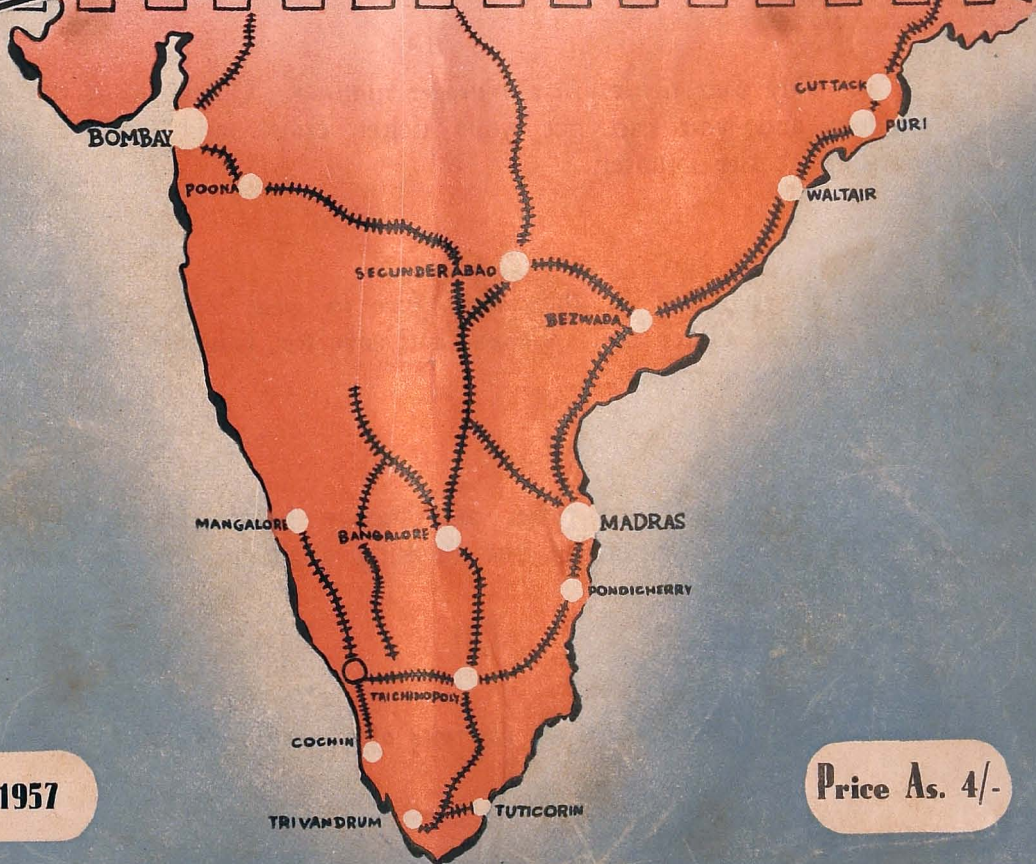
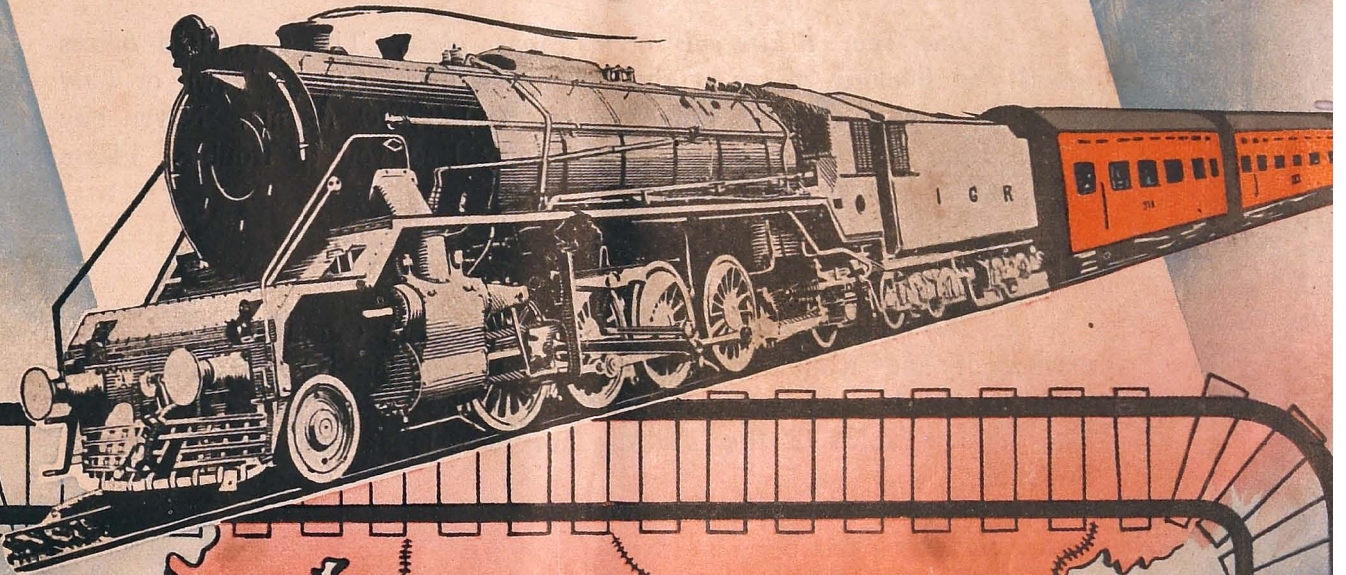


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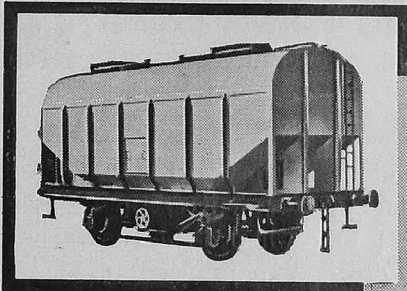
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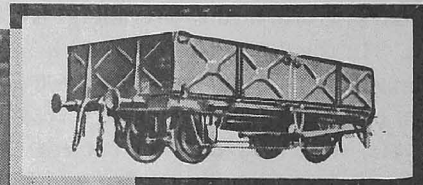
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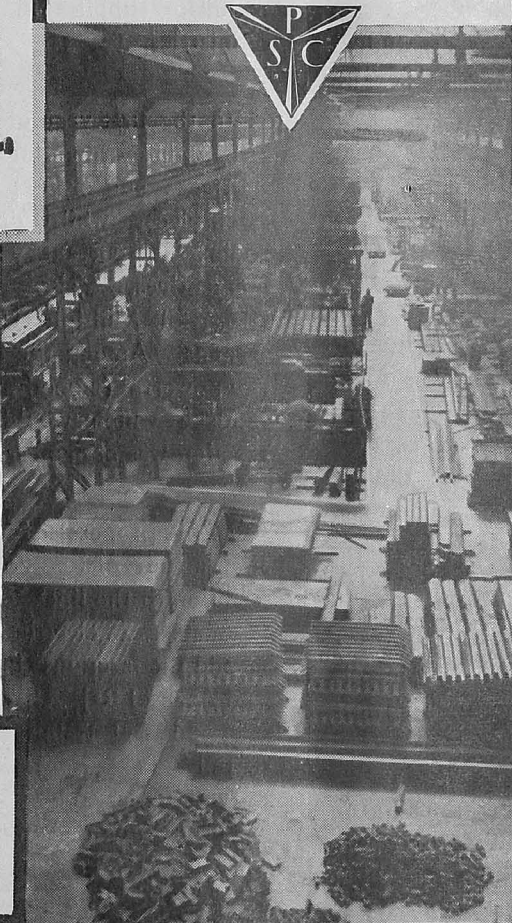
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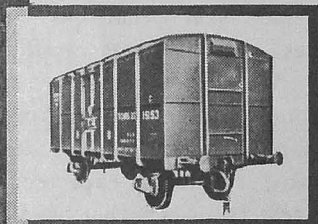
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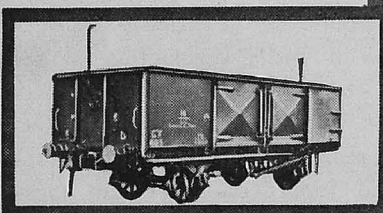
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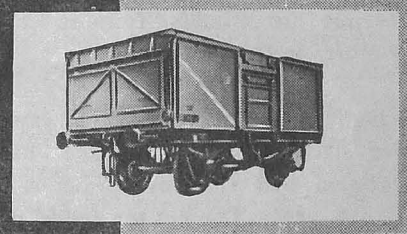
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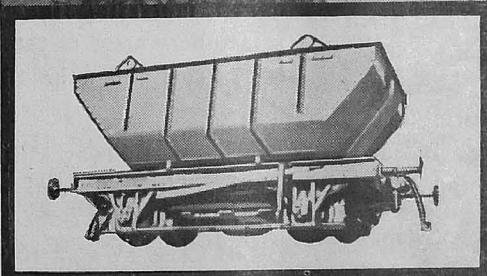
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# RAILWAY BUDGET

**S**HRI JAGJIVAN RAM, Union Minister for Railways and Transport presented the interim Railway Budget covering the first five months of 1957—58 in Lok Sabha on March 19, 1957. It was estimated that there would be a net surplus for this year of Rs. 21.43 crores at the prevailing levels of fares and freights. In the year 1956—57 that has just concluded, the estimated net surplus was Rs. 26.95 crores against a surplus of Rs. 14.22 crores for the previous year ending 31st March 1956. The current year's estimates were subject to revision on the basis of the recommendations of the Freights Structure Inquiry Committee accepted and implemented during the course of the financial year.

For the year that has just commenced budget estimates placed gross traffic receipts at Rs. 368.5 crores. Working expenses are expected to be Rs. 244.16 crores out of a total expenditure of 303.28 crores. Of the net railway revenues of Rs. 65.22 crores, the net anticipated surplus is expected to be Rs. 21.43 crores. In the year 1956—57 that has just concluded the gross traffic receipts are estimated to be Rs. 350 crores which is some 34 crores of rupees higher than for the previous year and Rs. 103 crores higher than in the year 1950—51 whilst total expenses including appropriation to depreciation revenue are estimated to be Rs. 285 crores against Rs. 267 crores in the previous year.

Shri Jagjivan Ram, reviewing railway operations in the last year stated that the tonnage handled over the whole system had risen by 10 per cent to 126 million tons in 1956—57. The net ton miles per wagon day, an index of efficiency in wagon utilisation, had risen to an average of 541 which was a record. On the passenger side, in the drive to reduce overcrowding 120 new trains had been introduced during the year and the run of 91 others had been extended. Besides this several trains were strengthened by attaching additional bogies.

