, Robert William Brandling, Esquire in the Chair.

1st. Resolved, that this meeting entirely concurs, in the opinion expressed by the meeting, held at Chester-le-Street, on the 26th June last, that the prosperity of the coal trade, and consequently of this district can only be permanently secured by some equitable arrangement amongst the parties concerned, whereby the *supply should be proportioned to the demand at a fair and remunerative price*; and also in the recommendation, that a general regulation of the coal trade should be entered into, and in the principles to be adopted in apportioning the quantities to the respective collieries; viz. 1st, Powers of working and leading. 2nd, Proportion of the different sorts of coal and their respective selling prices. 3rd, Facilities of shipment.

2nd. Resolved, That an unrestricted, full and impartial reference of all matters in dispute is the only general principle upon which an equitable and permanent regulation can be carried into effect.

3rd. Resolved, That the following rules and regulations would accomplish the object in view, provided they are signed by all the collieries shipping coals from the Tyne, Wear, Tees, and the ports of Seaham, Hartley, and Blyth.

Rules

- 1st. A representative to be nominated by the proprietors of each colliery, with full power to act for that colliery, until the 31st day of December, 1834.
- 2nd. The owners of each colliery to be allowed to change their representative, upon giving notice in writing of their intention to do so.
- 3rd. That district committees be chosen by the representatives within their respective districts.
- 4th. The united committee to be composed of the local or district committees.

- 5th. The united committee to settle the quantity to be vended by the separate districts, having regard to powers of working and leading, proportion of the different sorts of coal, their respective selling prices and facilities of shipment. If any dispute should arise between the committees respecting the quantity to be allotted to a district, two referees to be appointed, one by the dissatisfied district, and the other by the united committee, and an umpire by such referees before they proceed to business, the decision of such umpire to be final.
- 6th. The district committees to settle the quantities to be vended by collieries in their respective districts, having like regard to quality, power of working, and vending, and if any party or parties should be dissatisfied, referees and an umpire to be appointed, as provided for in rule the 5th.
- 7th. The united committee to fix the monthly quantities to be vended by each district.
- 8th. The district committees to fix the monthly quantities to be vended by each colliery within that district; no colliery to exceed the quantity so given out, without the express leave obtained from the committee in writing; if any colliery, upon application, shall think itself aggrieved by the refusal of such leave, the question to be decided by referees, and an umpire to be appointed as directed in rule 5th.
- 9th. Any colliery where particular difficulties may be reasonably apprehended at particular seasons of the year, to be allowed such quantity from time to time in anticipation thereof, as the committee shall deem proper.
- 10th. That giving over-measure or over-weight, or any other mode of evading or departing from the spirit of these rules, shall be punishable by fines, which shall be fixed by the general committee, and paid monthly.
- 11th. That each party shall deposit in the hands of the chairman, a promissory note payable on demand, to the amount of £20 per 1,000 on the basis, as a security for the payment of such fines.
- 12th. This agreement to continue until the 31st day of December, 1834.

I am convinced that is a correct copy of the resolution of the meeting of which I was chairman.

- Q. 70. Were the resolutions at this meeting the basis on which the present vend is established?—They were the basis of the agreement which was prepared and executed by the parties.
- Q. 71. Was there an agreement entered into by each of the coal-owners according to those resolutions?—There was a printed agreement.
- Q. 72. Look and see if that is the nature of the agreement entered into?—I have no doubt this is a correct copy of it.

[It was handed in, and was as follows :—]

Articles of agreement made this day of , 1835, between the several persons whose names are subscribed, being owners or lessees of certain collieries within the counties of Northumberland and Durham.

- 1st. The owners or lessees of each of the undermentioned collieries, will by a written document appoint a representative with full powers to act for such colliery, and to bind the owners during the continuance of this agreement.
- 2nd. That the representative shall have such an acquaintance with the general management of the concerns, and the money transactions of the colliery he represents, as to be able at all times to state correctly the quantity of coals sold, and the price actually received for the chaldron or ton, of both round coals and small, and shall be responsible for any irregular allowance or other deduction from the price at which his coals ought to be sold, or for any other violation of either the letter or spirit of this agreement.
- 3rd. That the owners or lessees shall have the power of changing their representative, upon giving notice in writing to the chairman.
- 4th. That a committee for the Tyne, consisting of nine members (selected from the representatives), shall be appointed by lists to be sent from each colliery to act for one year, subject to re-election at the expiration of every 12 months ; but though it is desirable that the committee should consist of the number above stated, for the purpose of settling the basis for the respective ports and collieries, the committee shall nevertheless be competent to form among themselves a sub or execute one for the purpose of carrying the provisions of this agreement into effect,

- so that such committee shall not consist of less than three for the Tyne.
- 5th. That five constitute a quorum, that the votes be taken by ballot, and that the decision of the majority shall bind the parties to this agreement in all cases, except where an appeal is allowed.
 - 6th. That the parties to this agreement will adopt the existing basis for the collieries, whose quantities are now fixed, till such quantity shall have been objected to by the committee or the representatives, and finally settled by the referees, and, in settling the quantity to be allowed to any colliery, the committee or referees to be guided by the powers of working and leading proportion of the different sorts of coal, their respective selling prices and facilities of shipment. But that in estimating the powers of the respective collieries for the purpose of fixing the basis, such proportions of their respective powers as are applied to the producing of coals sold, foreign or land-sale, shall not be taken into account.
 - 7th. That impartial reference shall continue to be the great leading principle on which the arrangements of the trade must be governed, and that it must be applied to settle the quantities between the different ports or rivers, forming parties to this agreement, as well as between individual collieries.
 - 8th. That before an appeal be entertained from a river or district, a majority of the representatives of the collieries of such river or district must have declared their conviction of the propriety of it, and have made such request in writing to the united committee.
 - 9th. That the dissatisfied river or district shall name their referee, and that the united committee shall do the same, and that those two gentlemen shall name a third as umpire, previous to their entering upon the inquiry.
 - 10th. That the whole expense shall be equally divided between the appealing part and the trade at large.
 - 11th. That the referee shall have power to reduce or to augment the quantity of such appealing river or district, and such decision shall be final.
 - 12th. That the above principles which are to guide the reference in the case of rivers or districts, shall be applied to individual collieries appealing from the decision of the respective committees in the district to which they belong,

- except that it shall not be necessary for any individual colliery to obtain leave of the committee of the river to which it belongs, to make an appeal from their decision.
- 13th. That as soon as this agreement shall be signed, the rivers and districts shall be at liberty to appeal to the present united committee, but in case no appeal is made previous to the commencement of 1836, that then no change of basis as between the rivers or districts shall take place, except at the commencement of each year, and then only in case the river or district shall have given four months' notice to the then existing united committee of their intention to make such appeal.
- 14th. That in the case of individual collieries, they shall be at liberty to appeal also as soon as the agreement shall have been signed; but in case no appeal is made previous to the commencement of 1836, then no change of basis shall be made except at the termination of any six months, and then only on the representative of such colliery giving three months' notice previous to the 1st day of January and the 1st day of July in any year to the respective committees of his intention to make appeal.
- 15th. That the decision of the referees shall take effect in the case of rivers or districts from the commencement of the year, in the case of individual collieries from the commencement of the six months succeeding the period when he shall have given such notice.
- 16th. That the committee or referees shall have power to summon the parties to this agreement, or their agents, to answer any interrogatories, and to produce any documents necessary to enable them to give full effect to this agreement, but such power not to justify calling for the private accounts of the colliery.
- 17th. That the parties so summoned shall, for non-attendance or refusal to answer or produce such documents, forfeit £20 to be returned only in cases where on appeal to a general meeting of representatives the majority shall decide in favour of the party appealing, the Committee at such meeting not to vote upon the appeal against their decision; the votes at such meeting to be taken by ballot.
- 18th. That the relative prices of every description of coal be fixed by the committee and the representatives of each colliery, subject to an appeal to referees.

- 19th. That no colliery, without leave of the committee, shall vary the fixed price agreed on between such colliery and the committee as the selling price of that colliery, under a penalty of 5s. for every chaldron so sold, subject to an appeal to referees in case of dispute.
- 20th. The committee in concert with the committee of the Wear and Tees, and the other parties to this agreement, shall make such issues of round coal from time to time, as may be necessary to meet the demand.
- 21st. Any colliery where particular difficulties of shipment may be reasonably apprehended at particular seasons of the year, or other causes, may be allowed such quantity, from time to time, in anticipation thereof, as the committee shall deem proper; and colliery thinking itself aggrieved by the refusal of such leave, the claim to be decided by reference.
- 22nd. All coal to be sold by weight, either by the ton of 20 cwt. or the chaldron of 53 cwt.; any colliery found by the inspector giving over-weight to be fined 2s. 6d. for each and every cwt. of excess on an average of 10 wagons; every colliery to have a weighing machine, in proper order, in a convenient situation, under a penalty of £20.
- 23rd. Any colliery exceeding the issue beyond 100 chaldrons, or 2 per cent. upon the basis, to finish a ship, shall forfeit for every chaldron so exceeding 5s., and such excess shall also be deducted from the issue to the colliery for the next month.
- 24th. That each party shall deposit, in the hands of trustees, a promissory note, payable on demand, to the amount of £20 per 1,000 on its respective basis, as a security for the payment of fines and the general performance of this agreement, the committee to fix the amount of fines in every case not specially provided for; the trustees to consist of the chairman and the committee.
- 25th. That the inspectors of the Tyne, Wear, and Tees shall, as often as the committee of either river may deem it expedient, examine together the measure of all the collieries of the different ports comprehended under this agreement, that the weight per chaldron may be kept moderate and uniform, as provided in rule 22nd.
- 26th. No freighting or upholding freights or prices to be permitted with permission from the committee of the river or district in which the respective collieries are

