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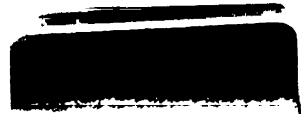
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**HISTORY OF
THE SECOND WORLD WAR**

UNITED KINGDOM CIVIL SERIES

Edited by SIR KEITH HANCOCK

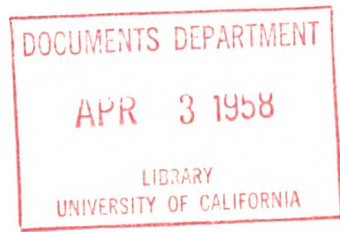
WAR PRODUCTION SERIES

Directed by M. M. POSTAN

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LABOUR
IN THE MUNITIONS
INDUSTRIES

BY
P. INMAN



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EDITORS' NOTE

TWO BOOKS on Manpower are published simultaneously. The first book, by Mr. Parker, deals with the total resources of manpower in the United Kingdom and their use; these were the responsibility under War Cabinet direction of the Ministry of Labour and National Service. The second book, by Mrs. Inman, deals with manpower as a factor of production within the industries controlled by the supply Ministries. Each subject seemed sufficiently large and complicated to demand a book to itself, but although some overlap is inevitable the two volumes have been designed to complement each other.

W. K. HANCOCK
M. M. POSTAN

PREFACE

THE HISTORY of *Labour in the Munitions Industries* is part of the history of the mobilisation of men and women for the war effort and of their allocation to various uses in the war machine. From this point of view the story is essentially one of 'labour budget', that is of the total demand for labour and of its provision out of the reservoir of employable population. But the story must also be built around another theme—that of the detailed needs and experiences of industry itself.

Thus this book describes the problems of dilution and training that arose in building up the labour force; and, in Part II, it recounts the measures taken to use this labour force to the best advantage, whether by the improvement of working conditions, the promotion of personnel management or the establishment of efficient incentive payment schemes. The two themes were of course inter-related; for behind the total demands for labour which appeared in the manpower budgets lay hidden—in the production directorates of the supply Ministries and in individual factories—a host of needs and plans, each affected by the changing balance and the chequered progress of the munitions programme.

The volume in this series concerned with the mobilisation of manpower naturally gives a more central place and more detailed treatment to the budget story than does this book;¹ but all the problems of war-time labour demand the attention of both histories. This history must describe briefly general labour policies, such as the making of the Essential Work Orders, just as the manpower history must refer to the problems of the engineering and shipbuilding industries. Indeed, the difference between the two books does not lie essentially in the demarcation of subjects selected for study. Rather may this one be described as an enlargement of a part of the picture shown in the general manpower history.

It may perhaps fairly be objected that this book emphasises the difficulties in building up the labour force and maintaining its efficiency and pays too little attention to the tremendous achievements of the war years. Its contents have no doubt been influenced by the assumption that the achievements are well known and the difficulties and problems perhaps less so. On the other hand, once the achievement is recognised—and the high degree of mobilisation

¹ See H. M. D. Parker, *Manpower*, in this series (H.M.S.O., 1957).

reached speaks for itself—it can be argued that to emphasise the difficulties is only to underline the magnitude of the final success.

Of the two themes referred to above, the budget story is an intricate one but equally difficult to record are the labour problems of industry itself; their history is complicated by the manifold variety in structure, processes and finished products of the firms which comprised the munitions industries and by the multitude of records available for study. This book is based on the evidence of files and other official records and on discussions with officials at headquarters and in the regions and with members of individual firms. Talks with officials on the job and visits to factories and shipyards are valuable not only for the information they provide but for the vitality and significance they give to the study of written records. At the same time, such discussions and visits make the historian aware, if but dimly, of the infinite variety of individual knowledge, thought, anxiety and toil that lay behind war production—of the reality which his ordered narrative can never capture, however true in a sense its generalisations may be.¹

Convention forbids the naming of the officials whose help has made possible the writing of this book; to these I would express my gratitude. I may, however, thank in person those who are now or who have been on the staff of the Official History and in particular would record my debt to Mr. J. B. Jefferys. The research for this book was done in collaboration between the author and Mr. Jefferys who left for other work before it was completed. His narratives form the basis of a large part of those sections of Chapters IX, X, XI and XII which deal with the work of the Ministry of Supply and the M.A.P. In these sections my share has been no more than one of arrangement and editing. I also received some assistance in the compilation of Part II from Miss J. V. Steen. In addition I have made use of narratives prepared for other volumes of these histories by Mr. C. C. Wrigley, Miss M. E. Rayner, Professor A. V. Judges, Mr. A. J. Corfield and Miss E. C. Bailey, and would acknowledge my debt to these writers. Mrs. Margaret Gowing gave valuable assistance at the editorial stage. Lastly I should like to thank Miss Hilda Merrifield for her able and willing help.

P. INMAN

January 1956

¹ See F. M. Powicke, *History, Freedom and Religion*, 1938, p. 21.

LIST OF ABBREVIATIONS

| | |
|--------------------------------------|--|
| A.E.U. | Amalgamated Engineering Union |
| A.R.P. | Air Raid Precautions |
| Boilermakers' Society | United Society of Boilermakers and Iron and Steel Shipbuilders |
| C.E.M.A. | Council for the Encouragement of Music and the Arts (later the Arts Council) |
| Engineering Employers' Federation | Engineering and Allied Employers' National Federation |
| E.N.S.A. | Entertainments National Service Association |
| E.T.U. | Electrical Trades Union |
| I.C.I. | Imperial Chemical Industries |
| M.A.P. | Ministry of Aircraft Production |
| P.E.B. | Production Efficiency Board |
| R.A.F. | Royal Air Force |
| R.G.P.F. | Royal Gunpowder Factory |
| R.O.F. | Royal Ordnance Factory |
| Shipwrights' Association | Ship Constructors' and Ship- wrights' Association |
| T.U.C. | Trades Union Congress |

CHAPTER I

INTRODUCTORY

(i)

IT IS POSSIBLE to distinguish several phases in the history of labour supply to the munitions industries. These industries were troubled first by a shortage of skilled engineering labour which arose initially in the rearmament period and became serious in the opening phase of the war as new engineering capacity came into production. The shortage of skilled engineering and shipbuilding labour continued throughout the war; and for many firms it remained till the end their chief labour problem. But on the whole the shortage of skilled labour did not get much worse as the industrial effort neared its climax in 1943. For this the credit is due to the measures which the employers, the Government and the trade unions were able to take in the meantime.

By the end of 1941 many firms had learned to adapt themselves to the shortage both by altering methods of production so as to 'de-skill' the work and by training semi-skilled workers and upgrading them to skilled work. The Government adopted policies and administrative devices to secure an equitable distribution of the available skilled labour and to encourage firms to overcome the shortage by self-help. For their part the trade unions, after a period of doubt and hesitation, accepted the necessity for the dilution of skilled labour by the upgrading of semi-skilled workers.

On the other hand the supplies of unskilled labour, which were entirely sufficient in the rearmament period and in the early part of the war, became scarcer as production in the munitions industries increased until, by 1943, their insufficiency was the main problem of the war economy and the overriding limitation on all the industrial and military plans. Indeed by then the problem of skilled labour had merged into the wider problem of manpower in general; for in the closing years of the war the upgrading process in the engineering industry was severely limited by the shortage of 'green' labour to replace the workers who were promoted.

Until the autumn of 1940 there were no serious shortages of unskilled labour of any type. Even in October 1940 there were some 800,000 workers unemployed.¹ But in the winter of 1940-41 drop

¹ A number of these, however, were only registered as unemployed for a short period in the course of transferring to war work; see p. 49 below.

forging and other firms in the Midlands found it hard to obtain unskilled labour for heavy work. Thereafter the shortage of such labour spread throughout the country and proved even more difficult to remedy than the shortage of skilled workers.

In the winter of 1940-41 there occurred isolated shortages of light unskilled labour, particularly of women for the new filling R.O.Fs, but these shortages were only temporary and a general insufficiency of labour was not to be felt at all acutely until the second half of 1942. Before 1942 munitions programmes, though obviously related to previous achievements, were not based on a careful examination of the labour likely to become available. But from December 1942 onwards programmes were by contrast largely based on the estimated future supplies of unskilled labour. The 'manpower budget' thus became the key instrument in the planning of war production.

The general shortage of unskilled labour led in its turn to a growing emphasis on the problems of labour utilisation. In the early years of the war both factories and government departments had in any case been engrossed in the problems of building up their labour force; the time for consolidation was bound to come later. The difficulty of finding workers, however, even to replace wastage, made it imperative to improve the use of the existing labour force, and to pay more attention to such problems as absenteeism and personnel management, hours and conditions of work, industrial relations and morale.

In spite of this common background of developing labour shortage, however, the history of labour supply to the various branches of munitions production did not follow a uniform pattern. The Ministries responsible for war production, the Ministry of Supply, the Air Ministry, and afterwards the M.A.P., and the Admiralty had, it is true, many common labour problems; for all their contractors suffered in varying degrees from the labour shortages which developed during the war. But since the timing of the departments' programmes was not the same it might happen that aircraft firms found it increasingly difficult to meet their demands for labour just as the labour supply position in the R.O.Fs was improving. The extent to which the labour requirements of the three departments were met also varied because the nature of the work for which they were responsible varied and with it the type of labour which they chiefly required. But before the effect of these differences is considered in more detail it will be useful to look briefly at the industrial composition of the departments' labour force.

The numbers employed in Great Britain on work for the three departments in the munitions industries (excluding raw materials) throughout the war are shown in Table 1; they amounted at peak in

1943 to some 4 millions¹ compared with little over 2 millions in June 1940. At the various dates when employment for the individual departments reached its height some 1,690,000 workers were employed on work for the Ministry of Supply, 1,710,000 for the M.A.P. and 806,000 for the Admiralty.

The figures included a large number of workers in the engineering and allied industries.² At peak, 1,318,700 workers in these industries were employed on direct work or on contracts for the Ministry of Supply, 1,678,200 for the M.A.P. and 597,800 for the Admiralty. The term engineering and allied industries covered, it is true, a very wide variety of occupations and manufactures and a diverse range of finished products; but engineering workers were to various degrees interchangeable between different sections of the industry. Moreover, although the marine engineering section of the industry, for example, was exclusively employed on Admiralty contracts and the aircraft section on those of M.A.P., large sections of the industry worked or were capable of working for all the supply Ministries; and in fact many engineering firms were, throughout the war, engaged on contracts for two or even three departments.

However, a large and varied labour force was also employed outside the engineering industry. The Admiralty was responsible for shipbuilding and repairing, employing at peak some 270,000 workers,³ and the Ministry of Supply for a large part of the chemicals and explosives industries, which at June 1942 employed 610,200 workers. In addition, outside the munitions industries as defined in Table 1, the Ministry of Supply was responsible for the production of many raw materials—timber, cotton, wool, fertilisers, iron and steel and many other diverse commodities. In June 1942 it was estimated that over a million workers were employed in the branches of raw materials production for which the Ministry of Supply was responsible, including some 315,000 in the iron and steel industry.⁴ At peak in November 1943 some 96,000 workers were employed in the light alloy industry, which was controlled by the M.A.P.⁵

¹ Including clerical and administrative staff.