The appointment of an expert committee under the chairmanship of Shri A. N. Khosla, Vice-Chancellor of the Roorkee University to prescribe appropriate designs for waterways and instructions for the upkeep of railway bridges and other structures was announced by the Minister. The railways' own organisations concerned with designing, research and standardisation would be strengthened so as to step up operational efficiency and to attain self-sufficiency.

The first year of the Second Five-Year Plan had been one of anxiety due to shortages of steel, cement and permanent way materials. Steps were being taken to economise in the use of steel and cement wherever possible. Besides, steps had been taken to procure the requisite supplies in co-operation with the concerned Ministries.

In the first year of the Plan under the rolling stock programme orders for 557 locomotives, 1,931 passenger carriages and 27,184 four wheeled goods wagons had been placed whilst orders were proposed to be placed against the current year's programme for further 411 locomotives, 2,346 passenger coaches including 68 Electrical Multiple Unit coaches and 17,729 goods wagons. Among the locomotives ordered were 100 of the powerful (2,000 h. p.) diesel class for mainline goods haulage which would help on sections where steam traction was at or near saturation density.

In the proposals for electrification under the Second Plan a sum of Rs. 80 crores had been set apart. In addition to the lines originally proposed for conversion from steam to electric traction, it was now contemplated to add the sections between Gomoh and Moghal Sarai and Asansol Raj Kharswan and Bara Jamda where the coal and steel traffic would be very dense. The team of railway experts now in India conducting a detailed survey under the Technical Co-operation Agreement between India and the U. S. A., besides undertaking a study of the use of more powerful locomotives, etc., would also study and report on ways and means of increasing the railways movement capacity in the colliery areas to cater to the large increase in production of coal under the Second Plan.

The Railway Minister expressed his satisfaction at the relations of staff with the management which he characterised as being happy. The rules for promotion of Class IV staff to Class III service were in some ways restrictive and he promised to examine this matter further. He also gave an account of the recent upward redistribution of a large number of posts in the non-gazetted cadres of all Government Railways in India. The scheme which represents a new deal to workers will benefit 170,000 railwaymen in the lower pay grades whose responsibilities and work load have increased with the greater complexity of problems facing the railways to-day.

# The United Kingdom Coal Industry

**T**HE mining industry occupies a key position in the UK national economy. It provides over nine-tenths of the power supplied to British industry, employs over 700,000 workers and contributes directly about £ 500 million to the net national income. Since 1946 the industry has been under public ownership and control under the National Coal Board, which has put into operation a long term plan for reorganization and development. When this programme is completed four-fifths of Britain's coal will be coming from virtually new mines. The object of this paper is to outline the history of the industry, describe its current problems and show how those problems are being tackled.

## HISTORY

Coal extracted from surface seams was used in Britain as a domestic fuel as far back as the Bronze Age — some 4,000 to 5,000 years ago. Later on, its value for this purpose was well known in Roman Britain. The first written mention of coal dates, however, from the Anglo-Saxon Chronicle of A. D. 852 which refers to the despatch of '12 loads of coal' to Peterborough Abbey. The early thirteenth century saw the beginnings of an organized coal industry when Henry III granted a licence to dig for coal at Newcastle-on-Tyne. In 1306 there are records of shipments of coal from Newcastle to London for domestic purposes and for forges and, a few years later, of exports to continental Europe. During the next few hundred years the mining of coal by very primitive methods extended to most of the present-day coalmining areas, but by 1700 the annual output was less than three million tons.

## THE PERIOD OF EARLY EXPANSION

The great expansion of the industry after this time, and particularly after 1800, can be attributed to three main causes — a vast increase in demand stemming from the Industrial Revolution and the increase in population which accompanied it, radical changes in methods of transport and progressive improvements in mining techniques.

Perhaps the most important of the early events of the Industrial Revolution was the discovery by Abraham Darby, about the year 1709, of a method of smelting iron with the use of coal (in the form of coke) instead of charcoal, — which was rapidly becoming scarce. The striking development of Britain's iron and steel industry,

on which the progress of so many other industries largely depended, owed much to this early discovery. Meanwhile coal was being used more and more extensively for boiling and evaporating purposes in the growing glass, chemical, soap and sugar industries. Moreover, the introduction of steam-driven machinery in a widening range of industries created an ever-growing demand for coal as a source of power. The domestic use of coal for heating purposes also had an important industrial aspect for it made habitable for large populations many areas which were previously habitable only in summer months. In the nineteenth century coal found important new uses — in the generation of gas, as a source of valuable chemical by-products and, later, in the generation of electricity.

As regards transport developments, the 'replacement of pack horses and sailing ships by railways and steam ships not only created new demands for coal as a means of propulsion but made it much easier to transport coal over long distances.

Within the coal mining industry itself the principal technical developments in the eighteenth century were the introduction of pumping engines and winding engines. Pumping engines became an urgent need because the mines were reaching ever deeper into the earth and were increasingly subject to subterranean flooding. This need prompted many new inventions. One of the first was Thomas Savery's steam pumping engine which appeared about 1698 and was capable of drawing water out of the pits at the rate of 60 gallons a minute. Savery followed this by a better machine termed the 'Miners Friend'. A few years later Thomas Newcomen devised a beam engine which employed steam at atmospheric pressure, and 60 of these engines were subsequently installed in the collieries around Newcastle. In 1769 James Watt patented a pumping engine with a separate condenser, which greatly improved its efficiency. The problem of hoisting coal to the pithead found a satisfactory solution in Watt's rotary engine, introduced about 1787.

Of the other early improvements in technique one of the most important was the introduction of the miner's safety lamp by Sir Humphrey Davy in 1813. This greatly reduced the danger of underground explosions from 'fire damp' (methane gas). A further development was the substitution of rope haulage in the pits for hand and pony haulage.

On the other hand, progress in one major direction, the substitution of machinery for manual labour at the coal face, made slow progress. The first coal cutting machines **did not appear until the end of the nineteenth century**. By 1909 **some 1700 coal cutting machines were in operation.**

During the early period of coal mining employment conditions had been extremely bad and women and children were engaged on hard and dangerous tasks for lengthy periods. In 1842 Lord Shaftesbury initiated legislation which forbade the underground employment of women and girls and of boys aged less than 10 years. The Coal Mines Regulation Act of 1850 laid down rules for the safe running of mines and made provision for the appointment of inspectors to see that the law was carried out. Further legislation included an Act passed in 1908 restricting the working day to 8 hours.

Between 1750 and 1850 Britain's coal output expanded ten-fold, and by the end of the nineteenth century there were 3,000 mines in operation producing 170 to 180 million tons a year. In export trade Britain achieved a predominant position, due largely to the proximity of the coal fields to the shipping ports, unrivalled shipping facilities and the quality of coal supplies. Exports rose from an annual average of 7.5 million tons in 1855-64 to an average of 73.3 million tons in 1901-10.

In the peak year, 1913, the industry produced 287 million tons of which 94 million tons were exported. The industry then employed 1,107,000 men.

#### RECESSION AFTER 1913

After 1913 output tended to decline. The immediate cause was the outbreak of the first world war, which led to the shortages of manpower, plant and materials. The industry was confronted, however, with much more persistent problems. **A major problem was the rapidly rising cost of production, due in part to the increasing difficulties of mining: the very fact that the British coal mining industry had developed so early meant that many of the best seams of coal were now exhausted and fresh coal had to be mined from deeper and thinner seams.** The industry was also faced with increased competition from newly exploited continental mines. This occurred at a time when the general demand for coal was checked by a heavy depression in heavy industries using coal (e.g. iron and steel), by the introduction of more economical methods of combustion and by the exploitation of rival forms of energy—fuel oil and hydro-electric generation.

Owing to the difficulties in finding markets, the coal producers attempted to cut prices by reducing wages, which form by far the largest element in the cost of production. This was the main factor behind the numerous labour disputes which burdened the industry during the inter-war years. The aggregate duration in working days of such disputes rose from 46.4 million in 1907-13 to 105.1 million in 1919-25 and in 1926 there was a stoppage of unprecedented magnitude, accounting for the loss of 145.2 million working days.

The upshot of all these adverse circumstances was that coal production during the inter-war period was not only at a lower average level than between 1900 and 1913, but was subject to much greater fluctuations. In particular, shipments to other countries showed a marked downward trend. Before 1914, 33 per cent of production was normally exported. In the early 'twenties this figure was down to 30 per cent and in the early 'thirties to 20 per cent.

During the first world war the Government had assumed full control of the industry. In consequence of the unrest in the industry after the war a Commission was set up, under the chairmanship of Mr. Justice Sankey, to investigate the future of coal-mining. Members of the Commission reached divergent conclusions but the chairman and other independent members recommended state ownership of the mines on payment of compensation or unification by some other means.

Meanwhile, attempts to bring about economies by amalgamation of collieries, which had been considered by the Sankey Commission in 1919, were advanced by the Mining Industry Act 1926 which enabled colliery owners to prepare and submit to the Board of Trade schemes of amalgamation designed to secure greater economy and efficiency in working. To strengthen the move towards amalgamation a Coal Mines Act was passed in 1930, establishing a Reorganization Commission with the duty of bringing about the formation of larger and more efficient units. The Reorganization Commission was abolished by the Coal Act, 1938 which transferred ownership of mineral coal to the State and made it the statutory responsibility of a Coal Commission to accelerate the integration of the industry by still further reducing the number of separate undertakings. **However, at the outbreak of the second world war in 1939 this process was not far advanced.**

The second world war brought exports to a standstill and accelerated a downward trend in output, productivity and labour force. At the same time there was a

steady upward movement in demand. No longer were there problems of finding markets for the coal produced: the main task was to produce enough coal to meet urgent needs. The need for greater output per man employed and for more labour in the industry was stressed in a White Paper on Coal presented to Parliament in 1942. To achieve these aims the Government took over full control of the operation of all coal mines and of the allocation of coal raised. A Ministry of Fuel and Power was established with the general duty of ensuring the effective and co-ordinated development of fuel and power supplies, and of promoting economy and efficiency in their distribution and consumption. At its head was a Minister assisted by a Controller-General. To advise the Controller a national board and regional boards were set up.

### THE REID REPORT

In 1944 the Government appointed a committee of seven mining engineers under the chairmanship of Sir Charles Reid to investigate the current technique of coal production and advise what technical changes were necessary in order to bring the industry to a full state of technical efficiency. In its report, published in 1945, the Committee stressed the urgent need for reconstruction in the industry to eliminate uneconomic units and make possible a wide range of technical reforms, which were outlined in the report. It emphasized the inability of the then existing system of ownership to carry out this reconstruction and recommended the setting up of an authority to carry out the changes on a national scale.