- situated under a penalty of 5s. per chaldron on the quantity of coals so vended, subject to reference.
- 27th. That all the parties to this agreement shall strictly adhere to such regulations as to the sale of coals in London by the coal-factors as the united committees shall, from time to time, agree upon.
- 28th. That if, at any time, during the continuance of this agreement, the united committees shall deem it expedient for any temporary purpose to grant an additional issue of coals to the markets upon the coast, they shall have power to do so under such modifications and upon such terms as they may consider expedient.
- 29th. That it be imperative on the committee to enforce the penalties incurred under this agreement, and collect the same once a month, and pay the same to the Newcastle secretary for the general purpose of the trade.
- 30th. This agreement to commence on the 30th day of January, 1836, and to continue from year to year, during the pleasure of the parties hereto, any of whom may withdraw, on giving six months' notice, in writing, to the united committee previous to the end of any year after the first year, and thus terminate this agreement.
- 31st. If circumstances should arise to render it expedient that this agreement should terminate otherwise than before provided for, and that, at a meeting of representatives of the three rivers, and the other parties to this agreement, called for that purpose, four-fifths of the parties hereto shall so think it expedient, then this agreement shall terminate.
- 32nd. No party to be bound by signing these rules until they shall have been agreed to and signed by the proprietors of every colliery upon the Tyne, and until the coal-owners of the Wear, Seaham, Tees, Hartley, Cowpen, and Netherton, shall have signified their willingness to act in concert with the Tyne committee upon the general principles of this agreement.
- 33rd. That in case any difference of opinion should arise between the respective committees, or any individual coal-owner and the committee of the district to which he belongs, upon the construction of any of the above articles, or upon any other point not herein provided for, that the same shall be submitted to reference.

APPENDIX C

RISE OF STATE INTERFERENCE IN THE COAL INDUSTRY BEFORE THE WAR

It is a common fallacy that State interference in the British Coal Industry is only a very recent product. This is only true of direct intervention, indirect interference dates back very far. We shall trace in this Appendix some of the phases of the development of Government activity and the gradual rise of interference, actually by peeping into retrospect and by gleaningsome facts from the long history of the coal industry.

The first dealings between the Government and the coal-mining industry concerned two points—the *price* policy of the industry and the *taxations*, and other payments made to the Crown for privileges permitting the imposition of special monopolistic prices. We shall deal with financial relations between the State and the industry first.

The earliest known licence to dig coal was given by King Henry III to the good men of Newcastle in 1234 for a fee-farm rent of £100 per annum.¹ In 1404 a Society of Hoastmen was established in Newcastle by the 5th Statute of King Henry IV to provide for and entertain "merchants and alliens". During the reign of King Henry V, Parliament granted to him in 1422 as a custom 2*d.* per chaldron produced by the corporation.

¹ Robert Edington refers to this licence in the following words: "King Henry III being earnestly supplicated by the good men of Newcastle to confirm King John's Charters, this was done upon the 2nd day of July, in the year of our Lord 1234. King Henry did not enlarge their jurisdictions, but granted them the charter in the very same words as King John has his charter. King Henry III, by his letters patent under the great seal of England dated at Westminster the 1st day of December in the 23rd year of his reign upon the good men of Newcastle's supplication, thought fit to give them licence to dig coals and stones in the common soil of that town, without the walls thereof, in the place called the Frith, and from thence to draw and convert them to their own profit, in aid of their fee-farm rent of £100 per annum, and the same as often as it shall seem good unto them, the same to endure during his pleasure; which said letters patent were granted upon payment of 20*s.* into the hamper. Nothing more was given, neither lands, etc., but only to work the coals during pleasure for their own use." (Robert Edington, *A Treatise on the Coal Trade with Strictures on its Abuses and Hints for Amelioration, etc.*, London, 1814, p. 5.)

But the Hoastmen were long in arrear and did not pay any duty. Only during the reign of Queen Elizabeth were the payments again resumed,¹ when in 1600 the Fraternity of Hoastmen obtained the great monopoly of coal trade against an increased payment of 12*d.* per chaldron.

During the reign of Charles I, who was notoriously in need of money and was looking continuously for fresh sources of revenue, new corporations of free-hoastmen and monopolies of coal trade were established in 1638 and 1639.² Against these monopolies the Commons raised a very strong diatribe. In 1641 a committee of the House of Commons presented to the King a "Common's Petition and Their Declaration of the State of the Kingdom". The remonstrance contained an emphatic

¹ In 1600 Queen Elizabeth granted a monopoly of selling coal to a Society of Hoastmen in Newcastle. This monopoly was granted by the Queen to William Jennison the elder, and forty-four persons belonging to an ancient fraternity known as the Governor and Stewards and Brethren of the Fraternity of Hoastmen, "and by that name to have a perpetual succession, to purchase receive and hold land and tenements, and to make and use a seal of the Fraternity, and to hold and enjoy all such liberties, privileges, etc., concerning the loading, unloading, shipping or unshipping of stone-coal, pit-coal, grinstone, milstones and whetstones, in or out of any ships and vessels within the river and port of Tyne." (Hylton B. Dale, *Coal and the London Coal Trade*, London.)

Edington described the conditions in which the Hoastman's monopoly was granted: "Queen Elizabeth requires the great arrear of 2*d.* per chaldron, which was granted to King Henry V, as custom, by the Parliament, as appears by that statute, Chap. 10, the 9th year, which was neglected to be paid unto the Crown, by the mayor and burgesses for many years together, insomuch that they were not able to pay the same, but humbly beseeched those arrears may be forgiven by reason of their inability: and to grant them a Charter to incorporate a new fraternity or brotherhood, to be called Free-hostmen, for the selling and vending of all coals to shipping; and in consideration thereof, they would pay to Her Majesty and her successors 12*d.* for every chaldron exported from thenceforth to the free people of this nation."

"The Queen, conceiving that 12*d.* upon every chaldron would be better for the future, and being well paid, would be raised to a greater revenue than the 2*d.* so long in arrear could produce, this was granted, on the condition specified in the grant remaining in the Exchequer, with many seals to it, that they should sell all coals to masters of ships. At this day the fitters reckon with the masters for 11*s.* a chaldron, for so many as are conceived to be on board the ship, and when he goeth with the master to reckon, the said masters pay the 1*s.* per chaldron custom, being allowed in his hand, the master conceives he doth not pay it further than being left in his hand by the fitter; but if the masters will look upon that lease, they will find they are to have the best coals for 10*s.* and the worse for 9*s.* the chaldron at most, and now they pay 11*s.* by which means the 1*s.* per chaldron is paid by the master and not by the hostmen, and so falls upon the whole nation's back; for if the master buy dear, he must needs sell dear." (Robert Edington, *op. cit.*, pp. 10-11.)

² Consult J. V. Nef, *The Rise of the British Coal Industry*, London, 1932, vol. ii, chap. iv (i), pp. 267-284.

condemnation of diverse monopolies, including, of course, coal.¹ After the execution of Charles I, the system of monopolies gave way to the rise of a series of taxes, which were often imposed upon the coal trade. Whenever funds were needed for some special national purpose coal was the surest source to get revenues. An early Act of 1651 imposed a duty on coals to meet the expenses connected with the building of war-ships.² A few years later a special levy on sea-borne coal greatly assisted the reconstruction of the City of London, destroyed by the Great Fire.³ On various occasions coal duties reappeared in the history of the coal trade. As Mr. Hawkes justly noted in the preface to the *Catalogue of Early Mining Literature*, "New churches are required: coal dues are increased; war funds are needed: coal dues go up again; and so it went on till in 1793 it is stated that the duty on coals at London is upwards of one hundred per cent. of the prime cost."⁴

All these special taxes, however, dating back to 1379,⁵ were far from being systematic or permanent—they appeared when special needs arose, and they were withdrawn when the necessity vanished. These duties latterly took two forms: the duty imposed on sea-borne coal and the export tax. Export taxes were imposed twice on the industry, operating from the beginning of the nineteenth century till August, 1850, when they were finally repealed, and for six years in the twentieth, from 1901–7.

Besides taxation, the *protection of consumers* of coal was

¹ *Vide: The Parliamentary or Constitutional History of England*; being a faithful Account of all the most remarkable Transactions in Parliament, from the earliest times to the Restoration of King Charles II. Collected. Vol. x, London, 1753, p. 67.

² An Act for laying an imposition upon coals, towards the Building and Maintaining Ships for Guarding the Sea. *Die Veneris*, 28 Martii, 1651.

³ John Holland thus describes the history of that special levy: "Duties were laid upon sea-borne coal, to assist in building St. Paul's church, and fifty parish churches in London, after the great fire in that city and in 1677, Charles the Second granted to his natural son, Charles Lennox, Duke of Richmond, and his heirs a duty of 1s. a chaldron on coals, which continued in the family till it was purchased by Government. This impost, so troublesome to the Tyne coal merchants, and long known as the 'Richmond shilling', produced, soon after it came into the hands of Government, £25,000 a year." (*The History and Description of Fossil Fuel, the Collieries and Coal Trade of Great Britain*, London, 1835, p. 317.)