² i.e. engineering and boilermaking, etc., motor vehicles, cycle and aircraft manufacture and repair, construction and repair of railway and other carriages, bolts, nuts, screws, etc., general iron founding, electric cables, apparatus, etc., scientific instruments, watches, etc., non-ferrous metal manufacture.

³ Including 104,000 employed on the construction and repair of merchant vessels not of course included in the total of 806,000 quoted as employed on Admiralty work in the munitions industries.

⁴ This figure excludes clerical and administrative staff. It also excludes nearly 150,000 workers employed in bolt, nut, rivet and screw manufacture and in iron foundries, already included above in the figures of employment in the engineering and allied industries.

⁵ J. Hurstfield, *The Control of Raw Materials*, in this series (H.M.S.O., 1953), p. 321.

(ii)

The effect of labour shortages on the work of the different branches of war industry depended, as has been said, on the timing of the departmental programmes and the type of work concerned. The shortage of skilled engineering labour, however, which, as we have seen, began in the rearmament period and persisted in some form or another throughout the war, naturally affected firms working for all three supply departments to the same, or almost the same extent, more especially after the outbreak of war. The greatest difficulties arose in the new factories, irrespective of the contracts they held. On the other hand the establishments of the Ministry of Supply—the R.O.Fs and agency factories—and contractors working for this Ministry generally began to feel the shortages of unskilled labour at an earlier date than aircraft firms.

This was partly because the army programmes developed most rapidly in the early war years to a peak in the second half of 1942. (The history of munitions programmes, and of how and when they were fulfilled, has already been told in a volume in this series.¹) The Ministry of Supply had very large demands for labour in 1940–1941, which included unskilled men for heavy work and women workers who were needed from the very beginning in the vast new filling factories. Owing to the competition of the Services, shortages of heavy labour soon became chronic and were, as is explained later, most severely felt in the less attractive industries. And although there was no general shortage of light unskilled labour in 1940–41, the Ministry of Supply's difficulties in obtaining such labour were sufficiently prominent and sufficiently stubborn to draw to themselves a good deal of attention and to instigate some of the earliest government policies to deal with supply of labour. The supply of labour in industries working for the Ministry of Supply may even have become somewhat easier in the first half of 1942 than it had been in 1940–41; for not only were the Ministry's demands by then lessening but supplies of labour had improved. Civilian industry had been contracted and men and women conscripted for war work, and special sources of supply of heavy labour such as prisoners of war and 'optants', who preferred mining to the Services, had been found. At no time, however, were the labour shortages protracted, nor had they a serious effect on production save in a few raw materials industries such as iron ore mining and the refractories industry. The rapid build up of the Ministry of Supply's labour force between 1940–42 was a very considerable achievement.

¹ See M. M. Postan, *British War Production*, in this series (H.M.S.O., 1952).

Table 1: Numbers Employed in Engineering and Metals,* Explosives and Chemicals and Shipbuilding Industries† in Great Britain

Thousands

| | Total Numbers employed | | | Numbers employed on Manufacture of Equipment and Supplies for the Forces | | | |
|-----------------|------------------------|---------|---------|--|----------------------|-------------------------------|--|
| | Total | Males | Females | Total | Orders for Admiralty | Orders for Ministry of Supply | Orders for Ministry of Aircraft Production |
| 1939 June . . . | 2,742·0 | 2,254·0 | 488·0 | ‡ | ‡ | ‡ | ‡ |
| 1940 June . . . | 3,170·1 | 2,523·6 | 646·5 | 2,099·8 | ‡ | ‡ | ‡ |
| September . . | 3,339·8 | 2,616·2 | 723·6 | 2,371·5 | ‡ | ‡ | ‡ |
| December . . . | 3,461·4 | 2,699·1 | 762·3 | 2,554·8 | 619·7 | 937·3 | 997·8 |
| 1941 March . . | 3,651·6 | 2,744·7 | 906·9 | 2,734·2 | 619·9 | 1,021·7 | 1,092·6 |
| June | 3,852·7 | 2,789·4 | 1,063·3 | 2,979·2 | 642·4 | 1,168·9 | 1,167·9 |
| September . . | 4,003·3 | 2,832·7 | 1,170·6 | 3,154·1 | 656·8 | 1,284·5 | 1,212·8 |
| December . . . | 4,260·7 | 2,900·8 | 1,359·9 | 3,397·0 | 676·4 | 1,433·9 | 1,286·7 |
| 1942 March . . | 4,438·5 | 2,930·4 | 1,508·1 | 3,590·0 | 685·8 | 1,540·0 | 1,364·2 |
| June | 4,589·5 | 2,949·2 | 1,640·3 | 3,772·1 | 704·7 | 1,629·2 | 1,438·2 |
| September . . | 4,712·5 | 2,991·9 | 1,720·6 | 3,893·1 | 728·9 | 1,658·7 | 1,505·5 |
| December . . . | 4,809·9 | 3,006·4 | 1,803·5 | 3,982·9 | 741·9 | 1,686·0 | 1,555·0 |
| 1943 March . . | 4,839·8 | 3,004·6 | 1,835·2 | 4,020·0 | 766·0 | 1,670·3 | 1,583·7 |
| June | 4,847·8 | 2,992·2 | 1,855·6 | 4,019·6 | 786·8 | 1,627·7 | 1,605·1 |
| September . . | 4,820·4 | 2,975·9 | 1,844·5 | 3,997·5 | 805·3 | 1,536·9 | 1,655·3 |
| December . . . | 4,799·1 | 2,959·9 | 1,839·2 | 3,977·6 | 806·5 | 1,459·5 | 1,711·6 |
| 1944 March . . | 4,736·0 | 2,928·5 | 1,807·5 | 3,915·4 | 806·1 | 1,422·2 | 1,687·1 |
| June | 4,642·6 | 2,877·7 | 1,764·9 | 3,810·4 | 793·2 | 1,377·6 | 1,639·6 |
| September . . | 4,536·1 | 2,832·3 | 1,703·8 | 3,709·6 | 780·3 | 1,338·7 | 1,590·6 |
| December . . . | 4,362·4 | 2,761·2 | 1,601·2 | 3,503·6 | 756·1 | 1,277·0 | 1,470·5 |
| 1945 March . . | 4,208·0 | 2,694·2 | 1,513·8 | 3,301·4 | 720·1 | 1,250·5 | 1,330·8 |
| June | 3,998·6 | 2,601·4 | 1,397·2 | 2,953·8 | 667·7 | 1,156·1 | 1,130·0 |

Source: Ministry of Labour and National Service

* Excluding iron and steel manufacture and the tinplate, tube and wire industries.

† Males under 65 and females under 60, but excluding non-manual workers earning over £420 per annum. Part-time female workers are included, two being counted as one unit.

‡ Not available.

After the beginning of 1943 the total Ministry of Supply programme fell, as did the labour force employed on Ministry of Supply work. But many heavy and often unexpected requirements had to be met for D-day and the subsequent campaign in Europe, and indeed were met in spite of the growing labour shortage.

The incidence of labour shortage in aircraft production was different. In 1940-41 M.A.P. production was developing more slowly than that for the Ministry of Supply and did not reach its

peak until the turn of the year 1943-44. Moreover, the aircraft industry's demand for unskilled women workers developed only gradually as dilution was introduced into the industry. By the time the labour demands of the aircraft industry reached their peak in 1943 the shortage of unskilled labour had become acute. Shortages of unskilled labour in the aircraft industry which arose in that year were therefore bound to be severe—though how severe was a matter of dispute—and the industry had to be given priority to overcome them.

It was not only the timing of the departments' programmes which affected the labour supply position on their contracts but also the attractiveness of the work for which the departments were responsible. The aircraft firms were at an advantage in 1940-41 not only because their demands were rather more limited but because so long as there was unskilled labour available the aircraft industry was in a relatively strong position to acquire it. In 1940, it is true, the industry enjoyed a very high priority for labour and other factors of production; but its ability to attract labour at that time, and to a smaller extent throughout the war, was probably due less to official priorities than to the comparatively high earnings offered in many aircraft factories, particularly in the Midlands, where engineering earnings were in general high.

Higher earnings may have helped the rapidly expanding aircraft industry to attract labour, but the wage structure of British industry presented a serious obstacle to the orderly distribution of labour according to need. Within the engineering industry itself differences in earnings were very wide and were unrelated to the difficulties of the work or the urgencies of demand. So too were the differences in earnings and conditions between the lighter sections of the engineering industry and the heavy industries, such as shipbuilding and many of the raw materials industries for which the Ministry of Supply was responsible. Riveting in the shipyards, iron-ore mining or zinc smelting was not only heavy but dirty and often dangerous work; yet work of this kind was often comparatively badly paid at the outbreak of war and sometimes remained so to the end.

These differences in conditions of work and earnings were of fundamental importance in the history of labour supply; for until new policies were introduced by the Coalition Government in 1940-41 to regulate the supplies of labour—notably the Undertakings (Restriction on Engagement) Order, the Essential Work Orders and the Registration for Employment Order—labour was free to go to the highest bidder. From 1940 onwards there was an increasing measure of control, but it was never by any means complete. Government departments had to take industry largely as they found it; and though the Ministry of Labour had wide and sweeping powers these

were never fully used. The lesson of the relative failure of coercive measures in the 1914-18 war was well learnt in the Ministry of Labour; and the labour policies pursued were strongly influenced by Mr. Bevin's own deep conviction that men and women could not be allocated to this factory and that with the precision of raw materials and machine tools, and by his natural predilection as a trade union leader not to interfere too much with the established machinery of industrial negotiation.

Indeed most people held partial views on the subject of compulsion. Some employers wanted labour to be compelled into employment but did not want to be told to improve conditions of work, just as some trade unionists wanted employers to be compelled to set up Joint Production Committees but were reluctant to abandon restrictive practices. Politicians and civil servants also differed in their views about compulsion. Seen through the eyes of those in the supply Ministries directly responsible for output, some of the policies pursued by the Ministry of Labour seemed hesitant and over-sensitive to opinion among the general public or in certain sections of industry. On occasion no doubt they were, though judgments are difficult since no one could accurately predict the outcome of alternative policies. On the other hand a large item on the credit side was the successful maintenance of peace and goodwill in industry.¹

How far the impressive mobilisation eventually achieved was due to the system of government controls and how far to people's readiness to co-operate is considered elsewhere.² Figures of total mobilisation did not, however, tell the whole story, for attractive work remained comparatively well-manned at the expense of less attractive. Similarly certain areas were heavily overloaded with war contracts and firms in the easy labour supply areas were sometimes well-manned compared with those elsewhere.

This latter problem was one which faced most branches of war industry and all three supply departments; but it was the Ministry of Supply and the Admiralty which were chiefly responsible for the heavier and unattractive work. So far little mention has been made of the shipbuilding industry, where labour supply problems were considerable. Their effect was perhaps felt most seriously in the production of merchant ships for, by comparison, the output of warships was hampered less by labour shortage in the shipyards than by shortages of machinery, guns, instruments and other equipment—shortages which themselves sometimes resulted from insufficient supplies of labour to engineering firms.

But taken as a whole shipbuilding, both for the Royal Navy and

¹ Cf. the Chancellor of the Exchequer defending the Government's wages policy, H. of C. Deb., Vol. 386, Col. 413, 26th January 1943.

