CHAPTER XVI

COAL AND TRANSPORT

(i)

Introductory

THE main economic effort of war is to concentrate as many resources as possible upon direct war purposes—in brief, to build up large fighting services, to train them and to furnish them with the best equipment that industry can produce. As Adam Smith was aware two centuries ago, this economic effort of war necessitates, in all save the most primitive societies, a division of labour in which the armed forces become increasingly little more than the cutting edge of a ponderous and intricate national machine. The munitions industries are manned by civilians and neither they nor the armed forces themselves can be maintained without the labour of other civilians who run the transport or hew the coal or labour in fields or offices, surgeries or shops.

Under these circumstances, the dividing line between the conventionally named 'war' and 'civilian' sectors of economic life is bound to be blurred. Attempts, even in retrospect, to measure the allocation of resources between the two sectors, by use of national income, manpower and other statistics, can hardly achieve a completely convincing exactness. The authorities whose war-time duty it is to determine the allocation of resources do not possess instruments of scientific precision which would guarantee a perfect balance. It is plain to them that they must cut to the minimum the demands of consumer industries for materials, workers and plant; but where this minimum lies is not at all plain. If it is pressed too low, the efficiency of the nation and its morale will be impaired.

There are certain basic industries which serve both the immediate war effort and the day to day activities of ordinary life. If the task of these industries is wrongly measured or inadequately performed, the nation's economic effort will fail. Lack of coal, or the inability to transport goods across the country will constrict the war effort no less surely than a shortage of raw materials or skilled men. For the United Kingdom, agriculture must rank with coal and transport; if the farmers were to fail in their war-time task, the country could escape starvation only at the cost of restricting its imports of raw materials or curtailing its military activities.

Nevertheless, the British Government during the Second World War was unable to consider these basic industries sacrosanct. They employed large numbers of men of military age who possessed the strength or the special skills for which the Services and the munitions industries clamoured. Most of them, moreover, normally consumed great quantities of steel. It was essential that they should be made to contribute to immediate war purposes all the strength they could spare. However, it was extremely difficult to judge in advance the sacrifices that should be demanded of them and the precise point where these sacrifices would endanger, rather than help the war effort. Much depended upon the duration of the war. It might, for example, be safe to reduce drastically the repair and renewal of capital equipment for three years, but dangerous to prolong this under-maintenance for six years. Or again, the release of men for direct war work might be manageable in the shorter period, but dangerous if natural wastage from an industry exceeded new intake for four or five or six years. But who could really say when the war would end?

At the beginning of the war, the Government did not in any case consider these matters very deeply. Production of generating plant, for example, or of railway rolling stock, competed immediately and directly with munitions work and was greatly reduced without any clear calculation of the consequences. Then in the summer of 1940, coal-miners were allowed to go freely into the Forces or the munitions industries. When, in the later years of the war, the mounting war effort put a heavy strain on the fuel and power and transport industries, they had to sustain it with a less efficient labour force and less efficient capital equipment. And in these later years, the manpower famine made it difficult to help these industries by transferring resources back to them.

Some of the most difficult economic problems in the last period of the war—not to mention the peace—were those of basic industries. This chapter cannot concern itself with all these industries. It will concentrate on coal and transport.

(ii)

Coal[1]

Coal was an especially difficult problem. Throughout the later years of the war the Government constantly feared that coal supplies might be inadequate to support the war effort. This persistent and intense anxiety over coal did not begin until 1942. But to understand

[1] See *Coal*.

the debates and policies of that year it is necessary to link them with earlier policies and events.

Before the war, the long years of depression in the coal-fields had made the possibility of a coal shortage appear almost unthinkable. Even so, the Government's pre-war coal plans laid down a stiff task for the industry. They estimated that an output of coal some ten per cent. above the best annual level of the nineteen-thirties would be necessary to meet essential home demands and an export programme which included heavy French requirements. Such an output would be achieved only if certain rather optimistic assumptions about manpower and machinery supplies were fulfilled. Even then, there would still be need to curtail home demands for coal by instituting domestic rationing and by settling suitable priorities among the major coal users. It was assumed that the Government's main care would be to supervise the fair distribution of coal and to exercise some control over supplies, prices, home consumption and exports. Fear of raising the political issue of nationalisation of the mines, together with the existence (since the Act of 1930) of a statutory cartel, seemed to counsel as indirect a form of control as possible.

After the outbreak of war, production kept steady; but it did not increase. Nevertheless, in the first three or four months of war, the coal situation was surprisingly favourable. The big consumers at home had built up exceptionally high stocks against air raid damage which did not occur. The shipping shortage curtailed the huge export programme. Neither British nor French war production expanded as quickly as had been expected. Domestic rationing, therefore, proved unnecessary. It is true that there occurred in the new year of 1940 a severe crisis in coal supplies—gas and electricity works in the south were down to two weeks' supply and many households were completely without coal. But this was due not to inadequate production but to the transport difficulties caused by prolonged severe weather.[1]

The spring of 1940 brought the coal production question once more to the fore. The war industries were gathering momentum and their demands for coal were increasing. The Mines Department was anxious to fulfil a large stockbuilding programme to avoid the troubles of the first war winter. Meanwhile, shipping difficulties were being overcome so that the urgent French need for coal became an effective demand upon the British coal-fields.

All these demands could not be met from current production. A Coal Production Council was established to deal with the long-term problem of increasing production. In the short term, part of the British stockbuilding programme was sacrificed to meet French needs. But this hard decision was only a month old when France

[1] See p. 272 above.

collapsed, and with her, the coal production problem. A ten per cent. increase in British production was no longer wanted; instead, demand was now expected to be no more than 215 million tons a year, or ten per cent. *less* than current production. Even feverish stockbuilding at home in the summer of 1940 could not prevent unemployment in the coal-fields of South Wales and the north-east.

The winter of 1940–41 brought another crisis in the distribution of coal supplies; as before, it was due mainly to transport congestion. As soon as the winter was over, the Government began to study measures to avoid renewed distribution troubles in the following winter. The chief need was to make coal consumption in the third winter of the war much less dependent than before on current supply; the chief means was to carry out an even larger summer stockbuilding programme. By June 1941, however, this programme was in peril, partly because consumption in the late spring and early summer was unusually high, but mainly because of a disappointing rate of coal production. An incredulous people, accustomed to think of an abundance of coal, of too few markets and too many miners, heard in the middle of 1941 that they were threatened with a serious coal shortage.[1] Actually, during the last part of 1941, the outlook improved; stocks were increased above the 1940 level and production rose. But in the new year of 1942 production rapidly worsened and by April it was positively alarming.