⁴ Arthur J. Hawkes, *Annotated Catalogue of the Jubilee Exhibition of Early Mining Literature*, Wigan, 1928, p. xi.

⁵ The first Government tax on coal was laid in 1379: "In 1379, a duty of 8d. per ton every quarter of a year was imposed upon ships coming from Newcastle with coals." (See Matthias Dunn, *An Historical, Geological, and Descriptive View of the Coal Trade of the North of England, Comprehending its Rise, Progress, Present State, and Future Prospects, etc.*, Newcastle-upon-Tyne, 1844, p. 12.)

among the earliest functions of the Government in relation to the coal industry. This kind of interference came, however, later, when coal was already well established as an article of general consumption. In this capacity the State was a guardian of prices. State regulation of prices related only to the upper margin, that is to the maximum price, which the owners were allowed to receive for their coal. Already in 1595, following numerous complaints against cornering of coal, a special Commission was appointed in order to inquire into the abuses¹ which then existed. The legislative regulation of coal prices usually referred only to certain parts of the country, and was only in force from time to time when prices soared unduly high. In this case, the State sometimes resorted to prohibitions of export, as for instance in 1563 in Scotland.²

In 1642, a law³ directly to protect the consumers was issued forbidding unduly high quotations for coal in the cities of London and Westminster. This ordinance, however, did not apply to the whole country.

But as a rule the price mechanism was free from State interference. Very often, thus, in the course of the coal trade's history, the citizens or deputations of different organizations

¹ We quote here an extract from the correspondence between the Council and the Bishop of Durham dated 27th October, 1595, which reads: "Whereas we are informed that the prices of sea coles are of late rysen to very highe rates within the City of London and elsewhere . . . since divers of the richer sorts of the towne of Newcastle havinge a lease from your lordship of xii cole pittes . . . do forbear to set the same a worke upon a covetous desire of excessive gayne to themselves and do worke in certain cole pittes of their own in other places which yelde a far worse sort of cole and less quantity . . ." (Reprinted from the Council Register by M. Dorothy George, in "The London Coal-heavers: Attempts to Regulate Waterside Labour in the 18th and 19th Centuries," *Economic Journal*, Hist. Suppl., May, 1927.)

² Vide Robert Bald, *A General View of the Coal Trade of Scotland, chiefly that of River Forth and Midlothian, etc.*, Edinburgh, 1812, p. 87.

³ An Ordinance of the Lords and Commons assembled in Parliament, "that no Wharfinger, Woodmonger, or other seller of Newcastle coals, within the Cities of London and Westminster or the suburbes thereof shall after the making hereof sell any Newcastle coales, above the rate of 23s. the chaldron, and after the first of April next, above 20s. at the most, 23rd February, 1642."

The price of coal in those days was excessively high owing to the Ordinance of 16th January, 1642, prohibiting that any vessel "shall make voyage to Newcastle for the fetching of coales . . . until that Towne shall be reduced into such hands as shall declare themselves for King and Parliament". As the fuel became scarce in London and the price rose to £4 per chaldron, the necessity for statutory regulation arose. This Ordinance is supposed to be the earliest regulation of prices in the coal industry by the State.

asked the Government to regulate the upper limit of prices. In 1801, Henry Gray Macnab asked the Government to intervene on account of the high prices of coal.¹ The Limitation of Vend, an organization of the owners from the Tyne and Wear, was one of the Government's tasks which brought it into close relation with the coal industry. A committee on the coal trade was appointed in 1800 to investigate and present criticisms upon the practices of the Vend.

A further field where intercourse between the State and the coal industry was progressing appertained to the Royal Orders which periodically regulated the *measures* adopted for selling coal. John Holland pointed out that already in 1327 the importance of measuring sea-coal was a matter of consideration; in 1357, Edward III made several orders referring to the measuring of coal,² while in the XVth century it was regulated by an Act of Parliament.³ In 1638, Charles I, in the lease granted to a corporation presided over by Sir Thomas Tempest Knight, rigorously prescribed the observance of due measure of twenty-one bowls to the chaldron, under penalty of confiscation

¹ *Vide* "Observation on the probable consequence of even attempting by legislative authority to obtain a large supply of coal from Staffordshire to the Metropolis; on the price of coal to the inhabitants of London and Westminster; on the collieries in the North, etc."—Macnab, Henry Gray, M.D.

There were, however, earlier claims on behalf of the citizens to regulate the prices of coal by statutory means. But such petitions did not find the approval of the deciding authorities. Professor Herman Levy quotes one of such complaints. In his *Monopolies, Cartels, and Trusts in British Industry*, p. 25, we read: ". . . concentration of the coal trade in a few hands much disturbed the London buyers, the more so as the price of coal rose greatly between 1582 and 1590. Rumours of a monopolist ring among northern coal miners were in the air, and in 1590 the Lord Mayor of London made complaint to the Treasurer Burleigh that the hostmen had engrossed the mines, and petitioned that all mines should be worked and a maximum of 7s. a chaldron fixed." The current price at this time was 9s. Cf. Matthias Dunn, *A General View on the Coal Trade of the North of England, etc.*, Newcastle-upon-Tyne, 1844, p. 13.

Cf. J. V. Nef, *op. cit.*, vol. ii, chap. iii.

² *Vide* Dunn, *op. cit.*, p. 12.

³ The Act prescribed "that whereas there is a custom payable to the King of 2*d.* per chaldron on all coals sold to persons not franchised in the port of Newcastle, and whereas the keels which carry the coals from the land to the ships in that port ought to be of the just portage of twenty chaldron, according to which burden the custom aforesaid is paid; yet many are now making their keels to hold twenty-two, or twenty-three chaldrons, the King is thereby defrauded of his due: Wherefore it is now (2nd May, 1421) enacted that all keels be measured by Commissioners to be appointed by the King, and to be marked of what portage they be under pain of forfeiting all the said keels which shall be found not marked". (See the *History and Description of Fossil Fuel, the Collieries, and Coal Trade of Great Britain*, London, 1835, p. 313.)

of the cargo in case of abuse.¹ In 1664 an Act was issued regulating prices and measures of coal in London.²

While all the earlier regulations of measures prescribed the maximum limits and had fiscal ends in view, viz. the taxation of coal, later Acts aimed at the protection of the consumer against fraudulent practices.³ Besides protection of consumers by the control of measures and prices, the *quality* of coal delivered was from time to time the subject of State supervision. Cunningham⁴ says that there was a considerable interest in the institution of a royal surveyor of coal appointed by King James I to survey "against such as shall offend in such mingling or uttering of unmerchantable coales".

On the whole, however, all these early regulations only slightly affected either the actual conduct of the industry or its general organization.

Further development of coal-mining brought about a much closer relation with the State. Legislation penetrated slowly

¹ Vide Robert Edington, *A Treatise on the Coal Trade, with Strictures on its Abuses and Hints for Amelioration*, London, 1814, p. 18.

² Cf. Roman Piotrowski, *Cartels and Trusts: Their Origin and Historical Development from the Economic and Legal Aspects*, London, 1933, p. 293.

³ To the latter category belongs an Act for reviving a former Act (1665) for regulating the measures and prices of coals (20th December, 1690).

⁴ W. Cunningham, "The Growth of English Industry and Commerce in Modern Times," part i, *Mercantile System*, Cambridge, 1925, p. 300, etc. "The King's Most Excellent Majestie . . . having bene very credibly informed of the great abuses and wrongs daily committed in mingling, amongst coales, commonly called Newcastle coales, much Blacke Earth, Dirt, Slate, and other bad stufte not fit to burne, or serve for firing, and so mingled, are brought and uttered within the Realme of England and thereby for the most part the same Newcastle coales are made unmerchantable to the great hurt and prejudice of the buyers thereof, as well Noblemen, Knights, Gentlemen, and other his Majestie's loving subjects who partly for the preservation of woods, and partly for the scarcitie of woods, doe for the most part burne of the same. With a view to prohibit and suppress such wrongs and abuses aforesaid a surveyor is appointed to be Surveyor of the said coales who or his Deputie or deputies are to be attending and attendant in and about the searching, viewing, seeing, and surveying of the said coales. And are appointed to informe and complaine against such as shall offend in such mingling or uttering of unmerchantable coales as aforesaid. And to have a seal of office under which to certify what coales and of what sort of goodness of coales any Master, Owner, of Shipper, doe or shall take in, freight or lade into their Ships or Barkes at the places abovesaid to be brought to the Citie of London or otherwise to be spent within this Realme of England, to the end that the buyers of the same coales may the better know and be informed of the goodnesse or badness of them. Anyone having cause or complaint is to go to Andrew Boyde Esquier, his Majestie's Surveyor and then in writing without charge to such as shall so complaine to leave his complaint when the matter shall be attended to." 26th February, 1616.

into the various fields of the industry, progressively regulating more and more of its functions. When one follows the later history of coal-mining legislation, it is convenient to divide it into that concerned with *safety measures*, and that dealing with the *economic development* of the industry. This division has been successfully adopted by Mr. D. Morrah¹ in his historical outline of coal mining legislation. The laws regulating safety, as the author rightly points out, develop *pari passu* with mining technique and belong more strictly to the history of mines as such. The greater the advance of knowledge, the more complex became safety precautions, and legislation "appeals mainly to the technical expert, e.g. the Act of 1887² compared with that of 1872 discloses a development not of legislative policy, but of the science of mining".