### THE NATIONAL COAL BOARD

In 1946 the Coal Industry Nationalization Act was passed. This brought the coal-mining industry into public ownership and control under a public corporation—the National Coal Board. It transferred to the Board all coal-mines, all mineral rights in coal and any other mineral rights which were held by the Coal Commission or by colliery concerns and could not be developed except as a by-product of coal-mining; and most of the ancillary undertakings run by colliery concerns. On 1st January 1947, therefore, the Board took over 1,500 collieries and many ancillary undertakings such as brickworks, coke-ovens and by-product plants. The Board now operates about 900 collieries which produce nearly all the mineral coal, while the remainder are 'small mines' (of 30 or less men underground) run by private operators under licence from the Board. Opencast mining, for which the Ministry of

Fuel was previously responsible, was transferred to the Board on 1st April 1952. The Board operates nearly half Britain's coke and by-products plants and is Britain's second largest producer of bricks.

### DUTIES AND POWERS

The 1946 Act charged the Board with responsibility for securing the efficient development of the country's coal production and with making coal available in such quantities and at such prices as may seem to them best calculated to further the public interest, without giving undue preference or advantage to any consumer. The Board was empowered to mine, treat and sell coal and to prepare and sell coal by-products. It was given a monopoly of coal-mining, but not of distribution of coal or of the preparation and sale of coal by-products. In addition, the Board was especially enjoined to secure the safety, health and welfare of persons in its employment and the benefit of their technical knowledge and experience.

### PUBLIC CONTROL

The Board is responsible for the general fulfilment of its task to the Minister of Fuel and Power and through him to Parliament and the public. It is required to conform to any special policy directives which the Minister may give it on matters affecting the national interest, and to publish and submit to him an annual report and accounts, which he lays before Parliament. The accounts must be in the form which the Minister directs and must be audited by an auditor, whom he appoints. The Minister has other powers of control—over the use of capital funds, for the appointment and dismissal of members of the Board and certain other persons, and powers of enquiry. He is, in fact, in frequent consultation with the Board on a wide range of matters, though he does not in any way intervene in day-to-day administration.

Parliament exercises a general surveillance over the conduct of the coal industry as over other nationalized industries. Its principal instruments of control have, till now, been debates—including a debate on the annual report and accounts—and Parliamentary questions. A select committee of the House of Commons on the nationalized industries was appointed in 1955 to obtain and clarify for the benefit of Parliament, information about nationalized industries, but its terms of reference proved too narrow. The Prime Minister has announced that a new select committee is to be

appointed 'to examine the reports and accounts of the nationalized industries.'

The Coal Industry Nationalization Act provided for the setting up of consultative bodies to represent the interests of coal consumers. Two coal consumers' councils at the national level have since been set up.

1. *The Industrial Coal Consumers' Council* whose members represent consumers, merchants and suppliers of coal, coke and manufactured fuel for industrial and other purposes involving supply in bulk.
2. *The Domestic Coal Consumers' Council* whose members represent similar groups concerned with coal for domestic use.

These councils are responsible to the Minister of Fuel and Power, not to the National Coal Board. The composition of the Councils is left to the discretion of the Minister, who includes representatives of the National Coal Board. At present, the industrial council has a chairman and nineteen members and the domestic council a chairman and twenty-five members. The councils are required to make annual reports to the Minister, who lays them before Parliament. Both the councils prefer to meet in private in order to encourage freedom of discussion.

The most important function of the councils is the general consideration of the commercial arrangements and activities of the National Coal Board, and to ensure that the monopoly in the industry set up by the 1946 Act shall have the maximum practical regard for consumers' interest. Quality and adequacy of supplies have been prominent among the subjects discussed.

The councils only consider complaints after they have been first put to the Board or the appropriate authority and a satisfactory answer has not been provided. The councils are therefore more free to discuss questions of a wider importance.

## CONSTITUTION OF THE BOARD

The members of the Board are appointed by the Ministry of Fuel and Power and must appear to him to have had experience or shown capacity in industrial, commercial or financial matters, applied science, administration or the organization of workers. The 1946 Act laid down that the Board should consist of a chairman and eight full-time members, each responsible

for a special Department. In 1949 the statutory limits of the Board's membership were changed to eight to eleven persons of whom not more than eight could be full-time and in 1951 the Board was reconstituted to include some part-time members free from departmental responsibilities.

The Board was again reorganized in February 1955, in accordance with the recommendations of a Committee on organization (under the chairmanship of Mr. Alexander Fleck) which it had set up in December 1953. The existing Board's members resigned voluntarily and the Minister of Fuel and Power appointed a chairman, deputy-chairman, six full-time and four part-time members, several members including the chairman being new appointments. The full-time members all share fully in responsibility for the Board's general policy but each of them is also concerned with a special aspect of the Board's activities.

## DEPARTMENTAL ORGANIZATION

The Board set up a strong headquarters organization with a number of specialized departments. The Fleck Committee criticised the existing departmental organization. It recommended that 'Personnel' functions should be divided between two Departments, Industrial Relations and Staff, and not as formerly between three, Labour Relations, Manpower and Welfare, and Establishments. It further recommended that a new Purchasing and Stores Department should be set up. Production and Carbonisation Departments at Headquarters strengthened, the Medical Service given independent status, and a new Bricks Department set up. The recommendations were accepted save that for a Bricks Department; instead a Chief Brickworks Engineer was added to the Production Department. The Departments at present are therefore: Staff, Industrial Relations, Marketing, Purchasing and Stores Finance, Production, Scientific, Carbonisation, Legal and Medical Departments.

## DIVISIONS, AREAS, COLLIERIES, GROUPS

For administrative purposes the Board from the first divided the coalfields of Great Britain into Divisions (see Table 1) most of which were sub-divided into areas, 48 in all, which formed the main units of management. To run Divisions the Board appointed subordinate non-statutory bodies called Divisional Boards, consisting mainly of the heads of certain functional Departments in each Division and delegated to them considerable authority.



The day to day running of collieries was in the hands of colliery managers who reported to the Area Manager and got help and advice from Area specialists. On the by-products side, there were Carbonization Departments at certain Divisional Headquarters, to whom coke-oven managers were responsible.

and colliery. They also recommended some standardization of departmental organization at Divisional Headquarters and an end of the practice of appointing part-time members to Divisional Boards. These recommendations have been accepted in principle but existing part-time members were invited to continue in office.

TABLE I  
THE BOARD'S DIVISIONS

Division	Coalfield	No. of Areas	No. of Pits	Approximate Annual Output in 1955 (million tons)
Scottish	Scotland	8	174	21.7
Northern (a) (N. & C.)	Northumberland Cumberland	4	68	13.4
Durham (b)	Durham	6	132	25.4
North Eastern	Yorkshire	8	112	43.5
North Western	Lancashire, Cheshire and N. Wales	5	72	15.4
East Midlands	Nottinghamshire Derbyshire Leicestershire	6	89	45.8
West Midlands	N. & S. Staffs Cannock Chase Salop Warwickshire	4	53	17.4
South Western	S. Wales Monmouthshire Dean Forest Somerset	7	163	23.8
(South Eastern)	Kent	1	4	1.5
Total		49	867	207.9

(a) Northern (N. & C.) and Durham were originally organized as one division.

(b) Kent, originally organized as a Division, now operates as an Area.

The Fleck Committee suggested no alterations in the number of Divisions or Areas, but they found that too many persons were reporting direct to the Area Managers and they recommended that an intermediate link in the chain of command be inserted between Area

The Board decided that the intermediate level of management between Area and colliery should be called Group, and the men in charge Group Managers. In all there will be about 200 Groups, each comprising not less than two collieries and most groups have now been established. The Group Manager will have only a small supporting staff.

The Committee recommended giving colliery managers assistants to help with administration and staff.

GENERAL POLICY

The main primary sources of energy used in Britain are coal, petroleum and water power, while the main secondary sources are electricity and coal gas.

Output of coal had, when the Board took over, been declining since 1913 and saleable output of deep-mined coal in 1946 was 181 million tons compared with 227 million tons in 1938. The fall in production was partly due to temporary factors arising out of the war and its aftermath and the uncertainty attending the prospective transfer of ownership. Longer term factors were, however, also important. The preceding thirty five years had contained two world wars when development was sacrificed to immediate production and a long period of depression and unemployment between the wars when coal output was restricted, financial returns low and the prospects of capital expenditure in coal far from alluring. After the second world war, only one-tenth of output was coming from mines opened since 1921 and two-thirds was coming from mines opened before 1900. The effect of high extractions without new development had been a progressive and accelerating decline in the capacity of the industry.

The main coal-bearing areas in Britain are (1) the Yorkshire, Derbyshire and Nottinghamshire field (2) the Durham and Northumberland field (3) the South Wales field and (4) the Scottish field and (5) Lancashire and North Wales. The relative importance of these different areas has changed greatly over the

past 75 years. In the Durham and Northumberland, South Wales and Scottish fields many of the best seams have been exhausted, relative costs have been rising and output falling. In the Yorkshire and East Midlands fields, many pits are less than fifty years old, development is continuing and production expanding.

In spite of the decline in total output, coal supplies 85 per cent of Britain's energy needs. Workable reserves of coal are still large and have been estimated at 43,000 million tons, sufficient to last 200 years at present consumption rate, though certain high quality coking coals would be exhausted much sooner. On the other hand, nearly all petroleum is imported; and water power resources are limited. The immediate contribution of nuclear power is negligible and its development inevitably slow: it was expected according to the last published information to supply the equivalent of 5-6 million tons of coal in 1965 and 40 million in 1975, though technical developments recently mentioned by UK representatives at the World Power Conference suggest that these are under-estimates.

Energy demands have been rising steeply and are certain to go on rising. Sources of power alternatives to coal can with difficulty be developed sufficiently fast to meet even the rise in demand. Moreover, coal is still the most economical fuel for many purposes and can still be produced more cheaply in Britain than in most other countries. Investment in development of the coal industry shows a higher return in terms of addition to fuel capacity than any other form of investment in fuel and power.

The first and most important objects of Britain's fuel and power policy remain, therefore, the expansion of coal supplies and the development of the coal industry.

The National Coal Board is thus faced with two major tasks; securing an immediate rise in production to meet current demand and planning and executing a major scheme of reconstruction and new development to meet the increased demands of the future. To some extent, the two aims are conflicting, as development and long-term exploration and research absorb manpower and the output of certain pits is reduced during reconstruction.

## PRODUCTION

The Board was successful in rising saleable output of deep-mines coal from 181 million tons in 1946 to

212 million tons in 1951 (see Table 7) through increasing productivity by mechanization, simple reorganizations and other short-term measures (see below).

In 1952 the Board was able temporarily to increase its labour force and therefore its production because a trade depression led to redundancy in textile and other consumer industries and thus made it easier to recruit labour to the mines.

The average labour force, however, declined from 716,000 in 1952 to 704,000 in 1955 and deep mined production fell from 214.3 million tons to 210.2 million tons. The published figures are for output of saleable coal and somewhat under-estimate the amount of current production compared with that of earlier years owing to improvements in standards of cleaning coal. For example, about 12½ million tons more dirt and waste was extracted from deep-mined output in 1955 than in 1947.