What exactly had been happening to coal production? The outline of the position in the war years is shown in the Table on page 479. Average weekly production had fallen from 4,363,000 tons in the middle of 1939 to 3,918,000 tons at the beginning of 1942. One of the main reasons for this fall was the decline in the industry's manpower. The origins of this decline can be traced predominantly to the crisis months of 1940. Although the outbreak of war had inevitably taken men from the pits, most of them had been replaced by newcomers. At the time of the fall of France, the net reduction in numbers amounted only to about 9,000. During the production drive of previous months there had been talk of increasing the labour force; but suddenly the Government found itself faced instead with the problem of absorbing the miners who were unemployed because of the disappearance of the French demands. The Secretary for Mines himself was most anxious to keep the labour force of the mines together. The Mines Department made an attempt to transfer unemployed miners to other coalfields; but the attempt failed. Meanwhile, although there was no general labour shortage, the Army and the munitions industries both needed strong, able-bodied men and the miners themselves felt strongly that, if they were unemployed, they must be allowed to

[1] H. of C. Deb., Vol. 371, Cols. 1879–1888 (28th May 1941).

leave the industry. For all these reasons, the age of reservation from military service for miners was raised in the autumn of 1940 from eighteen to thirty. In retrospect, some of the most serious coal difficulties in the later war years can be traced to this decision.

The decision was in fact taken without any serious calculation of the coal requirements of a war economy working at full capacity or of the effects upon production of prolonged war conditions. If the calculations had been made, the Government might have tried to keep the miners who were called up in situations where they could be recalled to the mines if they were wanted; as it was, many of them went irrevocably into the field force. But in 1940 nobody knew how long the war would last and everybody was preoccupied with the problems of survival in the face of threatening invasion. Even the wisest economic planner could hardly have gone against public feeling to the extent of preventing miners who wanted to fight from joining the armed forces. Meanwhile, on top of these losses to war industry and the Forces, the mining industry was beginning to suffer an increasingly heavy natural wastage. For some time the labour force had been ageing and recruitment of juveniles falling off. All these causes together brought the number of wage-earners down from 773,000 in the middle of 1939 to 707,000 at the beginning of 1942.[1]

The decline in manpower was not the only cause of shrinking production. While manpower had fallen by nine per cent., production had fallen by twelve per cent. Output per man employed had dropped. Not until the end of 1942 did statistical analysis banish some of the misconceptions about the causes of this fall. There was, for example, much discussion about absenteeism. But until the end of 1942, the distinction drawn in the official figures between voluntary and involuntary absenteeism was very arbitrary. In fact, as the Table shows, the average number of shifts actually worked had risen steadily. The causes of the fall in output per man were, it seems, twofold. First, there was a decline in the proportion of miners actually at the coal-face to other mineworkers. This proportion inevitably fell as the total manpower in the mines was reduced, for unless all the vital overhead services—haulage, winding, maintenance and repair—went on, no coal at all could be mined. Of the total shifts worked in the mining industry, the percentage worked at the face fell from just over thirty-eight per cent. in 1938 to less than thirty-six per cent. in 1941; during that period this drop bore the major responsibility for lower output per man. About the middle of 1941, however, the increase in manpower and a policy of upgrading sent the percentage of face shifts up again. From that time onwards unsatisfactory output

[1] In 1941, the reduction had been even larger, but the application of the Essential Work Order to the industry and schemes, put into effect in 1941, to bring miners back from other industries, had sent the numbers up again.

was due increasingly to a new cause. In the first two years of war, output per manshift at the face had been steady; but in the autumn of 1941 it began a serious descent. The causes of this decline in output per manshift at the face were partly physical—an ageing labour force was feeling the strain of working 5½ shifts or more a week—and partly due to a smouldering discontent over wages, the working of the Essential Work Order in relation to absenteeism and a whole range of problems of pit upkeep and organisation.[1]

These then were the constituents of a coal problem that by the spring of 1942 was looking very threatening. Between November 1941 and March 1942, the average weekly output of coal had fallen by over 104,000 tons. It seemed indeed that the 1942–43 coal budget[2] would show a very dangerous deficit. Through the spring and early summer of 1942 ministers and the War Cabinet discussed ways and means of bringing the supply and demand sides of the budget into balance. An increase in the industry's manpower was urgently needed and it was decided to bring back miners from the Services and from important war industries; the War Cabinet could not agree, however, to robbing the field force. These measures would, it was hoped, secure an average labour force of 702,300 men which, provided output per man fell no further, would produce 205·3 million tons of coal. Demands for deep-mined coal however were 215 million tons. These might be reduced to 208·5 million tons by fuel economy in industry, by cutting stocks and exports and by expanding outcrop mining. But there would still remain a gap of 3·2 million tons, even with no allowance for contingencies. This gap could be bridged in three possible ways—by allocating coal to industry in the same way as other raw materials were allocated; by rationing domestic fuel; by reorganising the coal industry to increase production.

The intricate administrative problems of instituting an allocation system for coal cannot be examined here; but some account must be given of the discussions about domestic rationing and the reorganisation of the coal industry. Out of the proposals for the rationing of fuel to domestic consumers there blew one of the biggest storms of the war in the sphere of home politics. In the middle of 1941, when the first undertones of coal crisis were heard, maximum monthly deliveries of household coal to each consumer had been prescribed. Such a measure by itself was unfair and not particularly effective, for the households with gas and electricity could simply substitute them for solid fuel. And the restrictions did not even prevent consumption of household coal in the winter of 1941–42 from rising well above the level of the previous year. Meanwhile, the Mines Department had begun to prepare rationing schemes covering all forms of

[1] These causes are fully discussed in *Coal*.

[2] The 'coal year' ran from 1st May to the end of the following April.

fuel. In March 1942 a choice of these schemes lay before the Lord President's Committee. It was agreed that the most comprehensive one, which was calculated to save eight million tons of coal a year, should be prepared in detail forthwith. The work was put into the hands of Sir William Beveridge; it was completed by the middle of April and accepted and published as a government white paper.[1] The plan was to make all forms of fuel interchangeable on a points system and to have a household ration, based on the number of rooms in a house,[2] and a personal ration. At first, the public seem to have been resigned to the necessity for fuel rationing. The Government did not, however, follow the normal practice never to announce any new development of rationing in advance. This custom had been one of the main reasons why food and clothes rationing had worked so smoothly. But the intention to ration fuel was disclosed and debated in Parliament before the scheme was introduced. By the time the House of Commons debated the white paper in May, violent opposition had grown up.[3] The many practical difficulties of the scheme were exhaustively discussed. Moreover, the scheme would have imposed particular hardships on those in larger houses; this was a strong contributory cause to the opposition to the scheme.