² See H. M. D. Parker, *op. cit.*, Ch. XXVI.

for the Merchant Navy, was beset with problems of labour supply to the very end of hostilities. Production demands on the shipyards were constantly rising to the end of the war, when requirements for Far Eastern operations and for reconstruction at home and abroad fell more heavily on the shipbuilding than on the other munition industries in relation to available capacity and labour. Not only was some shipyard work heavy and exposed but the industry needed a high proportion of skilled workers; and its difficulties in securing dilution, as in other ways, were increased by the material and mental effects of the inter-war depression. Nevertheless the detailed treatment accorded to shipbuilding in the following chapters—which has arisen largely from the comparatively homogeneous nature of the industry and the close association of the Admiralty in the shipbuilding labour control—may tend to exaggerate its difficulties compared with those of the engineering industry.

(iii)

The division of responsibility between the Ministry of Labour and the supply Ministries for labour supply and utilisation will become clearer in the following pages. So far as labour supply and distribution were concerned the chief and ultimate responsibility and a large part of the administrative effort rested with the Ministry of Labour. Until the spring of 1940 the responsibility for the efficient distribution of the munitions labour force was in dispute; the Ministry of Labour wanted it to rest with the supply departments, and in particular with the Ministry of Supply, while these departments were reluctant to accept it. Had there, as was originally intended, been a single Supply Ministry responsible for all war production this might have been a possible arrangement. By 1940 all three supply departments were convinced that only the Ministry of Labour, with their assistance and advice, could secure the proper distribution of labour within the munitions industries. This point of view was reluctantly agreed to by the Ministry of Labour immediately before the change of Government in May 1940. Afterwards, under its new Minister, Mr. Bevin, the Ministry accepted this responsibility in full.

The labour departments of the supply Ministries grew originally to some extent round the liaison officers posted to them in the rearmament and early war period from the Ministry of Labour; and to the end a large part of their functions were essentially liaison between their Ministries' production departments and contractors on the one hand and the Ministry of Labour on the other. They were vitally important functions for all that. The labour departments were concerned both with labour supply and with labour welfare and utilisation. On the supply side the departments, working through

the regional staffs, watched over the supply of labour to contractors and sub-contractors; they were responsible for conveying to the Ministry of Labour the priorities within their own programmes. Because of their close ties with the managements of firms the supply Ministries co-operated with the Ministry of Labour in measures to increase training and dilution. Not unnaturally also the labour departments of the supply Ministries helped to shape national policies in the field of labour supply and utilisation. For example, the Ministry of Supply had a considerable part in the establishment of the preference machinery, in the development of interdepartmental control of the location of industry and above all, perhaps, in the recruitment of labour in Eire; and a Ministry of Labour scheme for training within industry originated in a suggestion by the M.A.P. The effectiveness of the labour departments in their dealings with their own production directorates and with the Ministry of Labour was influenced not only by the personalities and status of the officials immediately responsible for them, but by the adequacy of the organisation within their respective Ministries to co-ordinate programmes and progress production. This was particularly apparent when it came to the question of labour priorities.

In the last two years of the war some functions in the field of labour supply devolved upon the Ministry of Production. To some extent its influence grew informally and almost imperceptibly out of the functions which the Minister of Production, as a member of the War Cabinet primarily concerned with war industry, performed in the discussion of Service programmes and the settlement of manpower allocations. In this he was advised by the Joint War Production Staff, on which the service and supply Ministries and the Ministry of Labour were represented.¹ Later in the war the Ministry of Production provided the chairman for the official Manpower Committee which, together with a ministerial committee with the same title, prepared the later war-time manpower budgets.² Another source of the Ministry's influence in labour matters was its administrative responsibility for certain interdepartmental committees which were concerned with day to day problems of labour supply, such as the Location of Industry Committee and the Regional Organisation Committee; and at regional level its Controllers were the chairmen of the Regional Boards. The Ministry's most important share in the implementation of the manpower allocations, however, lay in its responsibility for the 'designation' of stores, an essential preliminary

¹ J. D. Scott and Richard Hughes, *The Administration of War Production*, in this series (H.M.S.O., 1956), pp. 441-3.

² The ministerial committee was under the chairmanship of the Chancellor of the Exchequer, Sir John Anderson, who retained the important part he had taken as Lord President in manpower budgeting.

to the granting of highest priority for labour. Yet even here the Ministry of Labour, which retained the primary responsibility for the supply and recruitment of labour, maintained a very close association with the Ministry of Production in controlling the composition of the designated list. Much of the work of the Ministry of Production in the labour field served to co-ordinate the work of the supply Ministries by securing a measure of agreement among equals. Nevertheless the Ministry's influence on labour matters had by the end of the war become very real.

In the field of labour welfare and utilisation the Ministry of Labour carried the main responsibility, through the Factory Inspectorate, for securing the observance of the Factories Act, the provision of proper canteens and medical services and for conditions of work in general. Nevertheless the supply Ministries took a growing share in this work and in some matters, such as the promotion of personnel management, which were closely allied to general management, they bore the major responsibility. And it was the production directorates of the supply Ministries and such specialist bodies as the M.A.P's Production Efficiency Board which were responsible for technical improvements in methods of production.

In addition the supply Ministries were responsible as employers for labour welfare and utilisation in their own establishments. It may seem that disproportionate attention is paid in this book to labour management problems in the R.O.Fs. The problems of the vast new R.O.Fs were often, however, exceptionally difficult; on the other hand the difficulties were different in degree rather than in kind from those which arose in industry generally and can thus be taken as typical. Moreover, the methods used in the R.O.Fs to deal, for example, with absenteeism serve to illustrate the best practice in industry as a whole.

The plan of Part I of this book is to study the labour shortages which developed in the rearmament and war years and the measures taken to overcome them—shortages successively and cumulatively of skilled engineers, of skilled shipbuilding workers, of fit men suitable for heavy unskilled work and finally of labour in general, including the women who formed the last available reserve. This pattern was universal; but in view of what has been said above it will be clear that the shortages will be described at one period as they particularly affected the aircraft industry, at another the shipyards, the R.O.Fs or the iron ore mines. As the shortage of unskilled labour became general in 1942 increasing attention was paid to the problems of labour utilisation which form the subject of Part II.

PART I

Labour Supply

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CHAPTER II

THE SHORTAGE OF SKILLED ENGINEERS, 1936—MAY 1940

(i)

The Munitions Programmes and Labour Requirements

THE YEARS FROM 1935 to May 1940 were marked by a series of expanding armament programmes and by a great increase in the actual output of munitions. Throughout these years attention was chiefly focused on the expansion of the Air Force and on the needs of anti-aircraft defence. The early aircraft programmes of 1935 and 1937 were limited in size by considerations of finance; but the much larger scheme L, introduced in March 1938 after the occupation of Austria, was based solely on the industry's estimate of what it could produce with the capacity and labour expected to be available to it.¹ Under this programme 12,000 aircraft were to be produced in two years. After initial difficulties,² output in 1939 was in excess of the programme; output of aircraft rose from an average of some 700 a year between 1928 and 1933 to 1,800 in 1936, 2,200 in 1937, 2,800 in 1938 and nearly 8,000 in 1939. The new aircraft programme adopted in September 1939 provided for an eventual output in Great Britain of 2,300 aircraft a month.³

The expansion both of the Army and of the Navy was limited in the pre-war years by financial considerations—that of the Army until March and of the Navy until August 1939. Nevertheless Admiralty programmes, which were already substantial by comparison with those of the other two Services, underwent considerable expansion in the rearmament period.⁴ Some 375,000 tons⁵ of naval vessels were under construction at the end of 1936 compared with 545,000 at the end of 1938 and 905,000 on the outbreak of war; in addition there was a growing number of ships in hand for modernisation and re-fitting. It was the Army that was 'the Cinderella' of the Services.⁶

¹ M. M. Postan, *op. cit.*, pp. 17–18.

² See p. 24 below.

³ M. M. Postan, *op. cit.*, pp. 67–9.

⁴ *Ibid.*, pp. 23 ff., 58 ff.

⁵ Standard displacement.

⁶ M. M. Postan, *op. cit.*, pp. 27 ff.

Until March 1938 the War Office was working to a very limited programme; this still called for equipment for an Army of only five divisions, although between 1935 and 1939 large requirements for anti-aircraft defence, for the territorial army and for other miscellaneous purposes had been added. It was not until after the Munich Agreement that the strategic assumptions underlying the Army programme were drastically revised and not until March 1939 that a programme to equip thirty-two divisions by September 1941 was adopted.¹

The new programmes launched in 1939, important though they were, could not have any immediate effect on the demand for labour for munitions production. The new Army programme did not reach the newly formed Ministry of Supply until just before war broke out and much of the capacity required to meet it did not come into production until the winter of 1940–41.² The aircraft programme introduced in September 1939 did not have any immediate effect on labour demands. Similarly the loosening of the purse-strings for the Admiralty in the previous month could not lead to any immediate large increase in production. For the expansion of naval production was bound to be gradual; it was limited by the mounting demands of repair work on the available capacity and labour in the shipyards, as well as by shortages of raw materials and of gunnery equipment.³

The year 1939 did not then make the difference to industrial demands for manpower that might have been expected; indeed the most important, perhaps the only important, landmark in the history of these demands during the period 1935 to May 1940 was the introduction of the Scheme L aircraft programme in March 1938. This in itself is one reason in a history of labour supply for treating this period as a whole without any break in 1939. There are other, stronger, reasons. From 1935, when the first murmurs of a shortage of skilled engineering labour were heard, until as late as the winter of 1940–41 the only labour supply problem that troubled the munitions industries was to find enough skilled labour. Viewed broadly there was no shortage of unskilled workers; total unemployment, which was $1\frac{3}{4}$ millions in January 1936, was still $1\frac{1}{2}$ millions in January 1940. Moreover during the whole of the period, and indeed beyond it, the demand of the aircraft and engineering industry for wholly unskilled labour was restricted by the slow progress of dilution. Apart from the requirements for unskilled labourers, who formed a relatively small section of the engineering labour force, there was a considerable demand in certain sections of the industry for un-

¹ M. M. Postan, *op. cit.*, pp. 71 ff.

² Proposals in the early months of the war to expand the Army programme above this level are discussed on p. 36 below.

³ See p. 87 below.

skilled men and women workers to train for semi-skilled work; but the industry's demand for unskilled labour was much less in this period, proportionately to its total labour force, than it later became.

The period 1935 to May 1940 was also a unity so far as labour supply policy—or the lack of it—was concerned. The shortages of skilled engineering labour which continued in greater or lesser degree throughout the rearmament and early war period were not absolute when judged by war-time standards. Not only was dilution very limited in extent, but in November 1938 it was estimated that only thirty-five per cent. of the labour employed by member firms of the Engineering and Allied Employers' National Federation¹ was engaged on armament work and that outside the professional armament firms the proportion of labour in the engineering group of industries employed upon armament work was small.

For the rearmament programme was launched in 1935 under the slogan of 'Business as Usual'; that is to say the defence programmes were to be so framed that they would not interfere with production for the civilian and export markets² and this was bound to prevent a wholesale movement of skilled labour into armament production. In March 1938, in order that the engineering industry could meet the requirements of the aircraft programme, the policy of 'Business as Usual' was explicitly abandoned; on 24th March the Prime Minister announced in the House of Commons that 'rearmament work must have first priority in the Nation's effort'. The Government's demands were to be made known to the employers' organisations and the trade unions so that they could devise methods for meeting them by mutual arrangement, with the minimum of government interference.³ This decision had important consequences for the rearmament programme since the Treasury was now able to sanction rearmament orders which threatened to interfere with normal trade. But as far as the allocation of labour or other resources was concerned, there was no administrative machinery in existence through which this policy of priority for armaments could be effectively implemented.⁴ Labour was simply attracted to firms where wages were high, a category which indeed included many armament

¹ This is referred to in the following pages as the Engineering Employers' Federation.