Throughout this period open-cast coal-getting was carried out by contractors first on behalf of the Ministry of Fuel and Power and from 1952 for the National Coal Board. It produced between 10.2 and 12.4 million tons of coal per year at a low cost in money and men.

## PRODUCTIVITY

Between 1946 and 1951 productivity rose rapidly (see Table 7). Mechanization of cutting and conveying, which was already widespread, was extended and became the general practice, while improved machines and methods were introduced. Transport development was particularly important. In the six years up to and including 1952, the number of locomotives in Britain's mines increased from 80 to 510 (450 diesel, 60 electric) while many rope haulage systems were replaced by conveyor belts. At the same time some unproductive pits were closed and some of the more productive pits developed, with additional labour and machinery. Some labour savings were made possible both below and above ground by the unification of ownership, while others resulted from improving organization and methods at particular collieries.

By 1951 the process of increasing productivity by these relatively simple and inexpensive methods had been carried almost to its limits. Further progress depended on the development of machines for power-loading the coal cut from the face straight, on to conveyor belts so that the processes of cutting, loading

and conveying can proceed simultaneously and continuously; on thorough reorganizations of underground transport, e. g. the introduction of the horizon system of mining, when the main roadways are straight and level instead of following the seams; and on major schemes of reconstruction and new development which were bound to take time to complete.

In 1952 productivity fell somewhat, mainly because of the larger intake of new labour requiring training and not contributing directly to production. Between 1952 and 1954 there was a gradual increase in productivity, and in 1955 productivity was at about the same level as in 1954 and higher than in any previous year. The main reason for the increase in productivity since 1951 is probably the spread of power-loading as the development of new machines made possible its wider application to varied coal-mining conditions.

The main methods of working coal used in Britain are the 'longwall' and 'bord and pillar' methods. In the first method, which accounts for about 85 per cent of output the coal is won along the whole of a long face in the seam and extraction is fairly complete. In the 'bord and pillar' method, however, extraction is only partial and large pillars of coal are left behind to support the roof. This a rapid method, suitable where seams are thick and only light support is needed.

The orthodox British method of longwall working is cyclical, by which three shifts are worked every 24 hours—loading the coal onto the conveyor takes place during only one shift, while the other two shifts are for cutting and bringing down the coal from the face, and for packing and ripping (i. e. packing the space from which coal was removed with waste to support the roof, and ripping down portions of the roof above roadways).

Of recent years attempts have been made to replace the cyclical method by continuous mining. The latter method avoids the necessity of completing the work of one shift before the next can start and also the inevitable dislocation to production in the event of a breakdown or hold-up in one phase of the cycle. Trials of new machines and equipment, including a large number of armoured conveyors, are being made in the process of developing fully mechanized continuous longwall mining. These armoured conveyors play an important part as they can be placed directly against the coal and be moved over section by section as the coalface advances (whereas in normal

working the face conveyors have to be reassembled on each cycle of operation). They can also partially load the coal blown down on to them in conventional working where no power loading machines are used.

The percentage of mined coal, which is power loaded rose from 7½ in 1951 to 11.1 (or 27 million tons) in 1955. This coal was loaded by 544 power loading machines, most of which have been developed since the end of the second world war. The most widely used were the 142 Meco-Moore cutter loaders which loaded 9 million tons. Of the new machines, the most important is the Anderson Shearer loader, which has proved applicable (in conjunction with armoured conveyors) to many different conditions, where power loading was not previously applicable. 83 of these machines were in use in 1955 compared with one in 1952. Other machines include the Trepanner and the Joy Continuous Miner for continuous mining by the room and pillar system.

## LABOUR

After the war the coal-mining industry had a severely depleted labour force. Many young potential miners had been absorbed into the Armed Forces while many of the youths conscripted to the mines as an alternative to serving in the Armed Forces, and of the older miners who had been asked to remain at work after normal retiring age, began to leave the industry. There was, moreover, strong competition for manpower for other industries and this competition has persisted. In addition to the general shortage there were acute shortages of skilled craftsmen, of mining engineers and of many types of specialists.

To remedy this situation the Board has made vigorous efforts to recruit more men and to reduce wastage. It has improved wages, and conditions, greatly increased facilities for education and training leading to promotion and has paid special attention to housing. The Board has built some 20,000 houses in selected areas, in addition to current housing programmes for miners. It has conducted recruitment campaigns, in which it has publicised these new attractions of a career in the industry.

These measures have had some success in maintaining a high rate of overall recruitment and in stimulating recruitment of boys under 18, but wastage has continued high and has exceeded recruitment in all but three of the years since nationalisation. Recruitment and wastage since 1953 is shown in Table 2.

## WAGES AND CONDITIONS OF WORK

Pay increases introduced by the Board have raised average earnings (including the value of allowances in kind) per man-shift (7½ hours) from 36s. 10d. in 1947 to 63s. 7d. in 1955 for face workers and from 28s. 10d. to 50s. 11d. for all workers.

The Board has not only had to raise wages to meet changes in the cost of living and to attract and hold labour in a competitive labour market, but has had to set about rationalizing the anomalous wage structure bequeathed to it by the many enterprises from which it took over. The first stage of this task was completed in 1955 when a new wage structure was agreed with the National Union of Mineworkers and introduced for 400,000 day-wage men in the industry. The new structure was based on a careful survey which identified 400 different jobs in the industry and grouped them into 13 grades for wage purposes. The new rates were only applied when the men did not lose by them and 30 per cent of day-wage men accordingly stayed on their old rates. Wages of day-wage men were again raised in February 1956. Current shift-rates for adult workers underground now vary from 30s. 1d. to 38s. 1d. according to grade, and weekly minima for the lowest grade of adult male workers are £9. 0s. 6d. for underground workers and £8. 0s. 6d. for surface workers. Investigations preparatory to the negotiations of new rate structure for piece workers and task workers are proceeding but will not be quickly and easily completed.

In May 1947 the Board reached an agreement with the National Union of Mineworkers for the introduction of the five-day week. The normal working week for underground workers is five shifts of 7½ hours each, plus the time it takes to raise the workers to the pithead after each shift. Since November 1947, however, most underground workers have voluntarily worked an additional Saturday morning shift in accordance with an understanding to that effect between the Board and the NUM.

Employees in the industry receive two weeks annual holidays with pay in addition to six statutory public holidays. Under a contributory pension scheme they are entitled on retirement from the industry to a pension additional to any to which they may be entitled under the National Insurance Act.

## EDUCATION, TRAINING AND PROMOTION

The Board's policy is to recruit boys under 18 and train them. Preliminary training takes place partly

at Group training centres and partly at technical colleges and lasts for 16 weeks during which normal wages are paid. After preliminary training, boys are allocated to a colliery where the colliery training officer is responsible for the continuance of training and for supervising the personal welfare of the new entrants. It is customary to give boys an all-round training in underground work so that even those who intend to be face-workers spend time on haulage. Boys who want to become crafts-men serve a five years apprenticeship in their chosen trade and may be sent to part-time day courses at technical colleges to obtain recognised qualifications.

Boys selected for ability are released from work to attend technical colleges for part time day courses of study leading to National Certificates in mining and mining survey and have in this way an opportunity of promotion to colliery manager or under-manager. The National Coal Board also awards 100 scholarships a year tenable at any University for boys inside and outside the industry to enable them to become mechanical or electrical engineers.

## SAFETY, HEALTH AND WELFARE

The safety, health and welfare of workers in mines and quarries are the subject of comprehensive legislation. Protective legislation in mines began with an Act of 1842, which forbade the employment of women underground, and successive measures since then laid down detailed requirements for the safe conduct of operations and dealt with such matters as ventilation, dust suppression, rescue work, first aid and the initial medical examination of certain new entrants by official doctors. The latest stage was reached when the Mines and Quarries Act was passed in 1954. This Act establishes the basic modern principles of safety, health and welfare, leaving the details to be dealt with in statutory regulations; it both consolidates the previous law and brings it up to date. Apart from technical matters, it also covers such subjects as the general responsibilities of owners and managements, the appointments and duties of officials, training, welfare, the powers of official inspectors, statutory qualifications of managers and under-managers, employment of women and young persons, and inspection on behalf of workmen.

The Ministry of Fuel and Power is generally responsible for the administration of these enactments while the Mines and Quarries Inspectorate, which is part of that Ministry, is directly responsible for their enforcement.

The National Coal Board is expressly charged with securing the safety, health and welfare of its employees and has set itself to accomplish this in all practicable ways.

*Safety.* The Board has its own safety organization—a Standing Committee on Safety, a Chief Safety Engineer, and Safety Engineers at Divisions, Areas and the largest collieries. It conducts courses of safety training for workmen and officials and is constantly on the alert for new methods of reducing risks. Its research programme includes a number of projects with a direct bearing on safety. Examples of recent voluntary action by the Board to reduce risks include the use of fire-resistant conveyor belting, the stone dusting of roadways and other dust control measures, and the withdrawal of light alloy equipment from the coal face pending the development of an alloy unlikely to cause dangerous sparks.

The Ministry of Fuel and Power runs extensive Safety in Mines Establishments at Buxton and Sheffield.

*Health.* The health services provided by some of the larger collieries before 1947 have been extended by the Board to provide for the coal industry a comprehensive industrial medical service. The Board's employees, like all UK residents, already have available to them the personal medical service (National Health Service).

The aims of the Board's Medical Service are, briefly, to ensure that new entrants are fit for work in the mines, to help the men in the industry to keep healthy, and to assist in placing disabled workers in suitable jobs. By the end of 1955 there were 66 doctors employed full-time by the Board and 302 medical centres at collieries. Each centre is staffed by a State Registered Nurse usually assisted by a specially trained staff. The centres give first treatment for injuries and illness at work and are visited regularly by the Board's doctors who also see workers by appointment and discuss their health problems with them. There are also first aid posts manned by men trained in first aid throughout the collieries including the smaller pits, and all Divisions have schemes for further first aid training.

During the year 1955, nearly all new entrants to the industry were examined clinically. All new entrants in South Wales had an 'X-ray' of the chest and similar arrangements were also introduced in the Scottish, Durham and Northern (N. & C.) Divisions. An increasing number of periodic examinations were made of men employed at the Board's ancillary plants who, like other

workers involved in producing materials such as tar and pitch, are exposed to the risk of skin cancer.

A major preoccupation of the medical service is to reduce the toll from the occupational diseases of coal-mining. One of the most formidable of these is pneumoconiosis which has been common in the coal-mines of South Wales and became more so as mechanization increased coal dust concentrations. The Board has reduced dust concentration by damping and stone dusting and the use of specially designed drills. These measures have greatly lessened the reported incidence of pneumoconiosis in South Wales, but the figures of its incidence have been rising elsewhere probably because more mine-workers know about the dangers of the disease and the advantages of treatment and so report on this ailment. It is almost certain that the disease is in fact becoming less prevalent as more progress is made with dust suppression measures. No cure of dust diseases is known but it is possible to give considerable relief of symptoms. In some cases, to halt the further progress of the disease, it is thought best to remove the man from further exposure; in others it is thought that the man can safely continue in his old work provided he works only in approved dust conditions and is subject to medical re-examination from time to time.