The War Cabinet was anxious to avoid a general cleavage of opinion over the issue and asked that the rationing problem should be re-examined. All the other schemes, however, were even less satisfactory, while to drop fuel rationing would involve grave risks for the coal budget. Nevertheless, the Lord President's Committee recommended that for the moment the Government should take these risks. For attention was now focused on the plans for reorganising the coal industry. These would surely, it was thought, send production upwards and goodwill for them might be more assured if no other controversial scheme was launched at the same time. Meanwhile, a big campaign for voluntary economy of domestic fuel and power was launched and administrative preparations were made in case rationing had to be introduced later.

Rationing was discussed again in the autumn of 1942 when it looked as if the deficit in the coal budget might be not three, but fifteen million tons. However, the newly created Minister of Fuel and Power thought that rationing was now out of the question because fears about coal production and transport services made it impossible to guarantee the rations. He therefore proposed to continue relying upon the restriction of coal deliveries and voluntary economy to

[1] *Fuel Rationing: Report by Sir W. Beveridge, K.C.B., to the President of the Board of Trade* Cmd. 6352.

[2] In the houses with more than seven habitable rooms, the household ration would be based on the number of residents.

[3] H. of C. Deb., Vol. 378, Debate of 17th March 1942; Vol. 379, Cols. 1450–1573.

reduce domestic consumption. Again there were criticisms that to restrict coal alone was fundamentally unsound and unfair. Again, various combinations of restrictions and rationing were considered. In the end, rationing was definitely set aside and the restrictions imposed on the use of gas and electricity were nominal.

The wisdom of these decisions was not, as it happened, seriously tested. The exceptionally mild winter of 1942–43 encouraged voluntary economy and at the end of it domestic fuel consumption proved to have been the equivalent of about six million tons of coal less than that of the previous year. If, however, a long and severe winter had hindered the production and transport of coal, uncontrolled and excessive domestic consumption of gas and electricity might well have contributed to a stocks crisis at the public utility works, which would have seriously damaged war production. Domestic consumption of coal certainly fell steeply after 1941; but domestic consumption of electricity and gas showed no signs of a real reduction even in spite of the mild winters of 1942–43 and 1943–44.[1] The risks that the Government decided to accept need to be underlined. In the first discussions about fuel rationing during the spring and early summer of 1942, these heavy risks were balanced against political expediency and against administrative complexities far greater than those of food- and clothes-rationing. By the autumn of the same year, another element of great weight entered the scales against rationing—the very real fear that, if a bad winter brought severe transport difficulties, fuel rationing would break down owing to inability to guarantee deliveries.[2] This consideration proved decisive. Rationing never again became a live issue during the war.

It was certainly important in 1942 to reduce consumption; but even more urgent was the need to increase production. The decisions to bring miners back from the Forces and industry have already been mentioned; they were an expedient that could hardly be used a second time. It was therefore necessary to devise measures of longer term to remedy the manpower shortage. Net wastage in the mining industry was now running at a rate of 28,000 men a year; since the numbers accounted for by death, disablement and natural retirement were roughly balanced by the intake of youths, the loss appeared to be chiefly due to an exodus of middle-aged men who left the industry on the strength of medical certificates. This exodus might

[1] Figures for the personal expenditure on fuel and light revalued at 1938 prices (latest Central Statistical Office estimates):

	1938	*1939*	*1940*	*1941*	*1942*	*1943*	*1944*	*1945*
Coal	108	106	109	108	101	91	84	78
Electricity	35	39	40	43	44	43	51	57
Gas	38	38	37	38	39	39	43	47
Other forms of fuel and light	16	16	16	16	15	14	15	16

[2] Had the Beveridge fuel rationing scheme been adopted, it would have been impossible to honour it in the last winter of the war, through transport difficulties.

in some degree be arrested;[1] meanwhile, on the proposal of the Lord President, a committee was set up to study means for maintaining and improving the recruitment of juvenile labour.[2] A falling labour force was not, however, the only problem; still more important was the decline in the productivity of labour. To diagnose this evil and to discover the remedies for it, the War Cabinet, acting again on the proposal of the Lord President, set up a special ministerial committee.

This committee put forward four groups of measures by which output could be increased. First, all collieries should secure the advice of the most competent mining engineers in their district; as things were, the standard of technical advice varied widely. Secondly, mechanisation should be extended. Thirdly, manpower should be concentrated in the most productive mines and seams. This appeared the most hopeful way of increasing output quickly; a sample taken in one district had shown that, by moving six per cent. of the miners an average distance of only four miles, output would be increased by 6½ per cent.; if conditions elsewhere were the same, total output would be increased by a quarter of a million tons a week—provided the strong reluctance of miners to change pits could be overcome. In the fourth place, additional measures might be devised to combat absenteeism. It was doubtful whether avoidable absenteeism was greater in the mines than in the munitions industries, but it must all the same be reduced to a minimum.

To obtain increased output by these various means it was felt that the Government must have operational control over the mines. There arose, inevitably, controversy over the extent of control. Should the mines be requisitioned—in effect nationalised—for the duration of the war? The case for nationalisation was argued on the grounds of its influence on the miners, rather than on its technical merits and, argued thus, it lost the day. It was decided that all the urgent measures that had been proposed could be executed through existing powers under the Defence Regulations. Interference with the financial ownership of the mines was thought unnecessary. But new administrative machinery was required.[3] The Government's full powers of direction and control over the coal industry were delegated to strong regional controls acting under general guidance from headquarters. National and regional advisory bodies were also set up and the existing pit production committees were retained. At the same time, the old Mines Department gave place to a stronger authority, an

[1] There was no doubt that many of these men were fit to continue work in the mines; but they were anxious to leave because they lacked faith in the industry, or because they could earn more in munitions, or because they could not get adequate medical treatment.

[2] Committee on the Recruitment of Juveniles in the Coal-mining Industry (Forster Committee), *First Report*, July 1942.

[3] The scheme adopted by the War Cabinet was explained in a white paper, *Coal*, Cmd. 6364.

independent Ministry of Fuel and Power, which, as its name implied, combined within itself responsibility for petroleum, electricity and gas, as well as for coal.