While technical legislation depended on the development of mining technique and growth of knowledge in preventing accidents, social and economic legislation grew at the same time as the penetration of new ideas concerning the duties of the State in the industry. This latter form of legislation exerted a dominating influence upon the actual organization of the industry in spite of the resistance of the coal-owners, who derided it as "mixing politics with economics".³

This legislation, which in the early days was haphazard, and regulated fragmentarily or temporarily certain questions in the industry, and so very often tended to disappear or degenerate after a few years of operation, gradually became more systematic and permanent. The executive element was strengthened and the compulsory features came also more clearly into view. The conditions created by the State for the coal industry could no longer be evaded; their observance was subject to strict control. On the other hand, the position of the coal industry gradually became a subject of detailed

¹ Dermont Morrah, *A Historical Outline of Coal Mining Legislation—Historical Review of Coal Mining*, 1924, London.

² 50 and 51 Vict. cap. 58.

³ Mr. Smart reminds us that they were always emphatically opposed to the extension of State influence over the industry, saying: "The feeling against legislation as regards health, compensation, working hours, wages, Government inspection, legislative enactments of 1886 and 1911, etc., have all provoked the use of the same intellectual weapons and remarks in the past, as now in the present. It was stated when children could not be allowed to work underground, 'that the mines must close,' etc." (R. C. Smart, *The Economics of the Coal Industry*, London, 1930, p. 203.)

investigations by means of Select Committees of Parliament. In the nineteenth century social questions and the problem of the reserve of coal, besides technical matters such as safety in mines, etc., were essentially the topics of State investigation.¹ The well-known results and investigations of the Committees provided material for the legislative cure of the evils brought to light. The deplorable *labour conditions* were the first to receive special attention, and it was in that direction that State interference was first directed.

Already in the eighteenth century Acts of Parliament had attacked labour problems by abolishing in 1778 the system of bondage or life serfdom of Scotch miners. A great development of State regulations of social status came in the first half of the nineteenth century. Initially, the miners benefited from general labour legislation, but later there was a necessity for further legislation more particularly on their behalf. After an investigation in which Lord Ashley (afterwards Earl of Shaftesbury) took a leading part, the Ashley Act of 1842² found its way into the Statute Book, prohibiting the employment underground of women and boys under the age of ten. This Act³ also established inspection of the mines in its embryonic form. But it was only the beginning, and the workpeople were clamouring for an enlargement of the system of inspection and for an increase in safety measures. Several petitions to the House of Commons, inquiries by official and unofficial bodies, the growing organization among the rank and file of the miners, led the Government to introduce a Bill which enlarged the degree of State interference in the working of mines with a view to securing greater safety. This became law and was promulgated in 1850.⁴

The *safety* apparatus created by this Act was temporary, to continue only for a period of five years, and it came nowhere near modern ideas concerning State inspection of mines; none the less it was an important step along the path of State interference in the management of the industry. The new inspectors of mines obtained the right to enforce the clauses

¹ The objects of the Select Committees of both Houses of Parliament (1829, 1830) on the state of the Coal Trade were economic, and referred to the repeal of the duties on sea-borne coal, but they took also a large interest in the question of safety in mines in connection with the use of the Davy lamp. The criticisms brought forward before the Committees were analysed in 1835 by a Select Committee of the House of Commons appointed to investigate and report on the question of accidents in mines.

² 5 and 6 Vict. cap. 99.

³ For further details, see D. Morrah, loc. cit., p. 309, etc.

⁴ 13 and 14 Vict. cap. 100.

of the Act relating to safety by legal proceedings against the owners. On the other hand, they could not yet exert any direct influence on the management of the industry.

It was thus only a question of time until the expansion of coal mining caused an elaborate system of State inspection of mines and extensive safety legislation to be evolved, developing side by side with mining technique. Two further legal enactments helped to complete the system of State inspection and to bring the safety regulations to a high pitch. The temporary Act of 1855¹ created a table of seven "general rules of safety", which were to be observed by each mine, and opened the way for the permanent law of 1860.² This law finally and permanently strengthened the inspectorate, laying the foundations of the modern system of safety regulation in the collieries.

The subsequent mining acts covered an ever larger variety of problems and some of them dealt with several mining questions simultaneously. Thus the law of 1860 gave to the miners the right to appoint checkweighers at every shaft, whose duty was to ensure accuracy in the weighing of coal hewed by miners at the face. In addition to this, Sections I, II, and IV of the same Act raised the required age for certain categories of underground workers.

Legislation henceforth tended clearly towards enlarging the field of State interference by placing more matters under its supervision through a series of enactments of a social character, consolidating the whole into a system of more ordered unity. Thus the Act of 1872³ contained orders referring to a variety of questions; it codified the safety system, which then remained in force for fifteen years and it introduced regulations concerning qualifications required by the managers of mines. Further regulatory Acts appeared successively in 1887, 1894, 1905, 1908. In 1910 came the Mines Accident (Rescue and Award) Act, and finally the Coal Mines Act, 1911, supplemented in 1914.

Owing to the growing Governmental interference in the social, technical, and economic affairs of the coal industry, the authorities appointed to deal with these questions became larger and more complex. The State system of inspection of mines had greatly enlarged its scope and had itself been reconstructed and reinforced by the institution of a Chief Inspector of Mines in 1911. What we have said so far about State interference refers broadly

¹ 18 and 19 Vict. cap. 108.

² 23 and 24 Vict. cap. 11.

³ 35 and 36 Vict. cap. 76.

to the regulation of social questions in the mines, but more strictly to the conditions of work and health.

Government action in recent times, however, has not stopped at this point. Further problems standing on the border-line between the social and the economic provinces of the industry have been embraced. These include the limitation of the working day, the determination of minimum rates of wages, fixing of statutory relations between capital and labour employed in the industry, and other important problems inherent in the industry. The principle of reducing the *hours of work* was already introduced in the Act of 1872, but it referred then only to boys, for whom the ten hours' maximum day was instituted.

Such a limitation of hours marked a new departure in State interference in the social affairs of the industry. It comprised the exclusion of certain categories of the working population from underground work, the methods of paying and ascertaining wages, etc. It opened the gate to State interference in a new field. This limitation of hours was fully made use of in 1908 through the Eight Hours Act,¹ when all underground work was limited to eight hours, including one winding time.

A few years later the Coal Mines (Minimum Wage) Act, 1912, marked a fresh penetration of the State into the industry. It established the principle of a *minimum wage*, but left the actual fixing of the minima for all grades of miners to the *ad hoc* created bodies—District Boards. These Boards consisted of representatives from both sides of the industry together with independent chairmen, who, where the parties failed to agree, very often themselves fixed the amount of the *minimum wage*.² Leaving out of consideration the War period when wages were controlled completely from Whitehall, this principle of State regulation of wages was varied even further in 1931—when an Act of Parliament stabilized precisely the amount of the minimum for one year. While the 1912 Act left the fixing of the rates to the District Board, the Act of 1931³ contained

¹ 8 Edw. 7, Ch. 57.

² For further particulars see J. W. F. Rowe, *Wages in the Coal Industry*, p. 102, and H. Stanley Jevons, *The British Coal Trade*, p. 520, etc.

³ 21 and 22 Geo. 5, Chap. 27. An Act to remove for a period not exceeding one year the limitation upon the number of days on which the hours of employment below ground in coal mines may be extended under Section 3 of the Coal Mines Regulation Act, 1908; to restrict the duration of such extensions to half an hour on any day, and to provide

provisions for the maintenance during the "period aforesaid of the minimum percentage additions to basic rates of wages and subsistence rates of wages". The difference between the two legislative enactments is that while the former recognized the necessity for the enforcement of minimum rates and left the decision to the district bodies without determining the amounts, the latter decreed the amount of minimum rates. Though the last fixation was only temporary and its main purpose was to avert a pending labour crisis in the mining industry, nevertheless this "stop-gap Act" put Parliament in 1931 for the first time in the position of a direct wage-fixing body.

All these regulations which we have already mentioned referred to the coal industry especially, but a good deal of State interference came also as the result of general industrial legislation applicable also to other industries. Most of these regulations referred to the relation between employers and employees. Acts such as the Truck Act, 1831, the Trade Disputes Act, 1906, the National Insurance Act, 1911, Workmen's Compensation Act, 1905, Employers' Liability Act, 1880, a whole series of Factory and Workshop Acts, which we quote merely as examples and not as an exhaustive list, all had their repercussions on the structure of the coal industry. The Acts dealing with traffic and transport, e.g. the Railway and Canal Traffic Act,¹ which regulated charges and conditions for carrying coal, had a similar influence.

In summarizing the development of State interference in the coal industry, we perceive that up to the War it was reserved to the regulation of social problems and to the provision of multifarious conditions making up the industry's environment. All these measures affected the running of the industry and were indirectly responsible for certain evolutionary changes in its technical and structural formation. But there was not as yet any legislation actually compelling the parties in the industry to adopt fresh forms of organization. Except for the Wage Boards, no other bodies created by the State existed within the coal industry.

for the maintenance during the period aforesaid of minimum percentage additions to basic rates of wages and of subsistence rates of wages (8th July, 1931).