Measures taken since 1947 have helped to reduce unemployment among sufferers from pneumoconiosis by more than four-fifths. The most important factor in achieving this has been that, under the National Insurance (Industrial Injuries) Act, men may be paid benefits for pneumoconiosis even though they continue work in the process which caused it; there is no automatic suspension from the scheduled occupation as there was under the Workmen's Compensation Acts.

Another factor is that in 1951 the Ministry of National Insurance introduced a scheme whereby persons who had been certified as suffering from pneumoconiosis and suspended under the Workmen's Compensation Schemes could apply to the Silicosis Medical Board for permission to return to work in the coal-mining industry under approved dust conditions.

Colliery managers and personnel experts on the Board's staff co-operate closely with medical and social workers of the Miners' Rehabilitation Service. This service comprises seven residential centres in England and Wales. The first of these centres was set up in 1939 by a group of colliery owners with the co-operation of the National Union of Mine-workers. As

an outcome of this experiment, the Ministry of Fuel and Power three years later requested the Miners' Welfare Commission to develop a nation-wide service. In 1951 the centres were transferred to the National Health Service. Miners have priority for admission, but a small percentage of other orthopaedic patients are taken. There is also one miners' rehabilitation out-patient centre in Scotland under the Coal Industry Social Welfare Organization. All patients admitted to the centres have sustained serious injuries. For the centres in England and Wales, the average period between injury and admission is four months and the average period of total disability is six months.

*Welfare.* Organized welfare in the industry began with the Miners' Welfare Committee set up in 1920 following the recommendations of the Sankey Commission. In 1939 the Welfare Committee became a Welfare Commission. In 1947 the N. C. B. was also made responsible for providing for the welfare and education of its employees, and, to avoid overlapping, a National Miners' Welfare Joint Council was created to direct and plan all welfare arrangements. Welfare expenditure was by this time covered by a 1d. a ton statutory levy on output (providing about £800,000 a year), a 5 per cent levy on mining royalties (about £110,000 a year), and a further 2d. a ton which the N. C. B. volunteered to provide. In addition, the Board took over the responsibility for upkeep of baths and improvements to canteen at an annual cost of £1,500,000 (or nearly 2d. a ton of output). Out of this income, miners have been provided with pithead baths, institutes, canteens, convalescent homes, scholarship funds and a variety of recreational facilities.

In 1952 the statutory levy came to an end and the Board took over responsibility for all colliery welfare (baths, canteens, and so on) while the social welfare side became the responsibility of a new organization known as the Coal Industry Social Welfare Organization, which was controlled jointly by the Board and the miners' trade unions. To finance social welfare the Board make available a first payment of about £1 million held by the Miners' Welfare Commission for social welfare purposes.

An outstanding welfare achievement has been the provision of pithead baths. By the end of 1955 there were baths at 622 pits with accommodation for nearly 677,000 men. It is estimated that the pithead bath programme will be virtually complete by the end of 1956. The Board in 1955 also operated 728 canteens with annual sales of £7½ million.

The Coal Industry Social Welfare Organization is concerned with providing and maintaining buildings and grounds for recreation and sport, with organizing and encouraging sport, indoor recreation, cultural and social activities, with youth work, with the social needs of the sick and disabled and with administering a fund for giving scholarships and exhibitions at universities to promising children of mineworkers. Its activities on behalf of the sick and disabled extend almost into the medical field as it operates a number of convalescent homes as well as the out-patients rehabilitation centre at Uddingston in Scotland. In 1954, it spent nearly £700,000 on social welfare of mineworkers and their families of which nearly £500,000 was for buildings for recreation and sport.

## NEGOTIATION OF WAGES AND CONDITIONS

Up to 1943, miners' wages were negotiated on a district basis. Each mining district had its own trade union, and negotiations were conducted in England and Wales through boards based on the various coalfields and in Scotland through a conciliation board. The mine-owners, on the other hand, were united in the Mining Association of Great Britain.

The miners' unions were loosely linked in the Miners' Federation of Great Britain, but the Federation had little power and there were substantial differences of practice and output in the different districts.

From 1921 to the general strike in 1926, a national board acted as a court of appeal from district decisions. In 1930 the Government passed an Act providing for national conciliation machinery, but owing to the mine-owners' opposition the machinery was never worked.

In 1942 a Board was set up to investigate wage claims and arrangements for negotiation and conciliation in the coal-mining industry. On its recommendation a national minimum wage was introduced and a national conciliation scheme was agreed. The scheme provided for a national joint negotiating committee of 22 members, to which reference might be made by district joint negotiating committees. If this national committee could not decide a dispute it could be referred to a National Reference Tribunal, consisting of three permanent, independent members and four assessors without voting rights, two representing labour and two from managements.

In January, 1945, the National Union of Mineworkers was formed and took over the industrial activities of the District Unions which were, however, left in being

as District Associations with a limited independence in certain matters. They might, for example, if they desired, raise and administer themselves separate funds for various non-industrial benefits.

In the autumn of 1946, negotiations on machinery for conciliation and wagefixing and for joint consultation were begun between the NUM and the National Coal Board in anticipation of the transfer of the mines to public ownership in January, 1947. Agreements signed in December 1946 and January 1947, continued with certain modifications the 1943 conciliation scheme.

Under the new agreement, which is still in force, the Joint National Negotiating Committee consists of 10 members appointed by the National Coal Board and not more than 14 representatives of the NUM. The constitution of the National Reference Tribunal remains unchanged. District conciliation boards have been set up consisting of six members of the Divisional Coal Board and of NUM representatives whose number is determined at district level. District referees are appointed to adjudicate unresolved differences.

Entirely comprehensive pit conciliation machinery has been established. Disputes that cannot be settled between the workmen concerned and the immediate officials must be discussed within three days with the manager or his representative; after three days, unless a settlement is reached or is in view in the opinion of a trade union official, the dispute must be referred to a pit meeting between representatives of the Union and management. If the pit meeting decides that it cannot resolve the dispute or has failed to do so within 14 days, the matter is referred to the District Conciliation Boards, who refer it to a Disputes Committee appointed for purpose. If once again unresolved within 14 days, the dispute is referred to an umpire appointed by the District Conciliation Board. If he is satisfied that the question is merely a pit question he will examine it with the help of assessors representing management and workers and give his decision, but if he is not satisfied that it is a pit question he must notify the District Conciliation Board, which will deal with it under the District Conciliation Scheme.

Separate arrangements exist for the coke-oven and by-products branches of the industry.

*Incidence of Disputes.* The industry has, since the war, been disturbed by a large number of disputes leading to stoppages of work. All these stoppages, however, have been without the support of the trade unions. In fact, the time lost by disputes in most

post-war years has been less than the average for the previous decades of the 20th century (see Table 3).

## JOINT CONSULTATION

The Coal Mines Nationalisation Act requires the N. C. B. to enter into joint consultation with its employees. At every colliery there is a consultative committee in which the workmen's representatives are elected by secret ballot. The colliery manager is chairman and nominates three colliery officials to be on the committee. There are also consultative councils at the area, divisional and national levels on which the Board, and the four main trade unions are represented. Separate but similar arrangements cover manual workers in coke and by-products establishments.

## MARKETING

The Board, as the sole producer is bound to make the first sale of coal, whether to a wholesaler, a retailer or direct to the ultimate consumer. Beyond these first sales the Board has no monopoly of distribution though it does act as a wholesaler and has a substantial stake in the retail coal trade in the colliery areas.

It is, however, the policy of the Minister and the Board that the marketing of coal must be controlled centrally. The principal marketing officials of the Board are also Officers of Minister of Fuel and Power's Coal Supplies Organization, whose function is to share out the coal to consumers according to the Minister's determination of the national interest.

## PRICES POLICY

The Board has sought to establish a pricing system that is fair, consistent and economically sound. It has improved the sorting and grading of coal, largely by mechanization of cleaning and sorting, and has established pithead prices for each grade of industrial coal based primarily on quality i. e. value in use.

House coal on the other hand is sold retail at zoned delivered prices. For distribution purposes the country is divided into sixty zones; throughout each of these the delivered price of a particular grade of coal is uniform, but it differs from one zone to another to cover differences in transport and distribution costs. The price differentials between grades of delivered house coal, are, however, the same in all zones. The general level of prices is so fixed as to be sufficient to meet the Board's costs in total.

## SALES ORGANIZATION

Inland sales were at first handled by the Divisional and Area Offices, responsible for coal production. In 1953 the Board decided to reorganize these arrangements by splitting the inland market into nine sales regions, each with a regional sales office which would control the general flow of coal into the region, co-ordinating all supplies and giving the necessary service to all consumers. These offices now, in fact, sell virtually all the coal going into their regions. Thus the Board's marketing organization is now more closely related to the districts in which the coal is consumed, than to the district where it is produced.

## SUPPLY AND DEMAND

Although the level of coal production has risen appreciably since 1946, inland consumption has risen even faster—mainly because of the expansion of industrial output. In consequence, the proportion of output which is exported has greatly declined, compared with pre-war.

Table 4 shows the sources and uses of coal (under broad headings) in 1953, 1954 and 1955.

## INLAND CONSUMPTION

Table 5 sets out the inland disposals of coal for the main classes of consumer in each of the years 1947, 1950 and 1955.

In round figures, about 20 per cent of the coal consumed in 1955 was used domestically and collieries, 20 per cent went direct to industry and the remaining 60 per cent went to coke ovens and to public utilities (electricity, gas, railways, and water) and for miscellaneous uses. The coke produced by the ovens is used mainly in the iron and steel industry and much of the combined output of electricity and gas is used industrially. Hence, about half the coal consumed in the United Kingdom is used directly or indirectly in industry.

The trend is for the demand from power-stations to increase in spite of higher efficiency and greater use of alternative energy sources. Coke ovens are also using more. On the other hand demand from railways is falling and will fall more rapidly with the wider use of diesel and electric traction. Collieries also are using less coal as a result of the installation of more economical steam raising plant and conversion to electricity.

The level of inland consumption in any year is greatly affected by weather conditions and by the level of industrial activity. It is also influenced by Government restriction schemes. Coal for domestic use is still limited under the Coal Distribution Order, 1943, by the imposition of 'maximum permitted quantities'. These vary according to the seasons of the year and also between the northern and southern halves of the country.