To judge by the balancing of the 1942–43 coal budget, the first year of the new control might seem remarkably successful. Instead of a big excess of consumption over production, stocks had actually risen by nearly 4½ million tons. This was due in part to the economies in consumption that have already been mentioned. On the other side of the budget, production had risen 5½ million tons above expectations. About a quarter of a million tons of this increase were due to the extension of outcrop mining. Another two million tons were due to the fact that the average labour force in the industry was about 10,000 men more than had been expected. Although in the past year still fewer juveniles had entered the industry, more than twice as many miners as had been allowed for had returned from the Forces or elsewhere, while a trickle of men had opted for the mines instead of military service. Moreover, a big extension of medical and rehabilitation work had reduced the rate of loss through accident and sickness. For all these reasons net wastage had fallen from a rate of 25,000 men a year to 19,500. Encouraging though this was, it was not the main factor in the improvement on production estimates for 1942–43. Increased productivity per manshift accounted for the remaining three million tons by which production exceeded the estimate. Output per over-all manshift[1] rose from 1·03 tons in the second quarter of 1942 to 1·06 tons at the end of the year, and the proportion of shifts worked at the coal-face also rose.

But, although production had risen above the estimates, the aggregate output was lower than in the previous year. There were two main reasons. First was the increasingly unsatisfactory number of shifts worked per mine-worker; from this time forward the problem of absenteeism—both avoidable and unavoidable—grew genuinely serious. Secondly, the progress of the reorganisation programme in the mines was disappointingly slow. Manufacturing difficulties both in Britain and the United States meant that the pace of mechanisation could barely hold its own, let alone increase. After the fall of France not only had miners left the industry; in addition, much plant hitherto used for making mine machinery had been turned over to munitions work. The reduction in the output of mining machinery had been so great that, in spite of the efforts of the government departments concerned, the normal progress of mechanisation in the mines was barely being restored in June 1943. Nor did concentration of production proceed very fast. A technical survey had first to be made of all the pits; this in itself was a lengthy process. Moreover, concentration proposals were invariably unpopular with collieries

[1] i.e. not just output per manshift at the face.

and miners alike. Only by a great deal of pressure had fifty schemes been achieved by the summer of 1943.

Many of the difficulties of reorganisation were unavoidable; but by the autumn of 1943 the Minister of Fuel and Power and his advisers concluded that the existing system of control over the mines was not helping as much as it might to solve them. However complete in theory the Government's operational control, in practice it had too little influence on the day to day management of the pits. This had been left in the hands of the mine managers; but, since the Government had not taken financial control, the position of managements remained ambiguous. The Minister concluded that complete operational control could only be achieved if the State became the owner of the mines and the employer of the managers—not permanently, but for the war period. Then there could be a continuous and expert supervision of production by the grouping of pits under technical experts whose sole responsibility would be to the regional controller. There would be also, it was hoped, important though subsidiary effects upon the temper of the miners. Merely to patch up the existing control would be a failure.

This case was strongly put, but not strongly enough to convince the War Cabinet of the necessity for so controversial a measure. The principle of the Coalition Government was 'everything for the war, whether controversial or not and nothing controversial that is not *bona fide* needed for the war'. Government ownership of the mines in war-time might predetermine the issue of nationalisation, and the Prime Minister maintained in Parliament that no case had been made out for nationalisation of the mines as a necessary step towards winning the war.[1] In the end, the control over the mines was left to be strengthened by the appointment of Group Production Directors, responsible to the Regional Controllers, who would ensure the execution of the Minister's policy in every pit in the group.

Whatever the differences in opinion about the administrative remedies, there was no doubt about the seriousness of coal production trends. The efforts of the Ministry of Fuel and Power to arrest the decline in production were unavailing. In 1943, the total production of saleable mined coal was nine million tons less than in 1942; in 1944 it was down by another ten million tons. Moreover, there was a more than proportionate decrease in the production of large coal and graded fuels which were needed by the railways and by important war industries such as iron and steel; the shortage of these special coals caused great difficulty.

[1] H. of C. Deb. Vol. 392: debates of 12th, 13th October 1943. The question of nationalisation, as distinct from temporary government ownership of the mines, was brought up in Parliament by the Labour M.P.s from the mining constituencies and not on the initiative of the Minister of Fuel and Power.

The causes of the general decline in production were, as usual, complex. Reference should be made again to the Table on p. 479 for the salient facts. In the first place, there was the movement in the total number of miners. Throughout 1943, in spite of some further return of miners from the Forces and some intake of volunteers, wastage remained high; in the last quarter of 1943, the labour force of the miners was 11,000 less than in the first quarter. However, by 1944 the extreme measure of directing young men to the mines was in operation[1] and the labour force rose; in that year the average number of wage earners at the collieries was higher than in any year from 1941 onwards. In 1944, then, a falling labour force was not the reason for lower coal production. Even in 1943 it had not been the most important cause. Far more important was the swift decline in productivity.

In 1943, the average output per mine worker for the year was over 12 tons less than in 1942. In 1944 it was 15 tons less than in 1943. Output per manshift had fallen in 1943 and again in 1944; an average reduction of ·03 tons in the output of each man on each shift adds up over a year to a loss of some millions of tons of coal. Moreover, both in 1943 and 1944 the average number of shifts worked by each miner fell. As the Table on p. 479 shows, the losses of coal through disputes were serious. Again, the percentage of shifts worked at the coal-face was not maintained; in 1943, when manpower in the pits was falling, it had been an achievement to hold the percentage steady, but it fell in 1944 although manpower rose in that year. For this depressing record there were, no doubt, some causes of a purely physical character: for example, shortage of transport sometimes caused losses of coal. On the other hand, the downward trend of production continued in face of an upward trend of mechanisation: from 1943 onwards more and more electrical equipment and machines for cutting, loading and conveying coal were going into the mines.[2]

The fundamental causes of the decline in the productivity of the miners cannot be analysed in this book.[3] But something must be said about the consequences of falling coal production. Were coal supplies a limiting factor on Britain's war effort? At the end of the coal year 1943–44, there had indeed been some hundred instances of firms forced to stop production temporarily through lack of coal. But stoppages never occurred on a general scale. The war effort in Britain was not noticeably impaired for lack of coal as it was in some other countries—for example, Australia.

[1] As new age groups were called up for military service, men were picked from each group for the mines by ballot; these men were popularly called 'Bevin boys'. See pp. 463–464 above.

[2] It is true that the amount of some special types of equipment, e.g., washeries, continued to decline.

[3] They are analysed in *Coal*.