² M. M. Postan, *op. cit.*, pp. 11 ff.

³ H. of C. Deb., Vol. 333, Cols. 1410-11, 24th March 1938. See Postan, *op. cit.*, p. 87. The unhappy course of these discussions is described on p. 30 below.

⁴ The Ministry of Labour had been in favour of the establishment of some definite machinery to enforce this priority decision; it argued that the patriotism of employers who were not engaged on munitions work was unlikely to lead them to hand over labour to such of their competitors who were. This convincing argument does not seem to have prevailed. On the other hand the Ministry of Labour rejected a War Office proposal that lodging and travelling allowances should be offered as an inducement to men to transfer to munitions work. It thought this would upset the labour market without producing any more labour.

firms; but there was no means of securing the orderly redistribution of skilled labour that was needed, not only as between munitions and other work but within munitions production itself. The outbreak of war brought no change in labour supply policy; a proposal in September 1939 that labour should be engaged only through the employment exchanges was stillborn because of the opposition of the trade unions.¹ Not until the Coalition Government was formed in May 1940 was it possible to impose any kind of labour control.

The chief demand for labour for munitions production in the rearmament period came from the aircraft industry. None the less the demands for the programmes of the Army and the Navy did grow significantly. In the early stages of rearmament one of the chief problems of the War Office arose not because its programmes were too large but because they were too small; it was difficult to persuade engineering firms not chiefly engaged on the manufacture of armaments to interrupt their civilian work to carry out the small and uneconomic rearmament orders available. Matters improved, however, when in July 1937 the Treasury was authorised to sanction War Office orders beyond the approved programme when such orders offered sufficient economic advantages.² Not only did the numbers employed on War Office work in the private engineering industry increase during the rearmament period; there was also considerable expansion in the labour force employed in the War Office's—later the Ministry of Supply's—establishments. In 1933 there were only three Royal Ordnance Factories in production, the Royal Arsenal, Woolwich, the Royal Small Arms Factory, Enfield, and the Royal Gunpowder Factory, Waltham, employing together about 8,000 workers. By September 1939 four new engineering factories, one explosive and two filling factories were in various stages of production and altogether the R.O.Fs employed some 36,000 workers at that date. Twenty-three new factories in all had been planned by the outbreak of war.

The labour problems of these new factories were eased because special care was taken to site them as far as possible in districts where there was surplus labour of the type required by the factory concerned.³ Thus the demands of the filling factories, which employed a high proportion of unskilled labour, did not give serious trouble until the winter of 1940-41. Nor was there any great difficulty in manning the new engineering R.O.Fs in the period under review. They were situated, far away from the competition of aircraft and motor factories in the Midlands and the South, at Nottingham,

¹ See pp. 26-7 below.

² M. M. Postan, *op. cit.*, pp. 43-4.

³ See p. 217 below.

Blackburn, Birtley in County Durham and Dalmuir, Clydebank—all districts with an established engineering industry, where there was some unemployment among skilled workers particularly in the earlier years. Birtley was a cartridge factory where much of the work was press work of a not very highly skilled type and Blackburn was a fuse factory employing a high proportion of women. Dalmuir was a gun factory for which unemployed men used to heavier types of engineering, for example marine engineering, were very suitable. A certain number of skilled workers were transferred to these factories, particularly to Dalmuir, from Woolwich; and much larger numbers still were drawn to them from civilian industry. Thus the Engineering Employers' Federation complained with truth that R.O.F. Nottingham had attracted many skilled workers from their member firms in the locality.¹ It was no doubt significant in this connection that later in the war earnings at R.O.F. Nottingham were reported to be very high.

Some private firms manufacturing armaments had more trouble than the R.O.F.s in expanding their labour force. Vickers, for example, who were engaged on the manufacture of gun mountings for the Admiralty as well as on Army requirements, seem to have experienced considerable labour shortages. The managing director of the firm, Sir Charles Craven, told the Minister for the Co-ordination of Defence in 1938 that shortage of skilled labour was the real key to the general lag in armaments production. Early in 1938 his firm was requiring 300 skilled workers at Crayford in Kent, 270 at Southampton, 400 each at Elswick and Scotswood on Tyneside and an unspecified number at Barrow. The factory at Barrow was isolated and both there and at Elswick and Scotswood men's skills had deteriorated during long spells of unemployment. The depression had also strengthened the comparative conservatism of craftsmen and trade union officials in these districts. In company, it is true, with many other establishments² the firm did not employ trainees from Government Training Centres for fear of trouble with the A.E.U. and still had no dilutees in the spring of 1940.

Other examples of labour shortage could be found elsewhere. Their total effect, however, was not great. In general, it is true to say that shortages of skilled labour had no serious effect on output of Army equipment during the period under review. Labour shortages had a somewhat greater effect on shipbuilding production. The reserve of unemployed labour available to meet the growing requirements of the shipyards was, however, very high and shortages of

¹ Enquiries made through the employment exchange showed that of the 900 skilled workers employed there at the beginning of 1938 only 266 were unemployed on engagement. 570 had come from neighbouring firms.

² See p. 33 below.

skilled shipbuilding labour were, therefore, not serious in the pre-war years.¹ Labour supply was influenced by the fluctuations in merchant ship production which took place during this period.² In 1938–39 there was a serious recession, but at certain periods between 1936–38 when output was relatively high the merchant builders found that the supply of labour in certain trades just barely equalled the demand and in some localities there was a distinct shortage;³ these shortages were inevitably felt in the naval yards also. The tradesmen in short supply were those like electricians, fitters and turners who were also in demand in the aircraft and engineering industries. The effect of these isolated shortages of shipbuilding labour on naval production was, however, negligible compared with the delays caused by shortages of gun mountings and other equipment. These latter shortages could indeed sometimes be traced to labour difficulties. The shortage of engineering labour, which has already been mentioned, in the principal factory producing gun mountings was, for example, a contributory cause of the shortfall in output of gun mountings. On the other hand, the main cause of the shortage of fire control gear, which began in the rearmament period and was chronic throughout the war, was shortage of capacity; for there was no commercial product anything like a counterpart of fire control gear which might have provided capacity for the manufacture of this form of armament. Here too, however, there were labour problems from 1937 onwards, for it was difficult to provide sufficient Admiralty overseers and examiners to guide inexperienced firms who were brought in to assist in the production of fire control gear. Moreover from 1938 onwards complaints arose of shortages of all types of skilled engineering labour in the firms themselves and delays arose through the firms' inability to train green labour fast enough.

The anxieties of the War Office (later the Ministry of Supply) and the Admiralty about skilled labour in the rearmament period were relatively small; greater difficulties in the supply of such labour arose in the aircraft industry. It is for this reason that the labour problems of the period and the efforts to overcome them can best be studied in relation to that industry.

A problem which arose at the outset was that of estimating and

¹ See p. 87 below.

² Gross registered tonnage in hand at the end of the year (mid 1939) was:

| | | | | | |
|------|---|---|---|---|-----------|
| 1936 | . | . | . | . | 963,642 |
| 1937 | . | . | . | . | 1,125,426 |
| 1938 | . | . | . | . | 779,762 |
| 1939 | . | . | . | . | 791,455 |

(*Lloyd's Register Shipbuilding Returns*)

³ Sir Amos Ayre, 'Merchant Shipbuilding during the War' in *Proceedings of the Institution of Naval Architects*, 1945, p. 2.

formulating the labour requirements of the aircraft industry. Estimates of the labour required for the aircraft as for the other munitions industries were quite frequently put forward during the pre-war years but they were of very limited value. In the pre-war period the difficulties of estimating¹ were much aggravated by the fact that even statistics of the existing labour force, outside the main armament firms, remained scarce and unreliable; the Air Ministry, when it put forward figures of requirements in the spring of 1937, warned the Ministry of Labour that they were in some measure speculative. There was also the difficulty in estimating requirements of deciding how much dilution could be achieved. For dilution reduced the demand for skilled labour and increased the demand for the less skilled.² Estimates of the amount of dilution likely to be introduced were at all times bound to contain a large element of guess work, but particularly so in these early years.

Moreover, one of the main purposes in making an estimate of labour requirements, to assist in planning and allocating labour supply, was nullified in the years before 1940 by the lack of any government control over the movement of labour. It was chiefly for this reason that, in the early years of expansion, the Service departments questioned the need for making estimates of their requirements. The Ministry of Labour first took the initiative to secure such an estimate in 1936. The Ministry still held to the assumption that there was to be no interference with civilian industry and that the only additional labour available for the rearmament programmes would be the employable skilled unemployed. But it also realised that in practice competition for skilled labour would force up wages—if indeed it had not already begun to do so. The Ministry therefore pressed the somewhat reluctant Service departments to provide estimates of labour requirements to discover if the munitions demands threatened to interfere with civilian trade and whether, in consequence, the defence programmes should be reconsidered or the policy of non-interference with civilian industry revised. The Defence Policy (Requirements) Committee of the Committee of Imperial Defence, however, questioned the need for forward estimates; the real problem, it said, was to get the actual men, and possession of the information in question could not help in finding them.

Nevertheless the early estimates of labour requirements were of some assistance, particularly to the Air Ministry, when it came to assessing the feasibility of plans. Thus estimates made in 1938 of

¹ See pp. 201–8 below.

² Dilution was therefore part of the history of labour requirements and of labour supply; but as it was a measure adopted in the last resort when other supplies of skilled labour had failed it will be dealt with fully below (see pp. 27–33) when these other sources of supply have been considered.

the labour needed to implement Scheme L had great practical value; they helped to show clearly that the main aircraft firms could neither obtain nor absorb labour at the rate required to fulfil the programme and led to the extension of sub-contracting.

In the absence of reliable estimates of requirements the best guide to the aircraft industry's demand for labour between 1936 and 1940—and indeed at most times throughout the war—was the growth of the labour force itself. In this early period labour shortages were never protracted and the labour force (excluding clerical and administrative staff) employed in aircraft production increased rapidly, particularly after 1938, from very approximately 79,000 in December 1936 to some 790,000 in August 1940.¹

A considerable proportion of the industry's labour requirements were for skilled labour. These were the only requirements that were difficult to meet. The sources of ready trained skilled labour were broadly speaking three: the unemployed, workers in engineering firms who were drawn into the aircraft industry by the growth of sub-contracting, and workers who were attracted to aircraft from other firms by the offer of higher wages. This represented roughly the order in which these three sources of supply became important chronologically. As time went on increasing emphasis was laid on the need to make better use of existing skilled labour in the factories—that is, upon dilution.