## EXPORTS AND IMPORTS

Since the war there has been a virtually unlimited demand for exports of British coal. Britain has exported all the coal it could spare and has had to balance the needs of overseas customers with the high and rising internal demand. Exports (excluding bunkers) rose from 4.5 million tons in 1946 to 13.9 million tons in 1949. In 1950 there was a slight decline to 13.5 million tons and in 1951 when exports had to be restricted owing to manpower shortages, they declined to 7.8 million tons. Overseas shipments rose in 1952 to 11.7 million tons, in 1955 to nearly 14.0 million tons and in 1954 were 13.7 million. Reckoned by value, exports increased from £9.1 million in 1946 to £50.8 million in 1949, £62.2 million in 1953 and £59.1 million in 1954. In 1955 exports were deliberately cut to 12.2 million tons to reduce the need to import American coal which is expensive and must be paid for in dollars.

The greater part of exports of British coal is sent to Europe, and especially to the Irish Republic, Denmark, Sweden, Germany and Italy. Table 6 shows the quantities of coal exported to different countries in each of the years 1913, 1938, 1946, 1954 and 1955.

Practically all British coal exports since the war are covered by trade agreements and commitments undertaken through the Coal Committee of the Economic Commission for Europe, and the National Coal Board has sought to honour its old customers even when it has meant importing coal at great expense from Europe and the United States and selling at a loss at the prevailing internal prices.

Another factor governing importation of coal has been the need to bring coal by water close to the point where it is required, so relieving congestion on the railways, which at the peak of the winter is very severe. During the winter of 1950—51 the Board imported 1.2 million tons of United States coal and, in addition, about 10,000 tons from India and a similar amount from Nigeria. In 1951—52, 350,000 tons were imported



from India and the United States. In 1953, as an insurance against a shortage of coal during the winter, the Board imported 346,000 tons from France and the Saar, 187,000 tons from Belgium and 24,000 tons from Germany. There were further imports in the winter of 1954/55.

## FUEL EFFICIENCY AND SMOKE ABATEMENT

The Government has for a number of years sought to promote efficiency in the use of fuel, among both industrial and domestic users, and has been assisted by various bodies representative of producers and consumers. This campaign is gradually altering the character of demand and is helping to make it easier to meet. It is closely linked with the campaign to reduce smoke, which is wasteful as well as unhealthy and dirty. *The Coal Utilization Council* is financed by the National Coal Board, coal distributors and coal appliance manufacturers and consists of representatives of these interests. It was formed in 1932 to give information and advice on the best use of solid fuel appliances to domestic consumers and retailers of appliances. During the second world war the reduction in coal production and the demands of war industry made economy imperative. When the Ministry of Fuel and Power was formed in 1942, an *Industrial Fuel Advisory Service* with regional branches was incorporated within it. In 1943 the *Women's Advisory Committee on Solid Fuel*, consisting mainly of representatives of appliance manufacturers, women's organizations and others interested in the housewife's point of view on domestic fuel arrangements, was formed to advise women on the use of solid fuel for heating and cooking.

Further measures have been taken during the last four years. Under a scheme introduced in 1952, loans on favourable terms are available from the Exchequer to industrialists for financing approved fuel-saving schemes. In October 1953 a non-profit making company, known as the *National Industrial Fuel Efficiency Service*, sponsored by the British Productivity Council, was formed to promote fuel-saving in industry. The new company, which took over most of the work of the Industrial Fuel Advisory Service of the Ministry of Fuel and Power, came into operation on 1st May 1954. It offers a wide range of advice and services to non-domestic fuel users. The National Coal Board has undertaken to contribute £250,000 a year for the next five years to the new organization and the Central Electricity Authority and the Gas Council have similarly undertaken each to contribute £100,000 a year. The electricity and gas industries, the largest

consumers of primary fuel, are succeeding each year in obtaining more energy from each ton of coal they use by increasing the thermal efficiency of their plants.

The Board has a three-fold interest in fuel efficiency and smoke abatement: as a fuel producer, faced with an excessive demand, as an industrial fuel user, especially in colliery boiler plants, and as the landlord of many thousands of domestic fuel users.

In a year the Board produces these quantities of smokeless fuels:

Anthracite	8,000,000 tons
Dry Steam Coal	
Coke (domestic and industrial)	7,500,000 tons
'Phurnacite' carbonized ovoids	300,000 tons
Gas (sold to Gas Boards)	50,000 million cubic feet.

The Board's development plans provide for expanded production of these fuels, and the Board's Central Research Establishment is concentrating its efforts on finding better processes for making new kinds of smokeless fuel.

As one of the largest single consumers of coal in the country, the Board is doing all it can to bring out greater efficiency in its own boiler plants. About 10 million tons of coal are used every year for steam raising in 4,000 colliery boilers. About 500 of these boilers are Lancashire boilers, of which 2,500 are hand fired. The Board is installing equipment for mechanizing 500 boilers at a cost of more than £700,000—the largest order ever placed for this type of equipment. At the same time, it has introduced control equipment and instruments to increase the efficiency of the plant in use, and has begun a training scheme for its boilermen. An examination and certificate for boilermen has now been instituted by the City and Guilds Institute in London: of the first 116 awards, 107 were to Coal Board students.

Big savings in fuel can be made by electrifying colliery plant and eliminating the direct use of steam, and the Board has continued to instal new electric winders and to convert existing steam-driven engines to electric drive.

During the last few years progress has been made in replacing old and inefficient grates and ranges in some

140,000 houses owned by the Board and many thousand new appliances have been installed. In the new houses being built for mineworkers only approved types of appliances are being installed. Improved insulation to reduce heat losses is also being incorporated in their construction.

## FINANCE

The Board is expected to pay its way taking one year with another, but it is not meant to make a profit for the Government. Any losses which it may make it is expected to make good out of profits later; any surplus must be devoted to the objects of the Board as laid down in the Nationalization Act, *i. e.*, the improvement and cheapening of coal supplies, the development of the coal industry and the welfare of the employees in the industry.

## COMPENSATION

Persons and corporate bodies whose assets were transferred to the National Coal Board have been compensated. For the purpose of assessing compensation to colliery owners, an independent tribunal made a valuation of the coal-mines as a whole on the basis of their earning power and arrived at a global sum of £165 million which was then apportioned to districts and then to individual undertakings. To this colliery compensation had to be added compensation for ancillary undertakings, for mineral rights owned by the Coal Commission and for special losses caused by the transfer of ownership. The total compensation due from the National Coal Board was estimated at £375 million. Compensation has been paid either in Government stocks or in money; the cost of compensation is being recovered from the National Coal Board by the Ministry of Fuel and Power through funded annuities.

## PROFIT AND LOSS

In each year since 1947 the National Coal Board has made an operating profit on the production and sale of coal by-products. In only four years, however, has the Board made a net overall surplus after providing for interest on its debt to the Ministry of Fuel and Power for compensation and money borrowed, for losses on imported coal and for taxation.<sup>1</sup>

In 1954 there was a deficit of £3.5 million and in 1955 of £19.6 million owing to a lag in adjusting prices to the rise in wages and other costs. The cumulative deficit for the whole period 1947—55 amounts to £36.7 million. This deficit is after depreciation provision which has amounted, since vesting day, to about £240 million, so that the Board had in fact some £200 million from its own resources to put towards gross capital expenditure.

## CAPITAL DEVELOPMENT

To arrest the decline in the industry, the Board has a long-term programme of reconstruction and development, and had up to the end of 1955 spent about £442 million on capital account. It plans to spend another £1,000 million by 1965. About half the total sum will be on major schemes, new mines or reconstructions, each costing over £250,000. By 1965 it is hoped to produce about 240 million tons with a labour force of 672,000.

Between 1947 and 1949, the first three years of public ownership, the Board invested some £72 million in capital projects in the industry. By the end of 1951 projects had been approved costing £145 million. These investments represented, however, the 'hard core'—*i. e.*, the basic minimum necessary to replace wasting assets and maintain current output of the different kinds of coal.

To decide what investments should be undertaken beyond this basic minimum the Board made a national study of the expected demand for coal in the markets at home and overseas and of the possible ways of meeting it from various sources of supply. Coal produced in one area often 'competed' with coal produced elsewhere and the future of one producing area depended on prospects in others. There had to be a careful weighing up of the possibilities in all the coalfields to ensure that neither too much nor too little capital was invested in any one of them and to avoid a larger surplus or shortage of coal in future years.

## THE ORIGINAL PLAN

An overall plan of reconstruction and development was required and, on the basis of a pit by pit survey made in 1948—49, the Board set out its programme of

<sup>1</sup> The Board is in principle liable to taxation on its revenue surplus but its actual taxation liabilities are not agreed with the Inland Revenue Department.

reconstruction for the years 1950—65 in the pamphlet 'Plan for Coal'. In presenting 'Plan for Coal', the Board emphasized its provisional character and the fact that it involved a number of assumptions.

The original plan intended to raise production of deep-mine coal from 203 million tons in 1949 to 240 million tons in 1961—65. In order to achieve this large increase in output it was proposed that more than 250 collieries should be reconstructed and that about 20 new large collieries and 50 new surface mines should be opened, that about 250 collieries should remain basically unchanged apart from minor improvements and mechanization, while the remainder would either be closed or absorbed in the reconstruction schemes. It was envisaged that the reconstructed collieries would provide 70 per cent of the necessary output, and that the new collieries and surface mines would provide a further 10 per cent.

In addition to the colliery schemes it was proposed to develop the industry's ancillary activities and services, such as coke-ovens and central workshops.

It was estimated that, when the reconstruction programme had been completed, the industry would require 80,000 fewer mineworkers than the 698,000 employed in 1950, provided that, throughout the period, the men required would be available at the right time and in the right places. This reduction, it was pointed out, would come about mainly by allowing wastage to exceed recruitment over the period.

The Board estimated that the cost of reconstructing the industry during the years 1950 to 1965 would amount to £635 million at mid-1949 prices. Of this sum, £520 million was to be spent on collieries and activities directly associated with collieries,<sup>1</sup> and £115 million on ancillary activities. Just over half the total £635 million was to be spent by the end of 1955.

The Board reckoned that its own internal financing, in particular depreciation allowances, would provide three-quarters of the £635 million required to implement the full plan. The remainder would have to be obtained by borrowings from the Minister of Fuel and Power.

The Board's borrowing powers were raised by the Coal Industry Act 1951, to a total of £300 million,

of which not more than £40 million could be borrowed in any one year without Parliamentary permission.

The progress of reconstruction has been somewhat slower than anticipated and the costs somewhat higher, both because of the general rise in wages and prices and of a certain under-estimation of difficulties in the original plan. Of the £442 million (including £69 million spent before 1950) spent on capital account between vesting day on 1st January 1947 and the end of 1955, £128 million was spent on 179 major colliery schemes, each scheduled to cost more than £250,000; £195 million on other capital expenditure at collieries; £25 million on colliery associated activities including health, welfare and research equipment and boring operations; and £74 million on associated development such as coke-ovens and by-product plants, workshops, stores, brickworks, houses, offices and laboratories. Only about half of the capital required had been provided by internal resources and £217 million, out of the £300 million authorized, had been borrowed from the Minister of Fuel and Power by the end of 1955.