Three factors prevented shortage of coal from becoming a serious brake on war production. The first factor need only be mentioned; it was the development of open-cast production, which in 1944 produced as much as 8½ million tons. The second factor—economies in consumption and distribution—calls for a brief examination. The consumption of electricity works, of the railways and the Service departments showed increases; but these were more than counterbalanced by reductions in deliveries of coal to domestic consumers and to industry.[1] From December 1943, supplies of coal to all industrial consumers were cut by ten per cent.—unless a consumer could prove conclusively that the cut would endanger essential war production. This severe treatment of industry would have caused far more dislocation than it actually did had it not been for improved fuel efficiency and for the developments that had been made in programming requirements. By March 1944, every consuming unit in the country which used a hundred tons or more of coal and coke in a year was making a weekly return of its consumption and stocks, and was subject to an allocation programme which fixed its weekly rate of receipt and placed on some specified colliery the responsibility for seeing that the weekly deliveries were forthcoming. This programming of the fuel requirements of industry was extremely important. It was perhaps the main contribution of official policy towards narrowing the gap between coal demands and supplies and was far more successful than any of the Ministry of Fuel and Power's attempts to increase coal production.[2]

There still remains a third factor explaining the balancing of the war-time coal budgets in a manner consistent with an unimpaired war effort. This factor was withdrawals from stock. At the end of the 1942–43 coal year, stocks had been at the high level of 17 million tons. At the end of the 1943–44 coal year they were only 12½ million tons. A year later they were only 10 million tons.

The war effort had not flagged for lack of coal, but the prospects for peace were gloomy indeed when the war ended. Production of deep-mined coal over the next year was only expected to be 175 million tons—a low figure even when 11 million tons of open-cast coal were added. Stocks were so low that no further reduction could safely be contemplated.

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[1] Examples of the change in consumption of coal (million tons):

	1938	*1942*	*1943*	*1944*
Electricity . . .	14·9	22·3	22·6	24·1
Railways . . .	13·2	14·7	14·9	15·2
Industry . . .	42·0	45·7	43·9	41·6
Domestic house coal	44·2	40·6	36·3	33·2
Total consumption and shipments abroad	227·0	205·3	198·4	193·4

[2] Smaller requirements such as those of domestic consumers and Army and Air Force units were programmed to rail-head depots.

Coal Statistics for the War Years

Year	Saleable output of mined coal	Average number of wage-earners on colliery books	Output per wage-earner per annum	Output per manshift		Percentage of face shifts to total shifts worked	Average number of shifts worked per week	Absenteeism[2]			Tonnage lost	
				At the face	Overall			Voluntary	Involuntary	Total	through disputes	through transport difficulties
	tons		tons	tons	tons	%		%	%	%	tons	tons
1938	226,993,200	781,700	290·4	3 00	1·14	38 03	4·96	—	—	6·4	943,100	Not known
1939	231,337,900	766,300	301·9	3·00	1·14	37·85	5·15	—	—	6 9	676,500	Not known
1940	224,298,800	749,200	299·4	2·97	1·10	37·04	5 27	—	—	8 3	500,600	4,768,100
1941	206,344,300	697,600	295·8	2·99	1 07	35·96	5·37	—	—	9 0	341,900	1,229,200
1942	203,633,400	709,300	287·1	2 91	1·05	35·94	5·34	—	—	10 4	833,200	12,500
1943	194,493,000	707,800[1]	274·8	2 86 / 2 75	1·03	35 94 / 37 48	5·24 / 5 12	4 9	7 5	12·1 / 12 4	1,090,700	500,800
1944	184,098,400	710,200	259·2	2·70	1·00	37·19	4 96	5·6	8·0	13 6	3,001,700	587,900

Where two figures are given for 1943 the series of figures above the lines are on a slightly different basis from the figures below the line.

[1] On the introduction of a revised return at the end of 1942 it was found that the practice of certain collieries in arriving at the number of wage-earners was incorrect for certain classes of workers. This resulted in a net increase of about 1,250.

[2] i.e. the average number of shifts per week that were not actually worked as a percentage of the number that could have been worked. The figures exclude shifts lost through recognised holidays, disputes, transport difficulties, etc. Voluntary absenteeism means absence for which no satisfactory reason is given.

Source: Ministry of Fuel and Power. *Statistical Digest, 1944.* Cmd. 6639

(iii)

Transport

In the last years of the war, transport was almost as great an anxiety as coal. Chapter X told of the transport crisis in the winter months of 1940–41 and of the improvements in organisation by which it was overcome. But the Ministry of War Transport could not relax. For traffic was steadily growing while the labour force and the capital equipment of the railways were deteriorating and petrol supplies for road transport were fluctuating dangerously.[1]

As always, the railways were the central problem. From the summer of 1941, they were asked to carry continually more freight traffic even though coal production and imports of commodities both fell. The shortage of petrol and rubber in 1942 reduced road transport still further and aggravated the burden upon the railways. War production was increasing and so were military movements. On top of the normal movement of troops about the country and the normal flow abroad, there were big tasks such as the preparations for the North African landings. At the same time, the railways had to deal with the mounting influx of American troops and equipment into Britain. The culmination of the strain came in the nine months or so before D-Day. By that time, it was possible to make more use again of road transport; on the other hand, imports were again higher. And now the transport services had not only to keep the nation's life going but to bear the burdens of a military base preparing for a major assault. The increase in freight traffic was the biggest problem. It could not be solved by a corresponding restriction of passenger traffic; for, as more families were separated and more troops were concentrated in this country, there was inevitably a big increase also in the number of passenger journeys.

The Table opposite gives some idea of the burdens on the railways. Unfortunately, it only shows calendar years and does not therefore illustrate the peak of traffic in the months before D-Day. It shows, however, that, measured in ton miles, the railways were carrying about fifty per cent. more freight traffic in 1943 and 1944 than in 1938. Their passenger traffic, measured in passenger miles, had risen by sixty-eight per cent.

From the summer of 1941 onwards, the Ministry of War Transport tried constantly to forecast the load on the railways in forthcoming months. The optimism of the early months of the war and the illusion

[1] Thanks to American aid, petrol supplies made a striking recovery in the latter part of 1941 (see p. 257 above). After Pearl Harbour there was again a dangerous fall followed by another striking recovery beginning in the latter part of 1942.

that the railways could comfortably deal with immense increases in traffic had disappeared in the crisis of the winter of 1940–41. The Ministry knew that, if traffic increased still further, the railways would need help. In the first place, action would be necessary to mitigate the shortage of engines and rolling stock. Secondly, as much unessential traffic as possible would have to be cut out. Thirdly, all the transport resources of the country would have to be co-ordinated and the traffic allocated between them.