(ii)

The Absorption of the Unemployed

None of the methods of recruiting ready trained skilled labour involved direct government intervention in the placing of labour apart from the normal activities of the Ministry of Labour's employment exchanges. There was, however, some government action of a less direct kind. When, for example, labour shortages first appeared in the aircraft industry in June 1935 the Ministry of Labour and the Air Ministry set up an Interdepartmental Committee on the sub-

¹ The 1936 figure was obtained by a return from the firms and it is impossible to judge how accurate it was. The 1940 figure was similarly obtained from 2,500 firms estimated to employ 80 per cent. of M.A.P.'s total labour force. The final figure was probably an over-estimate since some firms may have included their entire labour force whether engaged on M.A.P. work or not. The 1936 figure covered the production of air-frames, engines, airscrews, guns, bombs, balloons, and 24 per cent. of it other industries, unspecified. The product groups covered by the later enquiry were specified in considerably greater detail. The figure of 790,000 covered M.A.P. work in all industries in the United Kingdom; the corresponding figure for all classes of workers was estimated at 875,000, and for all classes of workers in the munitions industries in Great Britain, 834,000.

ject.¹ The Interdepartmental Committee had considerable discussion on such subjects as dilution and the proper utilisation of skilled labour and on the supply of building labour. The most fruitful of its discussions, however, concerned the expansion of the number of engineering places in the Ministry of Labour's training centres and the closer co-operation of the aircraft firms with the employment exchanges in order to reduce unemployment and at the same time increase the labour force of the aircraft industry.

In spite of the aircraft firms' complaints of labour shortages in 1935 and 1936 the Ministry of Labour and the Air Ministry had considerable difficulty in persuading them to employ skilled engineers who were out of work. This was partly because the firms were obliged to carry out a limited scheme of expansion by the bench methods of pre-expansion days. For this a supply of workers skilled in aircraft manufacture was essential, and the aircraft industry itself, as distinct from the general engineering industry, had very few reserves of unemployed labour. Many of the unemployed engineers were only experienced in heavier work, on locomotives or marine engineering. For example in the autumn of 1935 a representative of an aircraft firm in London toured employment exchanges in Scotland, Northern England and in London, interviewing unemployed engineering workers. For whatever cause, only 65 of 500 interviewed in the North of England and in Scotland (and even fewer in London) took up employment with the firm and many of those from the North had to be discharged because, according to the firm, 'of their absolute inability to come within reasonable distance of doing the class of work required'. The A.E.U. complained of the reluctance of firms to take on men who had been unemployed for some time and whose skill was rusty or who were over forty-five or fifty, a fact confirmed by the Ministry of Labour divisional controllers. This attitude was only gradually broken down by force of circumstances. When Scheme F was introduced in 1936 and the firms were given larger orders it also became increasingly possible for them to tool up for quantity production and to employ skilled workers who had no previous experience of aircraft work.

In any case the supply of unemployed skilled engineers was strictly limited. According to a Ministry of Labour enquiry in April 1936 there were 24,500 men looking for skilled engineering work.

¹ This Committee on the Co-ordination of Labour Supply held some dozen meetings before its demise in 1937. It was not formally dissolved until January 1939 after an official of the Ministry of Labour had been appointed Liaison Officer to the Air Ministry. He was succeeded later in the year by another official who made the Air Ministry his headquarters. After his appointment in 1938 as Director-General of Production, Sir Ernest Lemon was responsible for labour matters in the Air Ministry, but on the outbreak of war the Directorate of Labour and Priorities, which, as the Directorate of Planning War Production, had been responsible for planning war requirements, assumed direct control of labour matters under the Director-General of Production.

But the Ministry estimated, no doubt on standards set by employers in their requests to the employment exchanges, that only about 13,000 (including 3,000 over 55) were immediately employable and that not all of these were suitable for work of the kind and degree of precision frequently required by the makers of armaments. Again at the end of 1936 the estimated skilled engineering requirements of the rearmament programme by the end of 1938 were some 70,000 men; but although there were 55,000 males between 18 and 64 unemployed in the engineering industry—some 16,000 of whom were in skilled or semi-skilled occupations—the Ministry of Labour thought that only 6,000–7,000 unemployed skilled men were suitable or likely to become suitable as recruits to the munitions industries.

There was another difficulty. In November 1936 over sixty per cent. of the skilled unemployed in the engineering industry were in the North of England and in Scotland. The aircraft industry, on the other hand, was concentrated in the South and to a smaller extent in the Midlands. Of the fifty firms engaged in the manufacture of airframes and engines in 1936, thirty-seven were in the South and South-West of England and twenty-three of these were in London. There were only one or two in the North of England and none in Wales or Scotland.¹

This disparity between the location of the demands for labour and the available supplies was one of the main reasons why throughout the rearmament period and throughout the war the Ministry of Labour urged the supply departments to take the work to the labour. This policy, if obeyed, would have resulted in the placing of much new capacity for aircraft manufacture in the 'special' and 'distressed' areas of the North and West. But in siting new capacity the firms and the production directors in the supply Ministries by no means always gave full weight to labour supply considerations; and even when they did do so other technical considerations had often to override those of labour supply in determining the site. The location of industry was, however, mainly of importance in relation to supplies of unskilled labour.² As far as skilled labour was concerned, the unemployed engineers in the northern districts with their experience chiefly in heavy work were as has been said of limited value to the aircraft factories. Suffice it to say here that circumstances led to the extension of the aircraft industry mainly in the Midlands, where shadow factories were built near to the factories of the motor firms who managed them. Between April 1936 and January 1939 only about £12

¹ For the distribution of industry and the employment position between the wars see H. M. D. Parker, *op. cit.*, Ch. II. The regional distribution of the labour force in the engineering and explosives industries in December 1941 is shown in Table 16 below.

² See pp. 215–20 below.

millions of Air Ministry contracts, chiefly for hangars and steel work, out of a total of £248 millions were placed in the special and distressed areas. By the time any number of aircraft and engine factories were ready to start production in, for example, the North-West region, the shortage of skilled labour was universal and their difficulties in securing a fair share of skilled labour, with which the Midland factories were relatively well supplied, were very great.

If it was difficult to carry out a policy of taking work to the labour it was equally difficult to transfer workers unemployed in the North to the aircraft factories in the South. Some aircraft firms were sited in non-engineering districts in the South or South-West of England—they had developed there on account of the proximity of aerodromes or of the local affiliations of their founders or because they were engaged in the manufacture of flying boats. Representatives of these firms made tours of employment exchanges in the North of England, Scotland, Wales and Northern Ireland, interviewing and engaging men selected by the Ministry of Labour. Nevertheless men from industrial districts did not easily settle down in places like Cowes or Yeovil, even if houses could be found for them, which was not always possible. A certain number of men of course transferred themselves to the aircraft industry independently, but the total number of transfers arranged by the Ministry of Labour in this period suggests that the numbers going to the aircraft industry, though useful, were not great.¹

(iii)

Sub-contracting

The armament firms in the Midlands were well placed to take advantage of the temporary recession in the engineering industry which began in the autumn of 1937 and lasted throughout 1938. The labour requirements of the aircraft firms, including the new shadow factories, in Coventry, Birmingham and Wolverhampton were substantially met in 1938 with men 'stood off' from motor manufacture. The slump in the engineering and in the motor industries in 1937-38 not only threw a number of men out of work but caused a considerable amount of short time; in May 1938 as many as 40 per cent. of

¹ The numbers, including trainees, placed in employment outside their home district by the employment exchanges were as follows:

| | | | | | | |
|------|---|---|---|---|---|--------|
| 1935 | . | . | . | . | . | 20,000 |
| 1936 | . | . | . | . | . | 28,000 |
| 1937 | . | . | . | . | . | 24,000 |
| 1938 | . | . | . | . | . | 18,000 |

(Annual Reports of the Ministry of Labour)

those employed in the engineering industry were said to be on short time and the Ministry of Labour and the Service departments received many offers of engineering capacity.

This fortunately coincided with the Air Ministry's own needs. Scheme L, unlike earlier programmes, was based on an estimate made in March 1938 of the maximum output the industry was capable of over the ensuing two years, but discussions with the industry were carried out very rapidly, and the estimate was based on unrealistic assumptions. It presupposed that the industry could turn over to double shift working which would require an addition to the labour force of the main airframe firms (some 53,000 in December 1937) of 69,000 in the short period of six months. This figure was brought up to about 100,000 to include requirements for the production of engines and equipment. The firms were glad of large orders and tended to be over-optimistic about the rate at which they could expand; but there were some sceptics within the Air Council who doubted whether the industry could absorb so much labour so quickly. Within a month it was clear to the Director of Aircraft Production that the firms could neither obtain nor absorb labour at the required rate.¹ A review of progress made in September 1938 revealed that the labour force employed on airframes had increased to only 61,000 by June; the aircraft firms were absorbing new labour at the rate of only 8 per cent. a month compared with the 50 per cent. necessary to achieve the programme, and it was not expected that they could absorb new labour any faster. Night shift working throughout the industry remained very small. The solution adopted by the Air Ministry was to enlist the help of outside firms who had the labour available. It was proposed to increase sub-contracting, then employed to a very limited extent—apart from the purchase of component parts such as landing gear and instruments—to a minimum of 35 per cent. of outstanding orders as a general average.

The experience of the next few months proved this to be the right remedy. The rate at which the main aircraft firms absorbed labour remained low; the increase in these firms between March and December 1939 only averaged two per cent. a month. This was not due to shortcomings in labour supply for there were no complaints of labour shortages; intake was related to the firms' capacity to absorb labour. This in turn was governed by a variety of factors—by the availability of capacity and plant, by raw materials supplies and by the efficiency of managements; in the early months of 1940 materials shortages actually led to short-time working in the aircraft factories and even to some men being stood off. Thus the rapid increase in the total

¹ M. M. Postan, *op. cit.*, pp. 20–1.

labour force employed on aircraft work was due not so much to the expansion of the established aircraft firms and to the establishment of the new shadow factories but to the growth of the labour force employed on sub-contracts.

This development was to the good. Indeed, the Ministry of Labour urged on the Service departments and on the Ministry of Supply the need to spread war contracts even more widely. As the Ministry of Labour stressed, it was far less disturbing to labour to take work to factories not yet employed on armament production than to transfer labour from these to the munitions factories. Such action also helped to meet the criticisms of the unions who would not agree to dilution in the munitions factories so long as there were skilled men in the engineering industry underemployed. The unions felt there was yet more scope for the sub-contracting of war work; they were still complaining in 1940 of idle time in the engineering factories, whether engaged on armament or on civilian work, and of the misuse of skilled labour on the provision of luxuries.

On the other hand the problem of drawing into war production engineering firms engaged on civilian work was not a simple one, particularly when trade was good. The Ministry of Labour indeed suggested that firms were anxious to secure government contracts because they could not pay wages at the rates current in armament factories. But in the experience of the War Office it was not easy in peace-time to persuade small firms to accept munitions contracts at the expense of their normal work. The firms had no certainty that when the first orders were completed the contracts would be renewed and the conversion of their plant for armament work would meanwhile have made it difficult for them to resume normal production. Moreover the additional plant needed by these firms before they could engage in war production was already scarce; and some of the smaller firms were inefficient.

(iv)

'Poaching'

As long as engineering workers were underemployed the unions resisted any government control over the movement of labour. Such control, however, became increasingly necessary with the growth of 'poaching'. As early as 1936 the Ministry of Labour reported that employers who could not obtain skilled labour were beginning to raise wages in competition with each other. Many of the shadow aircraft factories were sited in Coventry and Birmingham and managed by motor firms and earnings in them were therefore based on those

in the motor industry in the Midlands, which were among the highest engineering wages paid anywhere in the country.¹ In any district firms could attract labour from other factories by adjustments in piece rates, the offer of merit bonuses or of overtime. As skilled labour grew scarcer and the number of new factories increased, poaching became steadily worse, and by the winter of 1939-40 not only were the armament firms poaching from those engaged on civilian work but Air Ministry contractors were poaching from Admiralty contractors and even from each other. Firms spent hundreds of pounds advertising for skilled workers while those already in their employment sometimes left as fast as new men were recruited. Labour costs increased out of all proportion to increases in output; indeed long hours, high labour turnover and high piece rates tended to bring individual output down.