¹ 51 and 52 Vict. Ch. 25.

APPENDIX D

COAL MINES REORGANIZATION COMMISSION

*Extracts from Memorandum on Colliery Amalgamations,
August, 1931*

The Coal Mines Reorganization Commission, appointed under the Coal Mines Act, 1930, to further the reorganization of the coal-mining industry, has issued (in 1931) a Memorandum of preliminary notes on the application of Part II of the Coal Mines Act, 1930.

In the course of some introductory remarks, it is pointed out that the object of the memorandum is to make a preliminary survey of the ground and to put forward certain views, not dogmatically but tentatively, as an indication of the lines on which the Commission approaches the subject, and as a basis of discussion with those engaged in the industry. The troubles of the coal-mining industry are much the same as those of the other heavy industries. The days of easy supremacy are gone; supply exceeds demand; costs are swollen by part-time working; unrestricted competition of many hundreds of independent units, which served well enough when we had things all our own way, is positively self-destructive in the altered conditions of to-day. The policy recommended for all these industries by the Balfour Committee on Industry and Trade is one of combination.

Manufacturing industry has an advantage over the coal-mining industry in that rationalization enables it to reduce costs by specialization and concentration on particular processes at particular places. The coal industry cannot do this, but combination is not without analogous advantages on the productive side. Sometimes, for instance, it enables coal to be worked to more convenient shafts, water problems and power supply to be dealt with more rationally, economy to be secured by centralizing the coking and other treatment of coal, the supply, design, and use of wagons, analysis and grading of coal, and so forth. It is true that advocates of amalgamation in the

coal-mining industry are often tempted to overstate the possibilities of benefits of this sort. But the opportunities for them vary greatly ; and it is not here that the chief importance of amalgamation lies. The vital need of the industry to-day is that costs should be reduced by concentration of productive effort. More pits ought to work to fuller capacity ; some ought to stop work altogether, at least temporarily if not permanently. The Commission does not overlook the possibility that this process of shutting down what is often called the "uneconomic" mine may be complicated by obligations to royalty owners. But, speaking generally, this should only mean that the economy is less than it would otherwise be ; it should not mean that no economy is there. The Commission is convinced that nothing can be a satisfactory cure for the ills of the industry unless it has this as its main object. It knows of no sure way of bringing about the necessary concentration of output in the coal-mining industry except consolidation ; and believes that it is precisely because large-scale amalgamations alone can do it that large-scale amalgamations are essential. Central sales organizations are sometimes suggested as an alternative to amalgamation. No doubt they would be useful to the industry. But they cannot do all that is needed, for they do nothing to concentrate productive effort. An attempt to maintain prices is not an adequate substitute for tackling the problem of lowering costs by reorganization.

If the advantages of amalgamation are what the Commission thinks them to be, it follows that, other things being equal, the larger the size of the unit the greater will be the benefits that amalgamation can bring. There is this, too, to be remembered : that the fewer the hands that control the industry the better will it be placed for competing with foreign rivals, or for negotiating agreements with them if that should prove the wiser course. It will perhaps be said that other things are not at all equal, and that beyond a certain size a unit becomes unmanageable. That may be so. But the functions that would properly be performed by the directorate of a great amalgamated concern must not be confused with the functions of technical management. Unless those in control realize what can be centralized and what must be decentralized, amalgamations are likely to lead to a last state that is worse than the first. In technical management there is no doubt a very definite limit to the practicable size of a single unit. But that has nothing to do with the size of the unit of direction. This latter may,

for purposes of technical management, contain many units, each practically autonomous. The task of the central directorate would be to determine where the coal for which there is a demand can best be produced, what further development of the coal-field is required, and how and where it shall be undertaken; to control sales and any other activity that conveniently admits of centralization (as, for instance, wagons, research and the treatment of coal); and to regulate the financial position and policy of the undertaking. The Vereinigte Stahlwerke A.-G. in Germany controls an annual output of 35 million tons.

The Commission therefore contemplates, as the ultimate goal of a policy of amalgamation, that the country should be divided up into geographical¹ units, in each of which there should be only one undertaking. It is not supposed that this can everywhere be reached in one stride. It may well be, for instance, that certain undertakings now in existence are not worth bringing into any amalgamated concern. Again it might sometimes prove wise to begin with amalgamation into smaller units as a step towards the combination of these into larger ones. And it is recognized that, if the policy of amalgamation is to reap its full advantages, and the proposal to nationalize royalties is not carried out, it may eventually be found necessary to impose some statutory restraint on the freedom of royalty owners to dispose of their property as they please.

If the industry be looked at in its largest possible natural groupings, it is found to consist of the following :—

Scotland (Ayr, Lanark, Fife, Lothians).

North East (Northumberland, Durham).

North West (Lancashire and Cheshire).

East Midlands (West Yorkshire, South Yorkshire, Nottinghamshire, Derbyshire).

Central Midlands (North Staffordshire, South Staffordshire and Cannock Chase, Shropshire, Warwickshire, South Derbyshire, Leicestershire).

South Wales and Monmouth.—Outside these are six small coal-fields that do not fall so naturally within any grouping. They are in the Forest of Dean, Bristol, Somerset, Kent, Cumberland, and North Wales.

¹ The Commission does not mean to rule out the alternative of grouping according to product, which may in some places temper geographical division. But obviously geography must be, in the main, the determining factor.

SCOTLAND

The Scottish coal-field is well defined, and is sufficiently distant from any other coal-field to be regarded as a separate and single geological unit. It covers approximately 2,400 square miles. Except in the East Lothians, the field is much cut up by faults. Water is prevalent, many of the seams are thin, and the inclination of the strata is often steep and varied. Mining is, therefore, difficult.

The great bulk of the coal is bituminous and, generally speaking, is of a lower grade than English coal. The West Fife area, however, produces high-class dry steam coal, and about 700,000 tons of anthracite are raised annually, chiefly in Stirlingshire. In Lanarkshire, Stirlingshire, and Fifeshire good navigation coals are produced, and in Lanarkshire, Stirlingshire, and Dumbartonshire there are coking coal seams. During 1930 nearly 500,000 tons of coke were produced by 480 coke ovens. The reserves of the field were estimated in 1925 to be 16,500 million tons, about 70 per cent of it in seams over 24 inches thick, and all at a depth less than 4,000 feet. The tendency has been for the production from the eastern and western parts of the field to increase at the expense of the central or Lanark area, some of which is now either nearing exhaustion or working very thin seams in difficult areas rendered more difficult by water problems and the depressed state of industry.

The output in 1930 was nearly 32 million tons, and was produced by 161 undertakings from 373 separate mines. About fifty undertakings, however, were responsible for 95 per cent of the output, nearly 74 per cent was produced from mines owned or controlled by less than twenty undertakings, and over 40 per cent from six undertakings.

Ayr.—The Ayrshire area stretches from the borders of Renfrew in the north to Ayr in the south, about 25 miles, with a width of about 14 miles, with extensions beyond Muirkirk, the detached basins at New Cumrock and Dalmellington, the isolated area of limestone coals near Girvan, and another small area, about 7 by 3 miles, in Dumfriesshire. The output in 1930 was 4 million tons. Nine concerns had an output of 100,000 tons or more, but Messrs. William Baird & Company, Limited, largely dominate the area. Including the three mines in Dumfriesshire of the Sanquhar & Kirkconnel Company, which belongs to them, Messrs. Baird produced over 52 per cent of the 1930 output; and of the remainder, nearly one-half was produced by the

Dalmellington Iron Company, Limited, and the New Cumrock Collieries, Limited.

Fife and Clackmannan.—In Fife, on the east, the coal-field stretches along the northern shores of the Firth of Forth from the village of Culross in the west to Leven in the east, a distance of 32 miles, with an average width of 6 or 7 miles, and covering an area of about 170 square miles. Westward from Cowdenbeath are the "outer" coal-fields of Saline, Oakley, Blairhall, and Valleyfield, measuring about 6 by 4 miles. The output is about eight million tons a year, and the bulk of it is produced by nine companies, with the Fife Coal Company, Limited; Wemyss Coal Company, Limited, and Lochgelly Iron & Coal Company, Limited, as the largest units. The Fife Coal Company, Limited, produces approximately half the output, and nearly two-thirds of the remainder is produced by the other two. Clackmannan, in which the Alloa Coal Company, Limited, is the chief operator, is possibly more akin to the Central Area.

Lothians.—The Lothian coal-field extends along the southern shores of the Firth of Forth for about 8 miles between Portobello and Port Seaton, and stretches inland for a distance of almost 20 miles. The coal measures dip beneath the Forth, and are presumed to continue into the Dysart-Wemyss field on the north side. The output in 1930 was about five million tons, four-fifths of which was produced by seven different concerns. Three of these, namely, the Lothian Coal Company, Limited; the Edinburgh Collieries Company, Limited; and the Niddrie & Benhar Coal Company, Limited, accounted for over one-half.

Lanark.—The Central Area is roughly bounded by Glasgow and Paisley on the west, by Linlithgow and Bathgate on the east, by Stirling and Carron on the north, and Hamilton, Wishaw, and Shotts on the south, and covers about 1,700 square miles. There are, in addition, two detached basins on the south, at Douglas and Coalburn. Lanarkshire is by far the most productive part of the area, but in its central districts, comprising Glasgow, Hamilton, Airdrie and Wishaw, the bulk of the coal is being got from deep and thin seams, and the output has fallen progressively over a number of years. Future production in this area is likely to gravitate towards the limestone coals to the east and south-east. The Mid-Lanarkshire coal-field is being rapidly exhausted, and the county output as a whole will probably go down.