Railway Statistics

	1938	*1941*	*1942*	*1943*	*1944*
Freight tonnage originating:					
Coal class (thousands of tons)	173,000	163,000	163,000	157,000	151,000
Other class (thousands of tons)	93,000	124,000	132,000	144,000	142,000
Total (thousands of tons)	266,000	287,000	295,000	301,000	293,000
Net ton miles of freight carried[1]					
Coal class (millions of ton miles)	8,104	—	9,951	9,343	9,267
Other class (millions of ton miles)	8,162	—	13,871	15,015	15,177
Total (millions of tons miles)	16,266	—	23,822	24,358	24,444
Wagon miles					
Loaded (millions of wagon miles)	3,003	3,838	3,983	4,052	4,064
Empty (millions of wagon miles)	1,492	1,446	1,412	1,392	1,427
Total (millions of wagon miles)	4,495	5,284	5,395	5,444	5,491
Passsenger miles[1] (Main Line companies)					
Total (millions)	18,993[2]	—	—	32,273	32,052
Number of passengers originating					
Total (thousands of journeys)	1,237,000	1,023,000	1,218,000	1,335,000	1,345,000

NOTE: Freight tonnage originating excludes freehauled traffic; net ton miles include it.

Source: Statistical Returns Relating to the Railways of Great Britain 1938–46 (Railway Clearing House).

By the end of 1941, the locomotive position seemed definitely dangerous. Before the war, the railway companies produced most of their engines themselves but also bought some from outside firms. From the beginning of the war these outside firms were employed either on making engines for the War Office or on war production. The railway workshops themselves were also particularly suitable for making tanks and aeroplane parts. Moreover, locomotives were in direct competition with tank production for scarce types of steel such as castings and boiler plates. For all these reasons, production of

[1] Estimated.

[2] September 1938–August 1939 inclusive.

engines for the home railways declined steeply. Whereas in normal times the railways constructed or bought a total of about 600 engines a year to maintain their stock, they secured during the first two and a third years of war a total of only 359 new engines; meanwhile, they had surrendered 378 freight engines for government purposes elsewhere.[1] Actually, the operating stock of engines had not fallen so much as these figures suggest, for engines that normally would have been condemned were repaired and brought back into use. At the end of 1941, there were 185 fewer locomotives available for traffic[2] than at the end of 1938.

This reduction was tolerable for a short period of two years or so; but its effects became dangerous when the war showed every sign of continuing for several more years. Old engines that had been patched could not keep going indefinitely; without more new locomotives it would be impossible to cope with the steady increase in traffic. During 1942, indeed, locomotives became a critical problem of war production. On top of the home demand, the War Office urgently required engines for the Middle East, India and Africa. The engine requirements arising from 'Bolero'—the movement of American troops to this country—were also heavy. Strenuous attempts were made to increase production, at the expense of munitions contracts, in both the railway workshops and the outside firms. But such reconversions are always difficult; in this instance, the main trouble was to find enough boiler makers, for when locomotive production had fallen early in the war many of them had gone off to the shipyards. The plans to produce over 500 engines for the home railways in 1942 did not indeed come anywhere near fulfilment nor did production increase appreciably until 1943. From the middle of November 1942 to the end of February 1943, between 1,000 and 1,500 trains a week had to be cancelled chiefly because of lack of engines. In addition, up to 10,000 trains a week were starting over ninety minutes late. By this time, American officials who were concerned that the 'Bolero' operation should proceed smoothly had become alarmed and were impressing upon the authorities in Washington the need to send prompt assistance. The United States Government promised to lend at least 400 engines for use on the British railways during 1943. In addition, the British War Office also promised to lend engines not yet needed for operations abroad. By all these measures, the number of locomotives available for traffic was raised by nearly 1,000 between the end of 1942 and the end of 1943.

Railway wagons also were scarce in relation to the demands upon them. The production of new wagons, like the production of

[1] 138 had been lost in France.

[2] The operating stock less those under or awaiting repair. The operating stock was 198 less than at the end of 1938.

locomotives, had been heavily cut. However, the operating stock of wagons was maintained and even increased by keeping or bringing back old wagons that would normally have been scrapped. Until 1942, the workshops kept up with the increased volume of repairs which this policy made inevitable. But from 1942 onwards the number of wagons immobilised for repair rose. In 1944 the increase in the number under repair or awaiting it was so steep—over 31,000—that, although the operating stock of wagons rose, the number actually available for traffic declined sharply. The shortage of wagons did not however, threaten the war effort in the late war years so severely as did the shortage of locomotives. This was due to an increase in the carrying capacity of the wagons caused by greater efficiency in management. The inter-company wagon control that had been set up in 1941 secured valuable economies. Although many more miles were travelled by loaded wagons, the number of miles travelled by empty wagons actually fell. Efforts were also made to ensure that wagons were loaded as fully as possible. Perhaps the most spectacular economies of all were obtained by the improvements in the turn-round of wagons. Investigations into the rate of turn-round—particularly at government depots—led to better organisation and an improved supply of labour at the unloading points. The following figures giving the number of wagons standing under load for more than forty-eight hours speak for themselves:

	March	*June*	*September*	*December*
1941	59,666	56,728	51,359	77,926
1942	52,428	46,987	51,359	44,562 (Jan. 1943)
1943	38,697	40,055	39,795	35,215
1944	32,024	34,477	36,170	33,086

What of the rest of the railways' capital equipment? How did it stand up to the strain of many years of war? There was some new railway development. It was mentioned in Chapter X that in the spring of 1942 the Lord President's Committee approved schemes amounting to a cost of £5 million. After Pearl Harbour, much additional work was necessary to deal with the 'Bolero' traffic and the preparations for a final assault across the Channel. By the end of the war, government expenditure on railway works amounted in all to £11½ millions. Some of the schemes were primarily 'insurance works' undertaken to provide emergency routes; but many were of permanent value. On the other hand, normal maintenance of the railway tracks was very much reduced during the war years.[1] Despite this,

[1] e.g. quantities of materials used on maintenance of way and works:

	1938	*1941*	*1942*	*1943*	*1944*
Rails (tons)	221,618	159,019	161,459	151,013	156,169
Sleepers (number)	4,495,852	2,785,098	2,834,218	2,860,575	2,832,510
Tracks renewed (miles)	1,485	953	986	1,008	969

(Railway Clearing House Statistics)

the permanent way stood up to the increased traffic better than it had done in the First World War—partly because the track was in a better condition in 1939 than in 1914 and partly because advances in engineering and metallurgy had extended rail life. The effects of prolonged under-maintenance were not seriously felt until the post-war days.