The Ministry of Labour argued that a good deal of poaching could be prevented by proper co-ordination of the placing of contracts and the elimination of competition for capacity between the supply departments, but no complete solution of the problem was possible along these lines. Nor was it possible for the supply departments to keep wages down by contractual control.² The Ministry of Labour hoped to make some progress by persuading employers voluntarily to abandon poaching and to come to some agreement for pooling labour supplies, but these attempts had only limited success. For example, as late as May 1940 the Coventry employers objected to a voluntary agreement because it would not bind non-federated firms; nor could the employers agree to release some of their skilled labour until they were sure that the rest of it would be compelled to stay in their employment.

The only effective answer to the problem was direct government control of labour. As the pre-war planners had foreseen, however, such control could only be introduced if the Government had full popular support; it was chiefly because this condition was not satisfied that effective control of the movement of labour was never achieved in the period under review. As early as 1936 the Ministry of Labour had proposed to restrict poaching by making it a condition of all government contracts that labour be engaged only through the employment exchanges; but this suggestion, which might well have met with objections from the unions, was opposed at the outset by the Air Ministry and by the War Office and was modified to a condition that government contractors should notify all labour vacancies to the exchanges. At the outbreak of war a Control of Employment Bill was introduced in Parliament. Clause 1A gave the Ministry of Labour powers to prohibit employers from

¹ See p. 320 below.

² See pp. 321-2 below.

advertising for labour and Clause 1B further empowered it to prohibit the engagement of labour without the consent of the employment exchanges. The trade unions opposed the introduction of this Bill so early in the war and, before it became law, secured amendments; one laid it down that the Ministry of Labour could not issue an Order under the Act without referring the draft to a representative committee of employers and trade unionists in the industry concerned.¹ By the beginning of 1940 both the employers and the supply departments were pressing the Minister of Labour to use his powers under the Control of Employment Act. In the spring of 1940 the Minister did make one Order under the Act to prohibit employers from advertising for building labour;² he believed, however, that opinion was still not ready for the application of Clause 1B of the Act.

(v)

Efforts to Achieve Dilution

By the beginning of 1940 it was clear that the orderly redistribution of skilled labour must be accompanied by extensive dilution. Dilution might take two forms: first, 'deskilling' of the work itself by increased mechanisation or by breaking up the work of skilled men so that less skilled men could assist with some parts and, second, the upgrading of semi-skilled men to skilled work. Either method would introduce large numbers of workers not rated as fully skilled to work previously done by skilled labour only.

The problem of dilution had its beginnings in the rearmament period. The limited expansion under the aircraft programme Scheme C in 1935 was still carried out by the old bench methods of production which called for a high percentage of skilled precision engineers with experience of aircraft work. With larger scale production under Scheme F in 1936-37, and particularly under Scheme L in 1938-39, it was however possible to jig and tool for quantity production and to employ a higher proportion of skilled and semi-skilled engineers from outside the aircraft industry. This was particularly true of the new shadow factories where layout and plant were specially designed for quantity production and where it was not intended to do any experimental or development work. The most important of these were the engine shadow factories in the

¹ Control of Employment Act, 1939, 2 & 3 Geo. 6, c. 104. When the Ministry of Labour put its labour plans before the T.U.C. in the summer of 1939, the T.U.C. countered with a proposal that industrial labour should be controlled by national and local committees representative of both sides of industry and with executive powers, to be set up for each main industry.

² S.R. & O. 1940, No. 522, 4th April 1940.

Midlands—the No. 1 group were building up their labour force in 1937-38, and the No. 2 group in 1939-40—and the two new Rolls Royce factories at Crewe and Hillington, near Glasgow. The demands of the new factories did not reach their peak until 1941. So long as there was little mass production in the industry the range of skilled labour required followed the existing pattern; and at this stage the shortages of sheet metal workers, coppersmiths and precision fitters were as great as those of toolmakers and machinists. As the pace of tooling up increased, however, there came a growing demand for toolmakers and machinists and for semi-skilled assemblers who, in contrast to the skilled fitter who had often to make the parts fit, had only to put the accurately machined parts together. This demand culminated in the early war years in an acute shortage of toolmakers and machinists and a temporary redundancy of skilled fitters.¹

In the older factories considerable substitution of skilled by semi-skilled workers was also technically possible, the more so as they too were increasingly mechanised. The old-established aircraft factories relied largely on apprenticeship to increase their skilled labour force, and even this could become a form of dilution. In 1935, for example, there was a strike in one factory because it was claimed that the firm had taken undue advantage of the number of apprentices in the fitters' shop who outnumbered the fitters by 5 : 4; the fitters' work had apparently been split up and given to unskilled youths.² Dilution was also made easier by the fact that in the engineering factories in the Midlands (including the shadow aircraft factories managed by the motor car firms) it was normal practice for semi-skilled men to be upgraded to skilled work, and this process could be speeded up. Nevertheless the large-scale substitution of skilled by semi-skilled workers which was to be made under the war-time dilution agreements was not really possible anywhere in the pre-war rearmament period.

This was due both to the objections of the trade unions and to the conservatism of managements; and government policy in the light of these difficulties was so cautious as to be largely negative in effect. As is well known, the trade unions have always been opposed to dilution and have feared that it would depress wages and cause unemployment. The attitude of officials and members of the A.E.U., the union chiefly concerned, varied widely between districts, but on the whole the union was less cautious in its approach to dilution than some of the smaller, exclusively craft, unions. Opposition to dilution from the A.E.U. was, however, strengthened during the rearmament years by the existence of unemployment among skilled

¹ See p. 45 below.

² *Monthly Journal of the A.E.U.*, October 1935.

workers in certain sections of the engineering industry. In June 1936 the National Committee of the A.E.U. instructed its officials to oppose dilution of any kind, and in 1936 and 1937 there were a number of strikes in the aircraft industry on the issue of dilution.¹ Though the union's attitude slowly changed as unemployment decreased, it could always point to some unemployment or misuse of skilled labour. Moreover the trade unions' specifically industrial objections to dilution were reinforced in this period by their mistrust of government policy on more general issues, such as foreign policy, general unemployment and the profits of armament firms. In the early months of the war they condemned the failure of wages and allowances to keep pace with rising prices and also the Government's unwillingness to consult with organised labour on questions of production.²

Managements were also unenthusiastic about dilution. It was felt in the Air Ministry that even within the limitations on dilution imposed by the unions some firms used skilled labour uneconomically. Managements often put forward fear of trouble with the unions as a reason for not pressing on with dilution but, as the Air Ministry's Area Officer for the North West region said, the whole force of conservatism and laziness was against dilution and the unions' objections were sometimes a welcome excuse for inaction.

In the face of these obstacles the Ministries concerned proceeded cautiously and their caution was reinforced by the arguments of their advisers. For example, in 1935 Lord Weir, who was Industrial Adviser to the Cabinet, counselled the Air Ministry against using the word dilution or referring to it in any way; he felt it was undesirable for Air Ministry representatives in the works or districts to exercise functions of a controlling nature on the use of labour. To begin with the Ministry should put every responsibility possible on the firms. The Air Ministry on the other hand suggested that since contractors now had assured continuity of employment some attempt at control should be made. In the end the Ministry in fact confined itself to advisory action through the Engineering Employers' Federation.

The Ministry of Labour for its part was also anxious, after its experience of the 1914-18 war, to proceed cautiously with dilution; the Ministry realised the importance of securing the full co-operation of both sides of industry at all levels. This policy of full consultation with both sides was, however, to some extent defeated by the Government's insistence on maintaining 'business as usual'. The

¹ *The Times*, 5th June 1936, and *Ministry of Labour Gazette*, March, April, June, August 1936 and February, March and April 1937.

² Cf. Mr. Bevin's articles in the Transport and General Workers' Union *Record* and the *Monthly Journal of the A.E.U.*, *passim*.

Government's approach to the unions was also influenced by political considerations arising out of the close relationship of the T.U.C. with the Labour Party. Early discussions between the Government and the employers centred simply on the question of work spreading, but by mid-1937 the Government was growing perturbed about the discrepancy between the demands for skilled labour and the numbers of skilled unemployed who would be available. The employers, however, still did not think it was necessary to approach the unions on the subject of dilution for this, they feared, could only be bought dearly. They felt that the current entry of large numbers of youths into the industry combined with technical developments, which were increasing the scope for the employment of less skilled workers, would go far to ease the problem.

By the spring of 1938, however, the employers were concerned about skilled labour shortages and the first serious discussions about dilution were begun. The Minister for the Co-ordination of Defence consulted the Engineering Employers' Federation, the A.E.U. and the Confederation of Shipbuilding and Engineering Unions as to how the high demands for skilled labour for the munitions industries were to be met.¹ It seemed that some measure of dilution would now be essential, but consultations on the subject were ill-fated from the start. In the first place the unions made it clear that one of their conditions for accepting any dilution was a legal guarantee that the *status quo* would be restored when the emergency ended. This was difficult to reconcile with the employers' wish to avoid government interference in labour matters. A more serious obstacle to the success of the negotiations, however, was the failure of the Government to take the unions fully into its confidence. The Minister for the Co-ordination of Defence had offered to disclose to them the detailed labour requirements of the munitions programmes. But the employers felt that if the unions were given this information it would be difficult for them to resist a wage claim that was pending, and they persuaded the Minister to retract his offer. Disgruntled though they were, the unions agreed to continue negotiations; but soon afterwards considerable unemployment developed in the engineering industry and the unions broke off negotiations. This was not, however, a cause of great concern to the Government since the growing unemployment would make dilution less necessary. Such dilution as was necessary would have to be done quietly. In October 1938 the Ministry of Labour was advising the Air Ministry that there should be as much upgrading as possible without drawing the unions' attention to it.

¹ A number of other small craft unions were also concerned in the discussions with the employers. When agreement between the Engineering Employers' Federation and the A.E.U. was finally reached in the summer of 1939, on the other hand, not even the Confederation was consulted by the A.E.U. Dilution agreements with some of the shipbuilding unions were not made until 1940 (see pp. 128-9 below).

Additions to the industry's unskilled and semi-skilled labour force should be made gradually and with discretion.

Agreement between the employers and the A.E.U. to dilution in the engineering industry was not reached until August 1939 when the industry was again flourishing and the shortage of skilled labour was plain. This agreement was to apply to the rearmament period during peace-time, but in September 1939 the parties agreed to apply it in war-time; it allowed for the upgrading of 'alternative' workers to skilled work and for the use of semi-skilled workers to assist skilled men or to work on machines previously manned by skilled men. Changes of practice were to be registered.¹ Under the original agreement application to introduce a change of practice had to be made to a local joint committee representative of employers and of the union and the committee's agreement had to be confirmed by the national executives of both sides. But a further agreement made in March 1941 provided for dilutees to be introduced as soon as agreement was reached at shop level, subject to later confirmation. Unlike the agreement made in the war of 1914-18, the 1939 agreement covered the whole engineering industry and not only that part of it engaged on munitions work.² It did not allow for the employment of women, but at a time when unemployment among unskilled men was still high, this was not an important limitation except in certain districts.