#### THE REVISED PLAN

The Board had made an ad hoc review of production possibilities in 1952 following the publication of the Ridley Report<sup>2</sup> and had decided they might be able to increase output to 250 million tons a year by 1965.

By the autumn of 1955, the Board decided that, in view of their growing experience of the difficulties, costs and problems of reconstruction, the time had arrived for a review of the 1949—50 estimates based on another pit by pit survey. On the basis of this survey they put forward a revised plan which provides for an output of coal from all sources, including opencast, of 228 million tons in 1960 and 240 million tons in 1965. They have calculated that an output of 250 million tons a year cannot be obtained before 1970.

The capital cost of achieving these output figures, and of providing the money for major schemes to be completed after 1965, is estimated at £860 million for collieries and their associated activities. In addition it is proposed to spend £140 million on ancillaries. A total of £590 million will be spent in the next five years and £410 million in 1961—65.

While the revised plan will achieve a substantial increase in the industry's productivity, the present

<sup>1</sup> Report of the Committee on National Policy for the Use of Fuel and Power Resources, 1952 (HMSO, Cmd. 8647).

<sup>2</sup> These include boring, experimental equipment, medical centres, pithead baths for miners and central washeries for coal.

estimates indicate that corresponding decreases in cost of production will be offset by increased capital charges.

About two-thirds of the colliery expenditure (£860 million) in ten years to the end of 1965 is to be on major schemes (each costing more than £250,000). Out of this sum, £430 million is to be spent on schemes to be completed by 1965, including about a hundred which have not yet been started; £40 million is to be spent on schemes now in progress but which will not be completed by 1965; and a further £80 million is to be spent on schemes yet to be started which will not be completed until after 1965—that is to say, there will be £120 million in the 'pipeline' at the end of 1965.

Quite a large proportion of the total investment is on coal preparation plants designed to give the consumer a better product.

The level of capital expenditure for the five years after 1965 can only be indicated on the basis of present knowledge and present prices. The Board's provisional view is that investment in the following five years will not be much lower than the amount they propose to spend in 1961–65. Output from all sources in 1970 might then be about 250 million tons.

The new manpower estimates differ considerably from those of 1950. Instead of the 'Plan for Coal' estimate of 618,000 mineworkers in 1965, the Board now reckon that the industry will require 682,000 with an output per man-year of 319 tons in 1960 and 672,000 with an output per man-year of 342 tons in 1965.

## COAL INDUSTRY BILL

A Coal Industry Bill was given a second reading in the United Kingdom House of Commons on 10th May (Hansard Col. 1430). The object of the Bill is to raise the amount which the National Coal Board is authorized to borrow from the Minister of Fuel and Power to £650 million, £350 million more than the present limit of £300 million.

Mr. Aubrey Jones, Minister of Fuel and Power, moved the second reading. He said that he had approved the broad outlines of the NCB plans and estimates, as set forth in their pamphlet 'Investing in Coal'. The detailed estimates involved a number of assumptions but, within those assumptions, had been carefully worked out. They indicated that investment in coal could be effective at a lower capital cost than investment in any other fuel.

## RESEARCH AND SCIENTIFIC TESTS

The National Coal Board's Scientific department has two main tasks—to provide a day-to-day scientific service and to carry out research.

The day-to-day scientific service is provided by the divisional and area scientific organizations. Part of the service is to help ensure safety in the mines and to control the quality of coal output. In a year about 400,000 samples of mine air and 1,300,000 of mine dust are analysed. In most areas the properties of coal produced are reviewed every three months; elsewhere there is a full review once a year. Some 300,000 samples are examined in this way every year.

The Coal Survey, which operates from nine laboratories in the coalfields studies the physical and chemical properties of the national coal resources. Examinations are made of seams provided by preliminary boreholes and seams already being worked, and special studies to help with the planning of new collieries and the construction of other collieries are made.

The Board has two central research establishments. The first, which was set up in 1948 at Stoke Orchard, near Cheltenham, Gloucestershire is concerned with research into the treatment and processing of coal. The newer establishment at Isleworth, Middlesex, conducts research into underground mining and mechanical and electrical engineering problems met in the coal industry.

The Board has set up a new research and development establishment—a Central Engineering Department at Bretley, Yorkshire. The first task of this new establishment is the development of new coal face machinery. An almost equally important aim is the development of a fully mechanized support system.

Extra-mural research is also carried out by a number of autonomous research associations including the British Coal Utilization Research Association, the British Coke Research Association and the Coal Tar Research Association. In addition, much of the work of other bodies, such as the Safety in Mines Research Establishment of the Ministry of Fuel and Power and the Fuel Research Station of the Department of Scientific and Industrial Research, is closely related to coal mining.

The total sum spent on research by the NCB in 1955 was about £1 million of which about half was spent at its two main research establishments.

TABLE 2  
*Recruitment and Wastage, 1953—55*  
(N.C.B. Mines)

	1953	1954	1955 <sup>b</sup>
Net Recruitment	19,869	20,363	19,661
Newly employed boys (under 18 years)	11,738	16,760	17,157
Newly employed men (18 years or over)	19,997	23,663	24,136
Re-employed			
<b>Total</b>	<b>51,604</b>	<b>60,786</b>	<b>60,954</b>
Net Wastage			
Medical reasons, deaths and retirements	23,105	20,383	21,056
Dismissals	3,953	3,266	2,821
Other wastage	35,437	37,384	42,681
<b>Total</b>	<b>62,495</b>	<b>61,033</b>	<b>66,558</b>
Net change in manpower	-10,891	-247	-5,604

TABLE 3  
*Stoppages Caused by Industrial Disputes*  
(Great Britain)

Year	No. of stoppages starting in year	No. of workers directly or in-1 directly involved	Aggregate duration in working days of all stoppages in year
1900	120	70,000	436,000
1910	209	295,000	5,476,000
1920	213	1,407,000	17,415,000
1925	164	130,000	3,435,000
1930	150	148,600	663,000
1935	217	199,700	1,368,000
1940	381	189,800	506,000
1945	1,306	243,000	641,000
1950	860	141,900	431,000
1951	1,058	134,000	350,000
1952	1,221	273,500	660,000
1953	1,307	168,400	393,000
1954	1,464	204,400	468,000
1955	1,783	353,600	1,112,000

<sup>1</sup> Workers involved in more than one dispute are counted more than once.

TABLE 4  
*Coal Supplies and Disposals*  
(Million tons)

	1953	1954	1955
Sources			
Deep-mined output	212.5	214.0	210.2
Opencast disposals	13.5	10.7	10.5
Import	0.6	3.0	11.5
From colliery stocks	0.5	—	-0.5
Recovered slurry	0.2	0.2	0.5
<b>Total</b>	<b>227.3</b>	<b>227.9</b>	<b>232.2</b>
Uses			
Inland consumption	208.6	213.5	215.3
Exports and bunkers	16.9	16.3	14.2
Changes in distributed stocks (increase +)	+1.8	-1.9	+2.7
<b>Total</b>	<b>227.3</b>	<b>227.9</b>	<b>232.2</b>

TABLE 5  
*Inland Coal Consumption*

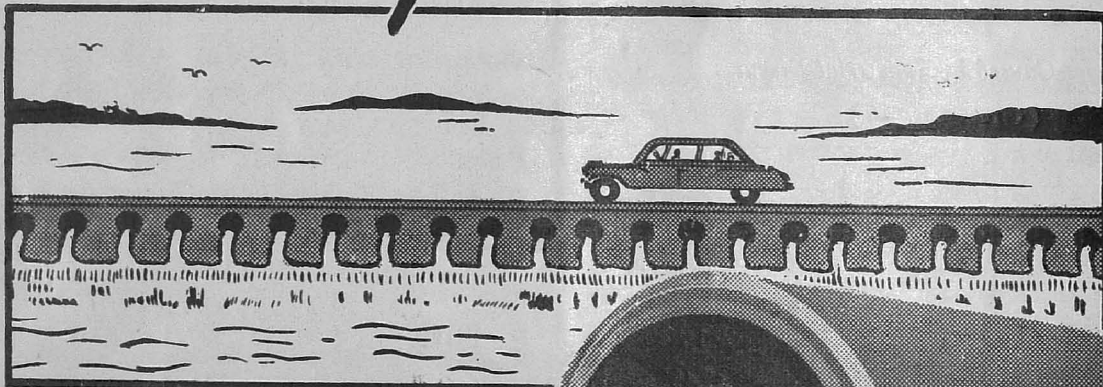
	1947	1950	1955 (52 weeks)
Electricity works	27.1	33.0	42.9
Gas works	22.7	26.2	28.0
Railways	14.6	14.5	12.8
Coke ovens	19.8	22.6	27.1
Collieries	11.1	10.7	8.6
Industry	35.8	40.1	40.8
Households	31.6	32.8	32.5
Miners' Coal	5.0	5.0	5.1
Miscellaneous (1)	17.4	17.2	17.5
<b>Total</b>	<b>135.1</b>	<b>202.1</b>	<b>215.3</b>

(1) Includes shipments to Northern Ireland.

TABLE 6  
U. K. Exports of Coal

	( million tons )						( million tons )				
	1913	1938	1946	1954	1955		1913	1938	1946	1954	1955
<i>Total exports</i>	73.4	35.9	4.5	13.6	11.7	France	12.8	6.2	.7	1.0	1.0
<i>Of which</i>						Belgium	2.0	0.7	0.2	0.5	0.5
Canada and Newfoundland	0.1	1.3	0.2	0.2	0.2	Portugal	1.2	0.7	0.2	0.3	0.3
Irish Republic	—	2.5	1.3	1.7	1.7	Spain	2.5	1.0	0.1	0.3	0.1
Sweden	4.6	2.7	0.1	1.1	1.0	Italy	9.6	2.3	.1	1.3	2.7
Norway	2.3	1.4	0.1	0.2	0.2	Egypt	3.2	1.6	0.1	0.0	0.0
Denmark	3.0	3.0	.6	3.4	3.6	Argentina	3.7	2.0	0.0	0.5	0.1
Germany	9.0	3.7	—	1.5	1.1	Brazil	1.9	0.5	0.0	—	—
Netherlands	2.0	0.9	0.1	0.8	0.8	USSR	6.0	—	—	—	—

## Hume Pipes



Used Extensively for all types of  
Railway and road culverts.