The Government was concerned to maintain and if possible increase the capacity of the railways; at the same time, its aim was to cut out as much dispensable traffic as possible so that the railways might carry the increasing burden of essential war traffic. One of the most fruitful economies was thought to be the elimination of wasteful or unnecessary long or cross hauls, through the exercise of legal powers, and through influence or pressure by the departments which controlled the distribution of goods. A beginning had already been made; the War Office, for example, was using locally produced steel for railway construction, the Mines Department had reduced the number of varieties of coal, the distribution of bricks and cement had been rationalised and the Ministry of Food was pursuing transport economy in the distribution of the bulk commodities that it controlled. As these measures of transport economy developed, they came sometimes into conflict with principles of financial economy; to encourage manufacturers to obtain their raw materials from the nearest source of supply might conflict with the principle of basing contracts on the lowest tender. However, the Treasury agreed in the summer of 1941 that competitive tendering for materials for factories should in future be restricted, so far as possible, to firms within a 'reasonable distance' of the ultimate destination. In addition, controllers of raw materials were instructed to make their allocations with transport factors in mind.

A further impetus was given to the rationalisation of distribution at the end of September 1941, when the Ministry of War Transport informed the Lord President's Committee that, unless drastic steps were taken, the railways would be unable to carry all the traffic brought to them. The Ministry of Food and the Board of Trade then pressed ahead with economy schemes for the distribution of goods between the manufacturer or wholesaler and the retailer. This was much more difficult than rationalising the distribution of raw materials to manufacturers. The Ministry of Food, for example, admitted that, with the single exception of margarine, all foods were carried on uneconomic hauls. For, in peace time, the sale of food had been highly competitive and trade channels had been fashioned by big-scale advertising and by branding particular products. Nor did any of the ministries concerned know much about the distribution of most manufactured goods. When the necessary knowledge was built up, there would still be considerable technical difficulties in the way of

schemes for zoning distribution. The principle of such zoning schemes was to ensure that each zone should supply its own needs if possible; that zones having a surplus should not import at all nor deficient zones export. Since the location of factories was different for every foodstuff and for all kinds of consumer goods, an immense number of separate schemes had to be prepared.

It was not until the summer of 1943 that a really appreciable number of zoning schemes were working. Even then, they hardly added up to that radical reorganisation of distribution which was necessary for achieving the maximum savings of transport.[1] Some individual schemes were as thorough-going as the situation demanded: two notable examples were the scheme for distributing soft drinks, under which the separate identities of the manufacturers were almost completely obliterated, and the scheme for zoning fresh fish distribution. More spectacular, if less important, was the ban on ice-cream production on transport grounds. But other schemes might almost seem to have been devised so as to ensure the least possible interference with the normal channels of trade. The restrictions on the wholesale distribution of groceries and provisions were only light. The Minister of Food would not agree to a national brand of tea without which major transport economies in tea distribution were impossible. Although the distribution of locally produced beers was simplified, little or nothing was done to deny the famous national and bottled beers—Bass, Guinness, Watney, etc.—to any part of the country: this in spite of the fact that these beers, including returned empties, were a bulky and considerable item of railway transport. These discrepancies in the completeness of transport economy schemes reflected not so much the technical difficulties, as the varying resolution and goodwill of those concerned in the schemes. Moreover, the Ministry of War Transport was unenthusiastic about schemes that did not individually involve a large tonnage and the Government at times showed signs of wavering in its austerity. In the autumn of 1942, for example, the transport of cut flowers was banned;[2] but in the spring of 1943 limited facilities were once more granted.

Nevertheless, the savings of transport through the many zoning schemes must have been cumulatively important. And the strain on the British transport services was such that 'any economy might be decisive at the margin of breakdown'.[3]

Since coal was the most important single burden on the railways, rationalisation of coal traffic obviously needed close study. The

[1] The examples in this paragraph all refer to food. There has as yet been no research into the transport economies secured in the distribution of consumer goods by the Board of Trade.

[2] In 1941, 365 special trains had been run for flowers, besides special vans.

[3] See *Food*, Vol. I, Chapter XXVI.

collection of regular and accurate information showing where each ton of coal was produced and where it was consumed made it possible to detect and eliminate unnecessarily long and cross hauls of traffic. Where uneconomic haulage was suspected, investigations were promptly made; but they frequently showed that the firm or district in question had to be supplied with special coals which could not be produced elsewhere. Another way of saving coal transport was to run full train loads to single destinations; in the normal way collieries loaded wagons for this destination or that and left it to the railways to sort out into trains the many thousands of wagons moving to all parts of the country. This movement of coal in wagon loads instead of in train loads reflected consumers' habits and the trade practices of a multitude of coal merchants. These habits and practices were hard to change. Some advance was made with 'block loading', but the complete rationalisation of coal transport was impossible unless merchants pooled their orders from the coal depots. The merchants, however, always had many arguments against any such suggestions and the Government never felt disposed to force the issue.

It was important to reduce not only unnecessary freight traffic but also unnecessary passenger traffic. Passenger train services had been progressively reduced in the early years of the war; but by the autumn of 1941 trains had become so crowded that it was desirable if possible to reduce the number of persons travelling by train before imposing further cuts on the time-tables. Measures for rationing travel were considered; however, the administrative problems seemed almost insuperable while the savings might well have been small, since a large proportion of long-distance travellers were Service men. Instead of rationing travel, the Government launched a publicity campaign centred on the slogan, 'Is your journey really necessary?' It also introduced some minor restrictions—the withdrawal of sleeping and restaurant cars, limitations on luggage and parcels and prohibition of Service men's travel at public holidays. Later, in 1943, cheap day fare tickets were abolished. These efforts may have done something to damp down the travelling impulse but they did not prevent the number of passenger journeys from soaring.

As the burden on the railways grew heavier, it became increasingly important to ensure that other forms of transport were so organised as to relieve the railways as much as possible. It also became essential to take firm measures for the efficient allocation of traffic between railways, roads, coastal ships and canals. Not until the spring of 1943 could the Government claim to control the whole inland transport system. The elements of unified control had been assembled gradually. The control over coastal shipping was established early in the war. The canals were brought under direct control in July 1942, when

rising costs were threatening to reduce still further the volume of traffic they could carry. The longest delay in completing the integration of the country's transport arose over road traffic.

The transport crisis in the winter of 1940–41 had shown that indirect methods of control were quite inadequate to ensure that road haulage was available when and where the Government needed it. Throughout 1941, the Ministry of Transport laboured with the road haulage industry to produce a scheme which would establish a fleet of road vehicles that could be called upon at once to do priority work. The organisation that emerged early in 1942 was, in deference to the industry's dislike of direct control, a compromise. As such it failed. The Government had reckoned on chartering some 2,500 long-distance vehicles to form the 'hard core' of a transport fleet which would be ready in an emergency. But so profitable was ordinary commercial road haulage that, six months after the scheme began, the Government had managed to charter less than 500 vehicles. The scheme also proved administratively wasteful.