The agreement was not, however, implemented on any scale in the shops until 1941. In January 1940 the Engineering Employers' Federation reported that only 410 agreements covering 1,600 dilutees had been made in the engineering industry since the outbreak of war and at the same date the amount of dilution achieved in the all-important machine tool industry was negligible. There was a variety of difficulties. In the Midlands, for example, there was often disagreement as to whether the upgrading concerned was normal practice in the industry or whether it should be registered under the agreement. Over the country as a whole many employers remained unwilling to take the trouble which dilution involved, especially since they ran the risk of causing friction with the men in the shops. Organised labour continued to mistrust the Government and the Government maintained its cautious approach to the problem when dealing with both trade unions and employers. Thus the Secretary of State for Air was advised to avoid the dangerous subject of dilution at his first meeting with the newly appointed Advisory Council of

¹ Dilution agreements between the A.E.U. and the Admiralty, the Air Ministry and the Ministry of Supply were signed on 28th September, 21st October and 24th November respectively.

² See Appendix, pp. 439 ff. Agreements between the Engineering Employers' Federation and craft unions in the engineering industry followed in 1940 and later years; see p. 57 fn. 3.

Trade Unionists.¹ Officials of the Ministry were urged to 'preach the gospel' of dilution, but to refrain from issuing verbal or written instructions to firms on the subject.

There was a further reason why the Government did not intervene to forward dilution at this time: there existed a long-standing dispute between the Ministry of Labour and the supply departments as to which of them should be responsible for securing dilution. It had been decided by the planners in the pre-war years that recruitment to the Services and the distribution of industrial workers should in war-time be the responsibility of a new Ministry of National Service. The new Ministry of Supply which was also to be established was to be responsible for deciding where and to what extent dilution was necessary and the Ministry of National Service was to take the necessary action to put dilution into effect.² In the summer of 1939, however, it was decided not to establish a separate Ministry of National Service but to allocate its functions to the Ministry of Labour. This Ministry, however, was not willing to accept any responsibility for dilution; it felt that it could not handle this question without harm to its work in the field of industrial conciliation. The Ministry of Labour argued that the responsibility for securing dilution should rest with the Ministry of Supply just as it had belonged to the Ministry of Munitions in the 1914–18 war. This argument lost much of its force when the plan to make the Ministry of Supply responsible for all three branches of munition production was abandoned and the Ministry as set up in the summer of 1939 became responsible only for Army stores and raw materials.³ Nevertheless the Ministry of Labour held to the unsatisfactory alternative of making each of the three supply departments responsible for dilution in its own field of production, with a special responsibility attaching to the Ministry of Supply. The supply departments, the Ministry felt, had most control over management, and dilution was a managerial question.⁴

¹ For the setting up of this Council see p. 374 below. The Air Ministry probably had in mind an incident which occurred on the outbreak of war when the Ministry issued a letter to contractors about hours of work. They were asked so to organise their labour force that production could so far as possible continue twenty-four hours a day for a seven-day week; arrangements were to be made for all employees to have one day off in seven. This intervention caused concern among trade unionists and led the Engineering Employers' Federation to appeal to the Ministry of Labour to prevent a repetition. The Ministry of Labour cautioned the supply departments against taking any action on labour supply, wages and conditions of work without prior consultation with the Ministry.

² For an account of the pre-war plans for the mobilisation of labour in the event of war, see H. M. D. Parker, *op. cit.*, Ch. III.

³ See J. D. Scott and Richard Hughes, *op. cit.*, pp. 68–78.

⁴ Consideration was given both in the Air Ministry and in the Ministry of Supply to the appointment of labour officials to assist firms in the best use of skilled labour and in the spring of 1940 the Ministry of Supply actually appointed a few Area Progress Officers who were to work with the newly formed Area Boards and advise firms on dilution. It was originally intended that they should advise Admiralty and Air Ministry contractors as well as those working for the Ministry of Supply.

The supply departments for their part could not agree to this proposal.¹

Thus the progress of dilution was slow. At the outbreak of war the proportion of skilled to other workers in the aircraft industry remained high—between 50 and 60 per cent. These were men paid at skilled rates,² but they had not necessarily passed through a full apprenticeship, and they undoubtedly included a considerable number who had been upgraded more rapidly than was normal to meet the needs of rearmament. The proportion of juveniles employed in the industry had also increased considerably during the rearmament period, particularly in the airframe section. In addition, by December 1939 nearly ten per cent. of the insured workers³ in the aircraft, motor and cycle industries were women.

The high proportion of skilled labour in the aircraft industry was frankly treated by the Air Ministry as a reserve to make possible an expansion of the labour force with less skilled workers if war should break out. Moreover the Ministry realised that this total percentage concealed considerable variations between firms. On the whole both technical considerations and stark necessity led to a higher degree of dilution in the newer factories; in these too it was sometimes easier to avoid difficulties with the trade unions. One aircraft firm with two adjoining factories in the North-West area was able, by keeping the shop stewards from the original factory out of the new one, to introduce less skilled workers there more easily. When the Secretary of State for Air visited the new factory as early as 1936 he found such labour as there was diluted to the utmost practicable extent.

Undoubtedly the attitude of managements influenced the extent of dilution no less than did technical considerations or the views of the trade unions. Thus in one group of firms visited by staff of the Air Ministry Directorate of Labour and Priorities in April 1940 nearly all the toolroom workers had been upgraded from the production shops, whereas other firms had relied entirely on advertising for labour from outside and had made no serious attempt to upgrade their own workers. Again, while some firms made good use of unemployed men who were trained in Government Training Centres for semi-skilled work in the engineering and aircraft industries, others employed none of these men even as late as 1940. It is true that the attitude of the trade unions to government trainees varied from district to district and from firm to firm and was sometimes decisive, but much also depended on the energy and initiative of managements.

¹ For the outcome of this disagreement see pp. 39-41 below.

² For a discussion of the meaning of this term see p. 78 below.

³ Excluding administrative, technical and clerical staff.

(vi)

Losses to the Services

There was not only the problem of expanding the skilled labour force of the aircraft industry; there was an item to be reckoned with on the debit side—the call-up of skilled reservists to the Services. A Schedule of Reserved Occupations was first made public in January 1939 and covered most of the skilled men in the munitions industries. But many skilled men engaged on munitions production had incurred military commitments in the event of war before that date and, in any case, arrangements made under the January 1939 schedule did not prevent men from volunteering for service in skilled trades.¹ It was estimated, for example, that about 15,000 employees in the aircraft industry, 10,000 of them skilled or experienced, were liable for call-up in September 1939. The Air Ministry had previously made investigations in the firms into workers' commitments and was able to secure short periods of postponement of call-up for 3,000 of them. But in some sections of the industry the call-up caused acute difficulties. It was said, for example, that unless 300 of the 1,500 men lost by the light alloy industry to the Army when reservists were called up before the outbreak of war were speedily returned output would drop in a few weeks by 40–50 per cent. Measures were quickly set in hand to secure their release which was agreed with the War Office on 3rd September. By 9th September some were already back at work. Similar action was taken over instrument makers and men employed in the manufacture of gun turrets and engines. In all some 4,500 reservists returned to the aircraft industry, 1,000 permanently.

A revised Schedule of Reserved Occupations issued in September 1939 prevented the call-up of skilled men above the age of reservation specified in the Schedule even in their Service trades. The production departments of the Service Ministries had of course been consulted in the compilation of the Schedule. But by October the Air Ministry felt that the new Schedule provided insufficient protection for the aircraft industry. Air Member for Development and Production pointed out that the calling up of reservists (added to the effects of the blackout) had had a much greater effect on production than had ever been anticipated; and the Secretary of State urged that the skilled labour force in the aircraft industry and future recruits to it should have full protection from call-up. In November, accordingly, the Air Ministry put forward to the Manpower Priority Sub-Committee a request that no more men should be withdrawn

¹ See H. M. D. Parker, *op. cit.*, Ch. III.

from the aircraft industry until further notice. The Committee had in the meantime agreed to a scheme whereby the calling up in Service trades of men below the age of reservation who were employed upon government work of the first importance should be postponed until the supply of men from other sources had been exhausted. This concession in practice gave the Air Ministry the protection it had asked for and in May 1940 the Director of Labour and Priorities reported that there need be little anxiety about the loss of skilled men to the Services so long as the existing procedure was maintained.

(vii)

The Inadequacy of Existing Policies Revealed

In spite of the disadvantages of poaching and the limited amount of dilution achieved, the sources of new labour that have been described had, with isolated exceptions, been sufficient until the early months of 1940 to meet the requirements of armament production. The labour force on aircraft production was built up from 75,000 in December 1936 to about 790,000 in August 1940;¹ much of the increase after 1938 was, as has already been seen, due to the rapid expansion of sub-contracting. Complete figures for the labour force employed on War Office and Admiralty contracts do not exist but here, too, there was a substantial increase.

Thus until the outbreak of war the labour supply position was relatively satisfactory even if the Government's labour supply policies were not ideal. Moreover the inadequacy of these policies was still to some extent masked in the winter of 1939-40 by shortages of raw materials and machine tools. But there were undoubtedly shortages of skilled labour, particularly in the machine tool industry itself, and it was becoming clear that, even with rearmament programmes on the existing scale, *laissez faire* methods would no longer suffice. Armament work could not economically be taken to every small engineering firm;² nor could the skilled labour requirements of the new factories be met without increased dilution and the redistribution of the labour force on an orderly basis. Worse threatened; for the current rearmament programmes were in some quarters thought to be too small to satisfy strategic necessities.³

The need for a more positive policy was made clear soon after the outbreak of war when the labour requirements of the munitions

¹ For comment on these figures see p. 20n. above.

² See p. 25 above.

³ M. M. Postan, *op. cit.*, p. 113.

programmes were examined.¹ Early in 1939 the newly formed Directorate of Planning War Potential in the Air Ministry² had put forward a programme for the production of 2,000 aircraft a month by the eighteenth month of a hypothetical war beginning in October 1939.³ This programme was never adopted. Nor was a programme, put forward soon after the outbreak of war, for the production of 3,000 aircraft a month at the earliest date possible.⁴ Instead, a reduced programme for the production of 2,300 aircraft a month by the third year of war was approved by the War Cabinet on 22nd September subject to an immediate statistical investigation to determine more exactly the labour demands in the various categories which would arise and to define the resulting problems, for example of dilution, which would have to be surmounted. Clearly, the aircraft programme could not be considered in isolation. The possibility of meeting labour demands for an Army programme to equip fifty-five divisions was also to come under review. For the Navy and Merchant Service the Committee was to work on the basis of a programme to complete 2 million gross tons of shipping a year.

An interdepartmental Committee, under the chairmanship of Mr. Humbert Wolfe of the Ministry of Labour, was charged with this investigation. The estimates which the Committee put forward are shewn in Table 2. Including the requirements for home and export trade 3,186,000 workers were required in the engineering and allied and shipbuilding industries by September 1940 and 4,036,000 by July 1941. The Committee estimated that 130,000 skilled engineering workers would be required in the next 18 months, the great majority of whom would have to be trained within industry. The only figures of labour available which the Committee had were those based on the numbers attached to these industries according to the count of

¹ M. M. Postan, *op. cit.*, pp. 74-5.