The total output in 1930 was rather over 15 million tons, of which 10½ came from Lanarkshire, 2 from Linlithgow, 2 from

Stirling, and something over half a million from Dumbarton. Over 70 per cent of it was produced by fourteen different concerns, of which four, namely, William Baird & Company, Limited, Coltness Iron Company, Limited; United Collieries, Limited; and Archibald Russell, Limited, accounted for over one-third. This area depends in the main upon its proximity to local industries. Many of the collieries are practically in vertical combination with iron and steel, but, owing to the present state of those industries, a very small proportion of the coal produced by the vertical combination coal companies is being used by themselves. The position in this respect is entirely changed from 1913.

Such are the four divisions of the Scottish coal-field. They are not isolated and self-contained. Fife and the Lothians are exporting districts. So also is Ayrshire, which sends nearly a third of its output to Ireland. But all the main exporting undertakings have also a large interest in the inland trade. Moreover, several of the larger concerns own pits in more than one of the areas. Nor, again, is any of these areas sufficiently isolated to make it commercially independent of any other. Each of these districts has, from its geographical position, a certain preference in immediately local trade. But, apart from this, there is no practical commercial boundary between the Central Area and Ayrshire on its west, or Fife and the Lothians on its east; nor is there one between Fife and the Lothians.

It does not appear likely that the full advantage of a policy of amalgamation could ultimately be obtained by any unit smaller than one which comprised the whole of the Scottish coal-field. As has already been mentioned, three-quarters of it is already controlled by under twenty concerns. But practical considerations may point to a less ambitious initial programme of amalgamation by districts.

SOUTH WALES

The South Wales coal-field consists of a single basin, oval in shape, its major axis running almost due east and west. Its extreme length is about 90 miles and its greatest width about 20 miles. The total superficial area, including the undersea extensions in Swansea, and Carmarthen Bays, is a little under 1,000 square miles. The estimated reserves in seams 12 inches thick and over are 26,000 million tons, of which 48 per cent is classified as steam coal, 30 per cent as bituminous, and

22 per cent anthracite. At the present rate of production this is equivalent to a life of over 500 years. The output in 1930 slightly exceeded 45 million tons, equivalent to about 18½ per cent of the total British output. In 1930 the output was produced by 224 undertakings from 464 separate mines, but 24 undertakings were responsible for 92 per cent of the output, and nearly 75 per cent was produced from mines owned or controlled by seven undertakings. More than half the output in 1930 consisted of steam coal, much of it of a high-grade smokeless variety. About one-third was bituminous, 14 per cent of which was converted into coke at 996 coke ovens. The remainder, about 12 per cent of the total output, consisted of anthracite.

The policy of amalgamation has been pursued in South Wales to a far greater extent than in any other coal-field. The land-locked areas created by the deep longitudinal valleys in the eastern and central part of the coal-field are obvious units for single control. It has accordingly been the policy for large concerns to seek to secure domination over the particular district in which they operate. The Ebbw Valley, for example, is dominated by the Ebbw Vale Steel, Iron & Coal Company, Limited; the Tredegar Valley by the Tredegar Iron & Coal Company, Limited; the Rhymney Valley by the Powell Duffryn Steam Coal Company, Limited. But these unifications have gone still further. Already there exist in South Wales seven great undertakings, of which the smallest has an output of 2 million tons and the two largest an output exceeding 8 million tons each. As already stated, they account for nearly 75 per cent of the total production.

One concern—namely, the Amalgamated Anthracite Collieries, Limited—now controls approximately 80 per cent of the Welsh Anthracite output. Five more—namely, Welsh Associated Collieries, Limited; Messrs. Powell Duffryn Steam Coal Company, Limited; Ocean Coal & Wilsons, Limited; Cory Bros. & Company, Limited; and Tredegar Iron & Coal Company, Limited—among them control approximately 70 per cent. of the steam-coal output. Each of these organizations either disposes of its coal to the buyer direct, or has associated with it a selling agency by whom the whole output is dealt with.

There has not been the same concentration of bituminous-coal production. The Ebbw Vale Steel, Iron & Coal Company, Limited, is the largest single producer, but generally speaking, the working of bituminous coal is in the hands of small concerns, of which there is a great number.

NORTHUMBERLAND AND DURHAM

The coal-field of Northumberland and Durham forms a single geological unit, roughly triangular in shape, with its apex at Amble and its base, about 25 miles long, in the latitude of West Hartlepool. The area of the main coal-field amounts to approximately 200 square miles, and is estimated to contain about 10,000 million tons of workable coal, of which about one-fifth lies beneath the sea. It is to the working of undersea coal that modern mining development in the area has been directed. An immense fault, known as the Ninety-fathom Dyke, running along almost the same line as the Tyne, separates the coal-mining areas of the two counties, and brings about a marked physical difference in the seams on each side of it. Those to the north of the fault consist largely of hard, dry steam coals. Those to the south of it are more soft and friable, have admirable coking qualities and are eminently suitable for gas making. Elsewhere faults are relatively rare, inclination is moderate and physical conditions permit working by multiple shifts. But in many other respects there is considerable dissimilarity between the coal-mining areas of Northumberland and Durham.

Northumberland.—The Northumberland coal-field is little more than a third the size of that of Durham and produced just over 13 million tons in 1930. Northumberland is essentially an exporting district in the sense that the bulk of its coal is consumed outside its own borders. There is practically no industry of any size north of Newcastle, and therefore no local industrial market. The district is, therefore, compelled, in order to dispose of its output, either abroad or at home, to do so at highly competitive prices. The output in 1930 was produced by fifty-six undertakings from ninety-nine separate mines. Seventeen undertakings were, however, responsible for over 92 per cent of the output, and four—namely, Ashington Coal Company, Limited; Mickley & Associated Collieries, Limited; Hartley Main Collieries, Limited; and Bodlington Coal Company, Limited—accounted among them for 52 per cent. The royalties of these four undertakings adjoin, extending for a distance of 16 miles from north to south, and occupying practically the whole of the central region of the coal-field. Both the Mickley and Hartley Main groups are the result of recent amalgamations of colliery undertakings.

Durham.—Durham is the third largest coal-field in Great

Britain. The output of 1930 was nearly 36 million tons produced by 97 undertakings from 237 separate mines. About 21 undertakings, however, were responsible for 92 per cent of the output and over 52 per cent was produced from mines owned or controlled by 7 undertakings. The bulk of the coal is coking coal, and a considerable proportion is converted into metallurgical coke. In 1929, 6½ million tons of coal were carbonized in 2,860 local coke ovens. In 1930, however, owing to the depressed condition of the iron and steel trade, the tonnage of coal treated fell to little over 5 million tons in 2,504 ovens. The field is an old one, development having proceeded from west to east, until in recent years the working of undersea coals, at considerable depths, has been undertaken. Many of the older pits were intimately associated with the manufacture of iron and steel. Some are exhausted and have closed down. Others are approaching exhaustion.

The closing of mines near the outcrop and the percolation of water into their old workings is constituting a serious menace to adjacent collieries situated to the deep. The problem of mine drainage promises to become progressively more acute as collieries to the rise close down, but so far no scheme for co-operative pumping has materialized. Nor, apart from a few isolated cases, has there been any recent movement towards amalgamation of colliery interests in any form. Yet Durham is essentially a district of small amalgamations in the sense that many concerns operate a number of collieries. Eleven undertakings control five or more collieries. Four of them have ten or more. One concern has twenty. No less than 81 per cent of the total output is produced by 15 undertakings, each with an output of over one million tons per annum.

In spite of their contiguity, therefore, the coal-fields of Northumberland and Durham show marked differences in conditions and circumstances. Whatever developments there might ultimately be, it seems enough, at present, to consider the question of amalgamation in each separately; and Northumberland, at any rate, seems to afford a *prima facie* case for a single undertaking.

EAST MIDLAND COAL-FIELD

The East Midland coal-field is the largest single coal-producing area in Great Britain. It extends from Leeds to Nottingham, a distance of about 68 miles, and its total area is about 2,100

square miles. The developed part of the coal-field is contained in three counties, namely, Yorkshire, Nottinghamshire, and Derbyshire (north of the river Trent). It contains three series of coal measures, most of the best seams occurring in the middle and lower series. The western part of the field works the lower coals at shallow levels, but in the east these seams are below the limits of practical mining and it is the middle measures that are worked. The prize of this series is the Barnsley Bed, which is known to exist over an area of 600 square miles. In Nottinghamshire a change in the inclination of the seams enables both middle and lower series to be worked. The estimated reserves of a field whose limits have not yet been defined can only be conjectured. They were estimated by the Royal Commission of 1905 at 26,500 million tons. The output in 1930 was nearly 73 million tons, which is equivalent to over 30 per cent of the total British output.

It is only for certain special and limited purposes that the whole of this area has been treated as a single unit or as part of a single unit. For most purposes it is divided into four districts, viz., West Yorkshire, South Yorkshire, Nottinghamshire, and North Derbyshire. The division between Nottinghamshire and Derbyshire, however, is almost entirely an arbitrary one. It is true that the Nottinghamshire field is newer and deeper than that of North Derbyshire and produces steam coals as well as the softer coals of the lower series, but it is essentially a development of the North Derbyshire field. Several large concerns have colliery properties in both districts, and a single association represents owners in both.