For culverts, "Hume pipes" are given  
greater preference than stone or brick  
because of Economy, strength, utility,  
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TABLE 7  
THE BRITISH COAL INDUSTRY  
*the principal statistics*

		1938	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
		Private Companies	Private Companies under Government Control	Full State Control under National Coal Board ‡								
<b>SALEABLE OUTPUT :</b>												
Mines	m. tons	277	181.2	187.2	197.6	202.7	204.1	211.9	214.3	212.5	214.0	210.2
Opencast	m. tons	—	8.8	10.2	11.7	12.4	12.2	11.0	12.2	11.7	10.2	11.4
<b>INLAND CONSUMPTION :</b>	m. tons	177.8	186.2	184.7	193.4	195.3	202.1	209.2	208.1	208.5	213.6	215.5
<b>EXPORTS AND BUNKERS :</b>	m. tons	46.3	8.9	5.5	16.3	19.4	17.1	11.7	15.1	16.9	16.2	14.0
<b>MEN ON COLLIERY BOOKS :</b>												
Overall	thous.	781.7	696.7	711.4	724.0	719.5	697.0	698.6	715.8	712.9+	707.2	704.1
Coalface	thous.	Not available	280.2	287.9	292.8	296.2	288.1	287.2	293.6	292.800+	290.400	288.9
<b>OUTPUT PER MANSHIFT :</b>												
Overall	tons	1.14	1.03	1.07	1.11	1.16	1.19	1.21	1.19	1.22+	1.23	1.23
Coalface	tons	3.0	2.76	2.86	2.92	3.02	3.11	3.17	3.15	3.22+	3.26	3.28
<b>ABSENCE :</b>												
Overall		6.4	16.0	12.43	11.55	12.34	11.96	12.15	11.23§	12.41+	12.21	12.54
Coalface		Not available	19.3	15.05	14.13	14.94	14.51	14.75	13.67§	14.65+	14.36	14.70
<b>OUTPUT PER MAN PER YEAR :</b>												
	tons	290	260	263	273	282	293	303	299	298+	303	299
<b>AVERAGE PITHEAD PRICE: } per ton</b>												
<b>Average Pithead Cost } per ton</b>												
		17s. Od. a ton	38s. 11d.	40s. 3d.	47s. 3d.	47s. 11d.	47s. 10d.	51s. 2d.	57s. 3d.	61s. 2d.	63s. 6d.	68s. Od.
				41s. 3d.	45s. 7d.	55s. Od.	45s. 5d.	49s. 2d.	56s. 9d.	59s. 2d.	61s. 11d.	67s. 3d.
<b>AVERAGE WEEKLY EARNINGS :</b>												
<b>( including allowances )</b>												
		£2.17s. 11d.	£6.3s. 2d.	£6.18s. 9d.	£8.3s. 10d.	£8.14s. 7d.	£9.2s. 4d.	£10.3s. 7d.	£11.5s. Od.	£11.12s. 1d.	£12.5s. 11d.	£13.1s. Od.

‡ Opencast transferred from Minister of Fuel and Power in 1952

§ Absence figures from 1952 are for the 5-day week

+ = new basis of definition from 1953

TABLE 8  
TYPES OF BRITISH COAL

Type	Main Classes of Use according to size			Current Production (as % of total output)	Source of Supply
	Large	Graded	Small		
1. Anthracite	Special industrial uses, e. g. malting and brewing	Domestic	Steam raising	1½	South Wales: much smaller amounts from Scotland and North-East Durham
2. Dry Steam Coals	Steam raising	Domestic heating	Steam raising	2½	South Wales
3. Coking Steam Coals	Steam raising including locomotive	—	Steam raising and carbonisation	4½	South Wales: small amount from Kent
4. Heat-altered and similar coals:	Special Industrial uses	Domestic heating	Steam raising	½	Scotland and Durham
(a) Low-Volatile					
(b) Medium-Volatile	Steam raising	Steam raising	Steam raising	½	Scotland: very small amounts from South Wales and Durham
5. Medium-Volatile Special Caking Coals	Carbonisation	Carbonisation	Carbonisation	6½	South Wales, West Durham and Kent: small amount from East Durham, very small amounts from Bristol and Somerset, Scotland and Lancs.
6. High-Volatile Very Strongly Caking Coals:	House and Carbonisation	Carbonisation	Carbonisation	6	Durham, South Wales and Yorks: small amounts from Northumberland, Lancs, Bristol and Somerset, North Staffs and other coalfields
7. High-Volatile Strongly Caking Coals	House and Carbonisation	Carbonisation	Carbonisation	20	Yorks, Durham, Northumberland, Lancs, Notts and North Derby, North Staffs, Cumberland and South Wales: small amounts from Scotland, North Wales and other coalfields



8. High-Volatile Medium Caking Coals	House, carbonisation and locomotive	Carbonisation steam raising and "producers"	Carbonisation and steam raising	13½	Yorks, Notts and North Derby, Lancs, Scotland, Northumberland, North Staffs, North Wales and Durham: small amounts from other coalfields
9. High-Volatile Weakly Caking Coals	House, and locomotive	Steam raising and "producers"	Steam raising	16½	Yorks, Notts and North Derby, Northumberland, Scotland, Lancs and North Staffs: small amounts from other coalfields
10. High-Volatile Very Weakly or Non-Caking Coals	House and steam raising	Steam raising	Steam raising	28	Notts and North Derby, Scotland, Warwicks, Yorks Cannock Chase, Leics, Lancs, South Derby, Northumberland, North Staffs, and South Staffs and Salop

NOTE: "Caking" means become plastic on heating and forming a Coherent residue. Most British coals have this property in greater or less degree. Coals made for making coke suitable for blast furnaces and foundries usually cake strongly; but coke of this kind can also be made from blends of strongly caking coals and others, and not all strongly caking coals make good coking coals. Caking property is also important in coals used for making gas because it has a bearing on the production of coke in gas-works, but the range of caking property can be fairly wide.

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## BRITISH RAILWAYS MODERNISATION

### £ ¾ MILLION RAILWAY ELECTRIFICATION CONTRACT FOR HENLEY CABLES

The vast railway modernisation plan for British Railways, which includes the electrification of many of the main lines in Britain, is gathering momentum and a third of the total estimated expenditure has already been committed.

W. T. Henley's Telegraph Works Co. Ltd., have been awarded a contract, valued at approximately £¾ million, for the supply, jointing and supervision of installation of ninety route miles of 33kV. 3-core Oil-filled Cable and Pilot/Supervisory Cable for the British Railways' Kent Coast electrification scheme.

This important scheme covers the electrification of the Southern Region of British Railways from Gillingham to Ramsgate, and also the Canterbury, Dover and Folkestone Lines. The whole installation is required for commissioning not later than 1st December, 1958.

\* \* \* \* \*

### IMPORTANCE OF STATISTICS ON RAILWAYS— STATISTICAL CONFERENCE

A three-day conference of Railway Statistical Officers was opened in New Delhi on 2nd April 1957 by the Financial Commissioner for Railways, Shri J. Dayal.

Shri Dayal in his opening remarks stressed the importance of statistics for exercising proper managerial control and for the formulation of policy in a big commercial undertaking like the Indian Railways. The statistical officer's work, he said, has assumed even greater importance in the context of the Second Five Year Plan.

Shri Dayal said:— "The reliability of statistics and their timely availability are of crucial importance when major decisions involving crores of rupees and affecting millions of people have to be made." The Financial Commissioner went on to stress the importance of speed and accuracy in the presentation of statistics and the soundness of procedures employed for their compilation.

He said that statistics were a means to an end, and they should be presented in a form which could be understood both by technical and non-technical officers who may have to formulate policies on the basis of these statistics. "The whole work should be lifted from the theoretical to the practical plane," he said.

Shri K. B. Mathur, Member (Transportation), Railway Board, who also addressed the meeting, said that in the context of the present day requirements, particularly on the railways statisticians could not afford to be mere compilers of figures. Statistics should facilitate the study of economic trends on the railways and enable the railways to make the most appropriate use of their assets.

He said:— "Whatever you present should be capable of scientific examination and analysis and subserve the cardinal object of economic usage of our assets"

\* \* \* \* \*

### LOCOMOTIVE CENSUS ON INDIAN RAILWAYS: 800 ADDED IN LAST 5 YEARS

A census of locomotives in service at the end of the last financial year showed India had 9,016 steam locomotives, 79 electric and 67 diesel locomotives. At the start of the First Plan, the number of locomotives was 8,209. Thus there has been an increase of 807 during five years. An official has said that all these locomotives, if placed end-to-end in a straight line, would cover a distance of 75 miles, roughly equivalent to the distance from Delhi to Karnal or from Bombay to Lonavla or from Madras to Tindivanam. The census also disclosed that the Indian Railways have, in all, 250 different types of locomotives in service. The reason for such a large variety is that, before the integration of railways, the large number of independent railway administrations each went in for locomotives according to their own particular specifications and there was no co-ordination among them in rolling stock purchases.

\* \* \* \* \*

### FACILITIES TO INDO-PAKISTAN RAILWAY PASSENGERS

Through booking of passengers will be introduced with effect from April 1, 1957 between certain selected pairs of stations in India and Pakistan, instead of booking passenger traffic upto the border station as at present.

This will be subject to the observance of the usual regulations regarding passport and visa, etc.

Passengers will be also able to purchase return journey tickets at the time of the commencement of the journey on payment of double the single journey fare, between the same pairs of points.

# HOW TO RESERVE ACCOMMODATION

Unless you reserve your berth ( I Class ) or Seats ( II and 3rd Class long distance ) in advance, you may not be sure of getting accommodation on the train you wish to travel by.

Application should be made to the Station Master of your starting station at least 3 days in advance specifying the date and train by which you intend travelling and the tickets must be bought in advance. The reservation fee leviable is 8 Annas per seat or berth.

Reservation by I and II Class from intermediate stations by Express trains can also be made similarly, but reservation ticket can be issued only after getting an advice from the Reservation Centre that the reservation has been made.

Tickets will be issued only if accommodation is available.

If the reserved seats or berths are not occupied at least 5 minutes before the booked departure of the train the reservation will be cancelled and the seat or berth given away to another.

*Reservation fee is not refundable.*

III Class seats are also reservable on Express and certain other important trains for long distance passengers from the train-starting stations on payment of a reservation fee of 4 Annas per seat.

Do not occupy a berth or seat reserved for another, as you are liable to be displaced at the last moment.

If you find another person occupying the berth or seat reserved for you and if he will not vacate it on demand, report it to the Guard or Station Master. They will help you.

*( Inserted in the interests of Travelling Public )*

# CLEANLINESS LEADS TO HEALTH AND HAPPINESS

*Clean orderly habits contribute to general health and welfare and as such to happiness and prosperity; they are more important than medicines.*

*Cleanliness prevents disease; medicine only attempts to cure.*

*Cleanliness of the person, of the houses and colonies, reflects discipline in the individual and the community. Discipline is the foundation stone for progress of oneself and the country. Cleanliness is a good habit. It is also cheap.*

*All Railwaymen should set an example of cleanliness. This will help others and themselves.*