By the autumn of 1942, the steady fall in stocks of petrol was making rigid economy essential and the strain on transport was growing. It became more than ever important to have a road haulage organisation which would provide for the following needs—efficient movement of the government traffic that had to go by road; strict economy in the handling of all other road traffic; the accumulation of a substantial reserve of long-distance vehicles which would be available if the railways should prove unable to sustain their increasing traffic, or if coastal ships had to be diverted to military uses. Vehicles and drivers must be made available for urgent service at any time; but, before that time came, they must not be employed in unnecessary work that wasted manpower and petrol. The Minister of War Transport decided that, in order to concentrate long-distance traffic into the smallest number of vehicles and at the same time to maintain the vehicles laid up in constant readiness for use, he must take direct control over all vehicles engaged in haulage work for distances over sixty miles.[1] A certain number of well-organised haulage businesses were taken over as a whole; other long-distance vehicles outside these businesses were hired by the Government and paid for at weekly rates. This road haulage organisation came into operation in March 1943.

How was traffic allocated between these different forms of transport? It will be remembered that, in 1941, a Central Transport Committee had been established for the specific purpose of planning the distribution of large blocks of traffic. The Committee could work only on broad lines, but its work was very useful. It impressed on the main transport-using departments the need to transfer as much

[1] There were about 25,000 of these vehicles.

traffic as possible to coastal ships and canals in order to relieve the railways and road transport. Only certain cargoes were suitable for water traffic. In general, coastal tramps were asked to carry the maximum amount of coal. In addition, they took over a large proportion of bulky traffic such as the transport of Scottish seed potatoes to the south. The usefulness of water transport was limited if goods were destined for places far from ports of call or unloading points on the waterways. But there is no doubt that water transport—and in particular coastal shipping—was of inestimable benefit in moving traffic precisely at those points and during those seasons where the railways were pressed most severely. In 1943, the Central Transport Committee considered that regional transport allocation committees should also be set up to control the distribution of traffic at inland points. But it is difficult to consider or study transport conditions except on a national scale, and it is doubtful whether such local committees could be sufficiently aware of conditions in other areas. Another method of influencing the distribution of traffic might have been used by the Government—that is, the manipulation of rates to attract traffic to the most suitable form of transport. In fact, however, rates were not determined by the Ministry of War Transport's allocation policy. Coastal shipping and canal rates, for example, were high compared with railway rates. While subsidies were paid on some of the traffic diverted to more expensive forms of transport, in other cases traders had to bear the extra costs themselves.

We have been discussing the ways and means by which the Government tried to ensure that the inland transport system could bear its heavy war-time tasks. Were these efforts successful? Up to about the autumn of 1943, the transport system was just managing to cope with its burdens. Coastal shipping had carried more traffic with a smaller amount of deadweight tonnage than it had done during the previous winter. The railways had dealt with continuously rising traffic without any major breakdown. There were indeed partial breakdowns, many railways embargoes on the acceptance of traffic and cancelled trains. Probably a miscellany of minor delays in the expanding war effort could be traced to transport hold-ups. But the winter of 1942–43 was unusually mild and the railways survived it without any really serious congestion. It is significant evidence that through 1942 and up until the summer of 1943 very little coal production was lost through inadequate transport.

By the summer of 1943, Britain was a very tightly mobilised country. In spite of old capital equipment and a less efficient labour force, the transport system could just about manage to deal with the traffic which this immense war effort involved. But it was strained almost to the limit and could carry no further large increases in traffic. Fortunately, petrol and rubber were now more plentiful and

allowed greater use to be made of road transport. Nevertheless, the position on the railways steadily deteriorated. Troops and equipment were concentrating in Britain—in the last four months of 1943 half a million American soldiers arrived and British troops were also coming home from abroad. Passenger traffic as well as freight traffic was growing. The railways' difficulties increased when there occurred widespread autumn fog and a December epidemic of influenza among the railway staff. Fortunately, the rest of the winter was mild; but, even so, congestion persisted on the railways. During the last quarter of 1943 and the first quarter of 1944 a total of over 913,000 tons of coal were lost through shortage of transport. This was a serious amount when the coal budget was balanced so finely and some factories were even being compelled to stop work through lack of coal.[1] The Minister of Fuel and Power appealed for overriding priority for the movement of coal on the railways; but his appeal failed.

Early in 1944 it was obvious that drastic measures would be necessary if the lines were to be cleared for the great military operations of the summer. For it was estimated that operational freight traffic would amount to from 38,000 to 40,000 tons a day, while a tonnage of coastal shipping sufficient to carry about 1,400,000 tons a month of freight would be withdrawn for military purposes. In addition, since London and other southern ports must be kept clear for the invasion preparations, imports had to be diverted northwards —a change that involved long hauls over crowded railway lines. In February 1944 two committees—one official and one ministerial —were set up to study the measures necessary to increase the capacity of inland transport and to reduce traffic offerings to the level that would allow the heavy military movements before and after D-Day to go forward unimpeded. The official committee estimated the maximum amount of tonnage which the railways could move. Locomotives and wagons were available and the tracks were in reasonably good condition. Additional labour was needed and the Minister of Labour did his best to recruit it. Watch also had to be kept on those junctions and exchange points where congestion appeared most speedily. Having estimated railway capacity the official committee proceeded to ensure that excessive traffic did not come forward. Neither coal output nor essential movements of food—both heavy items of railway traffic—could be interfered with; but considerable cuts were made in other bulk traffic—steel, fertilisers, timber, lime and chalk, building materials and raw materials. The cuts were to start about May and last for at least three months. Since stacking and storing capacity were limited, this meant reductions in output; a considerable number of blast-furnaces, for example,

[1] Perhaps 100 factories: see above, Section (ii).

had to be allowed to die. To reduce passenger traffic, all privilege leave in the Services was stopped.

A transport balance sheet was thus constructed and it was constantly readjusted during the last months before D-Day. The officials did their work well—so much so that none of the invasion ships were delayed in fulfilling their timetables because soldiers, weapons or stores had not reached the ports on time. The railways were kept clear. Coastal shipping and road haulage responded well to the demands upon them. British transport had mastered its greatest wartime task. The immense operations of D-Day were launched smoothly and without delay. It must however be recognised that the cuts imposed on production were severe. In the quite exceptional circumstances of the summer months of 1944, when Great Britain was not only an arsenal but also a military base, transport was a real limitation. It could handle military operations only at the expense of the transport of important materials.