West Yorkshire.—The output of coal in 1930 was about 12½ million tons from 113 mines in 71 different ownerships. Ninety per cent was, however, produced by 18 concerns operating 41 mines, and 48 per cent by 4 concerns and their subsidiaries.

Owing to the comparative shallowness of the seams the field is more fully developed than South Yorkshire, and the suitability of its products for manufacturing purposes has led to the growth about it of a densely populated industrial area, which absorbs the greater part of the output. West Yorkshire is notably a district of intermixed ownerships. There are many places in which different seams in the same lands are being worked by different concerns.

South Yorkshire.—The South Yorkshire coal-field is a newer development. The output in 1930 was 32½ million tons from 104 mines owned by 72 different undertakings. Ninety-one

per cent was, however, produced from 54 mines in 28 ownerships. Eleven of these concerns had an output of over one million tons each and seven more approached that figure.

The eastern extension of the field, in which most of the new pits are situated, is still rural. No town of any size exists, save Doncaster, and there are practically no local manufacturing industries. Accordingly the greater part of the output is consumed outside the district. Much goes to Lancashire, and a considerable quantity is exported either as cargo or as bunkers for foreign-going vessels. Coal shipments from the Humber ports in 1930 were nearly nine million tons. A special feature of the area is the uniformity with which the seams persist at a convenient thickness over large areas, and the pits are generally of the newest type and equipment.

The surface over a great part of the coal-field is flat and but a few feet above sea-level. The question of subsidence is therefore of special importance, and the problem of surface drainage is both serious and difficult. For purposes of mines drainage the community of interests of the collieries has already been recognized in an Order under Section 18 of the Mining Industry Act, 1920, which, shortly stated, has put the control and the cost of mines drainage upon a co-operative basis. There have been several amalgamations of colliery undertakings in South Yorkshire in recent years. Four large concerns, namely, Denaby & Cadeby Main Collieries, Limited; Dinnington Main Coal Company, Limited; Maltby Main Colliery Company, Limited; and Rossington Main Colliery Company, Limited; are combined under the title of Yorkshire Amalgamated Collieries, Limited. The amalgamated concern is linked up with the Sheepbridge Coal & Iron Company, Limited, which has extensive colliery interests in Derbyshire. The Carlton Main Colliery Company, Limited; Hatfield Main Colliery Company, Limited; and the Hodroyd Coal Company, Limited, are also under single control, which, too, has interests in another coal-field. Several smaller unifications have taken place. Moreover, groups of undertakings, though maintaining their legal individuality, have joined together for common selling of their products and other purposes. The largest of these organizations is the Doncaster Collieries Association, which disposes of the output of six of the largest collieries in the East Midlands, five of which are in South Yorkshire. Another is the Rotherham and District Collieries Association.

Nottinghamshire and North Derbyshire.—The coal-field of

Nottinghamshire and North Derbyshire is similar to that of Yorkshire in that development has proceeded from west to east, and has resulted in adding the steam coals of the middle series to the softer coals of the lower series worked in the west.

Nottinghamshire is not, however, so essentially a steam-coal area as is South Yorkshire. The Barnsley Bed (or the Top Hard, as it is locally known) is neither so persistent nor of such uniform quality in Nottingham as in Yorkshire. On the other hand, lower seams which, owing to their depth, are incapable of being worked at present throughout the greater part of South Yorkshire, are worked in Nottinghamshire. Nottinghamshire, therefore, has developed a house-coal trade, particularly with London and the South of England. The output of the Nottinghamshire and North Derbyshire coal-field in 1930 was 28½ million tons from 143 mines in 78 different ownerships. Ninety-one per cent of the output was, however, produced by 26 undertakings operating 82 mines. Nine of these concerns had an output of over one million tons each and four others approached that figure. Several of them have substantial interests in colliery properties in other districts, mainly South Yorkshire.

The natural division of the East Midlands coal-field appears to be into three. Between Nottinghamshire and North Derbyshire no logical line seems to exist. Between Nottinghamshire and South Yorkshire (subject always to the precise location of the boundary line) a clearer demarcation can be found. Apart from the fact that much Nottinghamshire coal is of a different kind from that of South Yorkshire, it appears, broadly speaking, that in practice the markets which it serves are rather different from those of South Yorkshire. Much of the coal of which South Yorkshire disposes outside its own area goes abroad or into Lancashire. The coals of Nottinghamshire and Derbyshire tend rather to gravitate southwards.

Between West and South Yorkshire again, a distinction can be drawn as regards both the mining and the commercial conditions of the older and shallower field in the west of the country and the newer and deeper pits of South Yorkshire. The precise line of the boundary between the two divisions might require some rectification to bring it more into keeping with the circumstances of to-day, but, subject to this, it may be said, broadly, that West Yorkshire produces in the main a different class of coal from that produced in South Yorkshire and sells it in a more restricted market. There may be grounds,

therefore, for regarding this coal-field as comprising three distinguishable districts: (1) West Yorkshire, (2) South Yorkshire, and (3) Nottinghamshire and North Derbyshire, and for the view that the problem of amalgamation should be considered separately in each of them.

LANCASHIRE AND CHESHIRE

The Lancashire coal-field is triangular in shape with its apex 4 miles north of Burnley and its base between Prescott on the west and Stalybridge on the east. The most productive part of the field is, however, confined to a belt about 8 miles wide at the base of the triangle. The resources of the proved coal-field are estimated at about 4,000 million tons. The output in 1930 amounted to 15 million tons, produced by approximately 74,200 workpeople. During the present year (1931) the output has been at a level equivalent to $15\frac{1}{2}$ million tons a year with an average number of workpeople employed of 72,100. Production has gradually declined since 1907 (when it was in the region of 26 million tons per annum) mainly owing to the exhaustion of some of the richer seams. Many of the older collieries are now working less productive seams at great depths.

The highly industrialized and thickly populated area of South Lancashire absorbs practically the whole of the local output. Lancashire is, indeed, a heavy importer of coal, particularly small steam coal for industrial purposes, from other districts. Much of the deficiency is supplied by South Yorkshire. The output in 1930 was produced from 190 collieries in 101 different ownerships, but 33 undertakings were responsible for 75 per cent of the total, and 37 per cent was produced from mines controlled by two undertakings.

Lancashire is faced with heavy costs of production, particularly wages costs, and though proceeds are about 3s. a ton higher than the average, the net result is to leave Lancashire worse off than any other large district.

Before 1929 Lancashire contained no large amalgamation of colliery undertakings, although several concerns each operated a number of pits. Of these, the Wigan Coal & Iron Company, Limited, was the largest. In 1929 six colliery companies and their subsidiaries operating 22 mines combined to form the Manchester Collieries, Limited, which brought under a single control practically the whole of the collieries in the south-eastern portion of the coal-field. Three other amalgamation

schemes have since come into operation. The Garswood Hall Collieries Company, Limited, and the Garswood Coal & Iron Company, Limited, who operate six pits between Wigan and St. Helens, are now a single company. Messrs. John Hargreaves and Company, Limited; George Hargreaves & Company, Limited; and the Altham Colliery Company, Limited, who among them own 20 small mines in the Burnley district, have centralized the treatment and disposed of their products in a new company under the name of the Lancashire Foundry Coke Company, Limited. Four other concerns—namely, the Wigan Coal & Iron Company, Limited; Pearson & Knowles Coal & Iron Company, Limited; Moss Hall Coal Company, Limited; and the Wigan Junction Colliery Company, Limited, have combined their colliery assets, consisting of 17 pits, in an amalgamated undertaking known as the Wigan Coal Corporation, Limited. The new concern is controlled by the Lancashire Steel Corporation, Limited, which is a combination of the iron and steel interests of two of the constituent companies and of their subsidiaries. These four groups among them produce over 46 per cent of the total Lancashire output. Proposals for further amalgamation of the Lancashire coal industry are now being canvassed.

Apart from the small northern extension around Burnley, the Lancashire coal-field is highly concentrated, and its products are absorbed in the thickly populated industrial area which has developed about it. Lancashire collieries not only compete among themselves in a purely local market, but must also compete with the more cheaply produced coal from other districts. Yet, notwithstanding the excess of local demand over local supply, short-time working is more prevalent in Lancashire than in almost every other district. Lancashire is, therefore, faced with the necessity for reducing costs to maintain her own market, and it appears unlikely that this can ultimately be accomplished by anything short of a district amalgamation.

CENTRAL MIDLAND COAL-FIELDS

In the central part of England are five small coal-fields. They are known as the coal-fields of (1) Shropshire, (2) North Staffordshire, (3) South Staffordshire (including Cannock Chase) and Worcestershire, (4) Warwickshire, (5) South Derbyshire and Leicestershire. The combined output of the five coal-fields in 1930 was 21½ million tons, which is equivalent to nearly 9 per cent

of the total British production. This is less than the output of any of the five large districts, Lancashire excepted.

Shropshire.—The county of Shropshire contains a number of small coal-producing areas, only one of which is of relative importance. This, known as the Coalbrookdale coal-field, extends from Lilleshall in the north to Linley in the south and covers an area of about 18 square miles. It is estimated to contain about 150 million tons of workable coal. Its output in 1930 was less than 700,000 tons from 37 mines in 27 different ownerships. Ninety-three per cent, however, was produced by four separate undertakings operating seven mines, and 75 per cent by two concerns which, between them, work five collieries. Most of the coal is of the household and manufacturing variety and is consumed in the locality.

North Staffordshire.—The North Staffordshire coal-field consists of a triangular-shaped area, about 100 square miles in extent, situated around the pottery towns. It contains an available quantity of coal estimated at about 4,000 million tons. A small extension of the main field to the east in the neighbourhood of Cheadle covers an area of about 18 square miles. The total output in 1930 amounted to about 5½ million tons, which was produced by 49 separate undertakings operating 60 collieries. Ninety-seven per cent was, however, produced by 16 undertakings from 34 mines.

Practically the whole of the output is consumed inland, the greater part of it locally.

South Staffordshire and Cannock Chase.—The South Staffordshire and Cannock Chase coal-field extends from Rugeley in the north to Bromsgrove-Lickey in the south, a distance of about 26 miles. Its greatest width in the latitude of Wolverhampton is about 9 miles. The total area is about 149 square miles and the field is estimated to contain about 1,400 million tons of workable coal. An immense faulting system north of Wolverhampton, known as the Bentley Fault, divides the coal-field into two distinct portions, each of which has definite characteristics of its own. In the southern part certain seams have converged to form a single seam, known as the South Staffordshire Thick Coal or Ten Yard seam. This seam, owing to its easy accessibility, has been worked for centuries past, and is now nearly exhausted. Its extraction has resulted in disastrous consequences, both to the surface and mine workings. The whole district is becoming more and more waterlogged and decreasing in importance as a coal-producing unit. The northern part of the field, known

as Cannock Chase, is a more modern development, and has now assumed the importance previously enjoyed by its southerly neighbour.

South Staffordshire.—The output in 1930 was 1·6 million tons produced by 55 different undertakings from 74 mines. The great majority are very small concerns working isolated remnants of the Thick Coal, and are of no practical importance. Many of the larger undertakings, too, have but a short life before them. Nearly 59 per cent of the total output was produced by three undertakings. Most of the output is consumed locally.

Cannock Chase.—The Cannock Chase coal-mining area is compact, and possesses fairly uniform conditions throughout. There are eight seams of economic importance at present being worked, which yield house, manufacturing, and locomotive coals. The output in 1930 was nearly 5 million tons from 38 mines in 23 separate ownerships, 99 per cent of which, however, was produced by 13 separate concerns from 24 mines. The size and capacity of the more important colliery undertakings in Cannock Chase are fairly uniform. Each employs over 1,000 workpeople, and practically all have outputs ranging from a quarter to half a million tons per annum. A large proportion of their products is house coal. Most of it is disposed of in markets outside the district, particularly London and the South of England.

Warwickshire.—A deep geological trough separates the South Staffordshire coal-field from the Warwickshire coal-field. The latter extends from Tamworth in the north to Warwick in the south, has a maximum breadth of about 8 miles, and occupies slightly under 150 square miles. The estimated quantity of coal remaining unworked is about 1,000 million tons. The output in 1930 of 4·92 million tons was produced by 16 different undertakings from 18 mines, but 82 per cent of it was produced by 9 undertakings from 10 mines. The curious feature of the South Staffordshire coal-field represented by the Ten Yard seam is reproduced in Warwickshire, where towards the centre of the coal-field five seams converge into a single seam 24 feet thick. Unlike South Staffordshire, however, this coal is found at much lower levels, and requires not only a high degree of skill, but also heavy maintenance costs in working it. There is, too, a considerable diminution in the workable resources towards the northern part of the field. These physical changes have placed certain collieries at a disadvantage compared

with their neighbours, and for a time special wage rates, at a lower level than those generally prevailing in the district, were applicable to them.

The remainder of the collieries are relatively successful undertakings. The Warwickshire coal-field is nearer to London than any other coal-producing district, except Kent, and it is to London and the south that most of the output is sent. The district, therefore, enjoys an easily accessible inland market, and commands uniformly high pithead prices. Costs, on the other hand, are little above the average. Apart from the Warwickshire Coal Company, Limited, and Merry & Cuninghame, Limited, which are subsidiaries of colliery undertakings in another district, the larger Warwickshire concerns have neither any close associations one with another nor with coal interests elsewhere. But, like Cannock Chase, there is a good deal of similarity among them both as regards their size, their products, and their markets.

South Derbyshire and Leicestershire.—Five miles north-east of the Warwickshire coal-field is situated the most easterly of the Central Midland coal-fields. It occupies an area of about 76 square miles, 60 of which are in the county of Leicestershire, and 16 in South Derbyshire. The available reserves are estimated at 1,800 million tons. The output in 1930 was 3.6 million tons, which was produced by 27 collieries in 20 separate ownerships. Ninety-nine per cent was, however, produced by 21 mines operated by 14 completely independent undertakings. Like most of the Central Midland districts, the pits are of a moderate uniform size. The output is almost wholly consumed inland, either locally or in the South of England.

As to the proper application of a policy of amalgamation, this much at least is obvious, that each of these small self-contained and compact coal-fields ought to be under single control. And the question whether any two or more of them ought to be combined is clearly one for consideration.

COAL-FIELDS IN THE FOREST OF DEAN, BRISTOL, SOMERSET, KENT, CUMBERLAND, AND NORTH WALES

There now remain only the six small coal-fields which need separate consideration.

Forest of Dean.—The Forest coal-field is reputed to be the oldest in the country. It is situated on the northern bank of the Severn estuary, and occupies an area of about 34 square

miles. The ownership of minerals is in the Crown, but the right to work them is governed by curious statutes and customs, the application of which has confined mining operations to comparatively shallow levels until recent years. The output in 1930 was 1·30 million tons from 45 mines in 38 separate ownerships. Eighty-six per cent of the output was, however, produced by four concerns operating seven mines. Each of these four undertakings is working the Coleford High Delf, but, apart from friendly co-operation in selling arrangements, they have no connection with each other. Their product is eminently suitable for manufacturing purposes, particularly the tinplate trade, and finds a ready market in the near locality.

Bristol and Somerset.—Situating on the southern bank of the Severn estuary, partly in the county of Gloucester and partly in Somerset, are six detached areas of coal measures. These constitute what are commonly known as the Bristol and Somersetshire coal-fields. Their total area is estimated at 240 square miles, and the net available resources at 4,000 million tons. There is considerable variation both in quantity and quality of the deposit of the various areas, but, on the whole, the seams are thin and furnish coal of inferior quality. Only a few of the seams are worked. The total output of the two fields in 1930 was slightly over one million tons, of which about 200,000 tons were produced in the Bristol coal-field and 800,000 tons in Somerset. It was produced from 19 mines in 9 separate ownerships. Nearly 50 per cent, however, was raised by two concerns, one of which has colliery interests in both districts. The bulk of the coal is consumed locally.

Kent.—The coal-field of Kent is the newest development in Great Britain. It now contains four working collieries, whose combined output in 1930 was 1·29 million tons. All the collieries are in process of development, and have not yet reached their maximum potential capacity. Two are in common ownership. Most of the output is consumed by local industries, particularly paper and cement works situated along the Thames estuary, and by the Southern Railway. A little is exported.

Cumberland.—The Cumberland coal-field extends from Whitehaven to Maryport, a distance of 14 miles with an average width of $4\frac{1}{2}$ miles. An estimate of the reserves is problematical, but it is assumed to be about 1,500 million tons. The bulk of the coal is bituminous, and much of it is capable of being converted into metallurgical coke. In 1930 about one-third of the total production was carbonized locally in 302 ovens. The output

in 1930 was slightly over two million tons. It was raised by 17 separate undertakings from 32 mines. Ninety-eight per cent, however, was produced by 8 separate undertakings operating 21 mines. The Cumberland coal industry is closely allied to the local iron and steel industry. The United Steel Companies, Limited, consume nearly 50 per cent of the coal produced in the county, and a further 20 per cent is sold in neighbouring industrial and domestic markets. Of the remainder, most goes to Ireland.

North Wales.—The developed portion of the North Wales coal-field is situated in the counties of Denbigh and Flint. The coal-producing areas of the two counties are practically detached from each other, and are sometimes regarded as constituting separate districts. The Denbighshire district occupies an area of approximately 47 square miles, and is estimated to contain about 950 million tons of working coal. That of Flintshire occupies an area of about 35 square miles, with 750 million tons of unworked coal. The field is much disturbed and heavily faulted. Water is encountered in large quantities. The bulk of the coal produced is classified as steam-raising, but some seams yield house and gas coals. The output in 1930 was just over 3½ million tons, produced by 25 mines in 23 different ownerships. Ninety-one per cent was obtained from 11 mines belonging to 9 different undertakings. One mine, Llay Main, is by far the largest single unit, and is owned by the Carlton Main Colliery Company, Limited, a South Yorkshire undertaking.

The internal circumstances to be found in each of these districts, coupled with the smallness of their outputs, suggest that in none of them can there be room for more than a single control. The districts of Bristol and Somerset, too, being so nearly contiguous and so similar in their conditions, must be regarded for this purpose as one. Whether any others of them should ultimately be combined with any of the larger districts is one of the matters which requires closer examination.

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