² *Ibid.*, pp. 67-9.

³ It will be recalled that in 1938, in connection with the difficulties in meeting the programme, attention was drawn to the maximum rate of labour intake which seemed possible in the main aircraft firms (see p. 24 above). This had considerable influence on the planning of war potential. The programme was based on the assumption that labour intake into the firms would be at the rate of 8 per cent. of their labour force a month (which was considerably above their current intake); hours were to be increased from 200 to 250 a month, but to offset the effect of air raids and allied disturbances, output was estimated as for a 200-hour month. The planners had returned to the idea of a double shift, although a full double shift could not of course be achieved for some time with the rate of intake suggested. Allowing for the necessary expansion of production of components and raw materials it was estimated that the aircraft industry, including its sub-contractors, would require an additional 625,000 operatives in the period from September 1939 to October 1940. Even the size of the existing labour force was uncertain and there were many possibilities of error in reaching this estimate. Nearly 50 per cent. of the requirements were for skilled men but it was suggested that half of these could be met by dilution if the trade unions agreed.

⁴ It was estimated that to fulfil this programme a labour force of 1,600,000 (including only 400,000 women) would be required. The programme was turned down after discussions with the Ministries of Labour and Supply.

insurance books in July 1939. It is not, however, clear that the Committee's calculations of the deficit which resulted from comparing requirements with the labour available were accurate; for while the requirements related to most sections of the engineering industry as listed above¹ the figure of labour available in September 1939 which the Committee used appeared to relate to a more limited section of the industry.

The Committee's estimates could in any case only be very approximate. The supply departments were still handicapped in making their estimates of requirements by lack of accurate knowledge of the labour already employed in their contractors' works. Moreover the figures based on the annual count of insurance books were wholly inadequate as a guide to how far labour demands were being met; not till early 1940 did the Government institute labour returns to remedy some of these deficiencies.² These statistical uncertainties make it hazardous to compare the Committee's estimates with the labour force actually employed at the dates to which its estimates referred.³ Moreover comparisons are difficult because the supply departments did not necessarily achieve the programmes to which the estimates related; indeed the Ministry of Supply did not even in practice work to the fifty-five divisions programme.⁴

The Committee's conclusions were somewhat pessimistic about the possibility of meeting the demands but it recommended that, in spite of the difficulties, the current programme should remain as an objective to the attainment of which every effort should be directed; 'every effort' included an extensive programme of dilution and training in the engineering industry. The Committee's conclusions were accepted by the War Cabinet which in its turn reiterated the need for sub-contracting, dilution and training to meet the threatened shortage of skilled labour.

The Committee's warning note was taken up in the succeeding months by many others concerned with war production—by the

¹ See p. 3 fn. 2.

² In April 1940 the first of a series of quarterly returns was made covering the engineering, motor vehicles and aircraft and shipbuilding and repairing industries. These came to be known as L returns and provided information on the existing labour force, future requirements and the proportion of labour employed on work for the various departments and for the home and export market. Less detailed information was obtained for intermediate periods, including a weekly return from the most important munitions firms. (*Ministry of Labour and National Service Report for the Years 1939-1946*, Cmd. 7225, p. 302.) The accuracy of these returns is dealt with on p. 207 below.

³ In June 1940 the Ministry of Labour pointed out to the M.A.P. that the estimate of additional labour required by mid-1940 in the aircraft and motor manufacture section of the engineering industry proved to have been greatly exaggerated; but it seems likely that this criticism arose partly because the Humbert Wolfe Committee included in its estimate of requirements for aircraft and motor manufacture labour required for Air Ministry sub-contractors classified in the general engineering industry in the Ministry of Labour returns of numbers employed.

⁴ M. M. Postan, *op. cit.*, pp. 74-5.

*Table 2: Estimates of Labour required for Munitions Production in 1940-41***Thousands*

| Industry | Numbers required at July-September 1940 for | | | | Numbers required at July 1941 for | | | |
|--|--|-----------------|--|--------------|--------------------------------------|-----------------|--|--------------|
| | Ministry of Supply | Air Ministry | Admiralty and Ministry of Shipping | Total | Ministry of Supply | Air Ministry | Admiralty and Ministry of Shipping | Total |
| General and electrical engineering, instrument making and metal goods manufacture | 760 | 76·5 | 485·5 | 1,322 | 1,155 | 130 | 485 | 1,770·5 |
| Aircraft and motor vehicles | 261 | 414·5 | ·5 | 676 | 341 | 680 | ·5 | 1,021·5 |
| Shipbuilding and repairing | — | — | 200 | 200 | — | — | 200 | 200 |
| Marine engineering . . | — | — | 70 | 70 | — | — | 70 | 70 |
| Total of the above | 1,021 | 491 | 756 | 2,268 | 1,496 | 810 | 755·5 | 3,062 |
| Chemicals and explosives | 47 | — | 8 | 55 | 100 | — | 8 | 108 |
| Other industries | 301 | 167 | † | † | 473 | 229 | † | — |

* The figures, which were provisional, excluded administrative, technical and clerical staff. Labour required for the production of raw materials was not included. The requirements were estimated on the basis of a normal working week without allowing for overtime working on the one hand nor for hold-ups due to enemy action on the other. Admiralty requirements for July 1941 were uncertain but it was emphasised that the figures given, which were a repetition of those for 1940, might be an underestimate.

† Not available.

First Lord of the Admiralty and the Economic Adviser to the War Cabinet and by individual employers alike. The Economic Adviser to the War Cabinet (Lord Stamp) in a report prepared in January 1940 for the Ministerial Committee on Economic Policy took a gloomier view than the Humbert Wolfe Committee. He did not believe, on labour supply grounds, that the munitions programme could be achieved within the time specified.

Meanwhile a positive labour supply policy seemed as far away as ever. The great obstacle to any control over the movement of labour remained the opposition of the trade unions. This arose partly from political circumstances, partly, as the history of the development of labour supply policy in 1940 and 1941 showed, out of the unions' inherent dislike of government control. For the slow progress of dilution, on the other hand, both sides of industry were responsible. In February and March 1940 the Ministry of Labour held meetings with representatives of the employers and the trade unions to draw

their attention to the estimates of requirements produced by the Humbert Wolfe Committee and to the increased dilution needed to meet these requirements. When, however, the Ministry met the A.E.U. the union countered by pointing out that there was considerable idle time in the munitions factories because of hold-ups in the supply of materials and machine tools. This evidence was confirmed from other sources; in April 1940 the Air Ministry reported that aircraft firms were even standing off labour for lack of raw materials. The unions also pointed out that other engineering capacity in, for example, the railway workshops was under-employed. Such complaints diverted attention from problems of labour control and dilution and reinforced the Ministry of Labour's argument—which it had pressed on the Service Ministries since 1936—that if munitions contracts were better co-ordinated the competition for skilled labour would be reduced. The Ministry's criticism had some justification, for though interdepartmental machinery had long existed for the allocation of capacity between the various users it had not been fully effective.¹

The attitude of the A.E.U. led the Ministry of Labour to urge that responsibility for labour supply should rest with the newly formed Area Boards with which the trade unions were associated through Advisory Committees.² The Ministry of Labour thought that if the Boards could deal first with supply problems and draw under-employed engineering capacity into munitions production they would then be in a stronger position to deal with labour supply problems, including dilution. The trade unions would also see for themselves the connection between the shortage of skilled labour and the lag in munitions production.

In March 1940 Ministers had agreed that the task of seeking out reserves of labour was best carried out on a regional basis and that full advantage should be taken for this purpose of the machinery of the Area Boards. There was however some disagreement about the precise meaning of this decision. The Ministry of Labour felt that since dilution and labour redistribution were questions of management and since the Ministry of Supply was responsible for the area organisation that Ministry should be responsible for the distribution of labour, working through the Area Boards. The departments responsible for supply were not, however, prepared to accept the

¹ Cf. J. D. Scott and Richard Hughes, *op. cit.*, p. 56. For the difficulties in the way of spreading war contracts more widely see p. 25 above.

² See H. of C. Deb., Vol. 351, Col. 1169, 21st September 1939. The scheme for Advisory Committees was slow in starting and they never acquired much influence, partly for the very reason that the trade union side refused to discuss on them any matter, including dilution, which fell to be discussed under the existing negotiating machinery. For the setting up of the Area Boards see J. D. Scott and Richard Hughes, *op. cit.*, pp. 419-20.

Ministry of Labour's proposal. They pointed out that materials and other shortages were incidental to the build up of munitions production and that a satisfactory labour supply policy could not, as the Ministry of Labour suggested, wait upon the solution of these more general supply problems. Moreover, the Area Boards were not in their view strong enough to deal with labour supply.

Meanwhile criticism of the Ministry of Labour's attitude moved to higher levels. In a memorandum dated 3rd May the Economic Adviser to the War Cabinet vigorously pressed for control of the movement of labour (and of wages) to match the controls already imposed on other sections of the economy. The following day the First Lord of the Admiralty presented a memorandum to the War Cabinet drawing attention to the large demand for labour for munitions production and calling upon the Ministry of Labour to accept full responsibility for seeing that skilled labour was used to the best advantage. The issue came to a head at an interdepartmental meeting on 8th May when the Minister of Supply, the First Lord and the Secretary of State for Air pressed the Minister of Labour to accept full responsibility for the redistribution of skilled labour. The Ministry of Labour still had doubts whether its functions as a conciliating department could be reconciled with its assumption of direct power to control labour, but it was apparently at last prepared to waive these doubts. It was agreed that the supply Ministers should support the Minister of Labour in asking the War Cabinet for powers to control labour and that the Ministry of Labour should have powers to overrule the supply departments. It was also agreed in principle that the Ministry should appoint a large inspection staff, although this might not be immediately necessary. For it was expected that action would be taken through the supply departments; the Ministry of Supply's view was that machinery should be developed through the Area Boards and that in practice the supply departments should be responsible for seeing that labour was used efficiently within firms and that the Ministry of Labour should be responsible for transferring it between firms.¹ This arrangement would certainly have led to conflict and confusion. But before the discussions were complete the new Government was formed.

There was now at last the chance of a labour supply policy adequate to the needs of the time. Critics had argued that in the early months of 1940 the Government used the threat of trade union opposition as an excuse for inaction. But the threat was a real one and it was by no means certain that trade union opposition could have been overcome in the existing circumstances. The crisis in the war in the spring of 1940, which emphasised the need for greater

¹ Cf. the pre-war proposals referred to on p. 32 above.

control of labour, produced a Government which had the confidence of the trade unions and an attitude of mind in the country which made it easier to base compulsion on consent. Mr. Bevin, the new Minister of Labour, was given wide powers to control labour and in June the Restriction on Engagement Order, making it obligatory for employers in certain industries to engage labour only through the employment exchanges or an approved trade union, was made with the agreement of the engineering unions.¹ Nevertheless the Minister of Labour had not asked for compulsory powers.² As General Secretary of the Transport and General Workers' Union he had threatened in February 1940 to mobilise the resources of his Union to fight 'the conscription of labour';³ and though circumstances had changed greatly he tried for over six months to secure dilution and the redistribution of skilled labour by voluntary agreement.⁴

¹ See p. 63 below.

² H. M. D. Parker, *op. cit.*, pp. 157-8.

³ Transport and General Workers' Union *Record*, February 1940, pp. 242-3.

⁴ See pp. 63-5 below.

CHAPTER III

DILUTION AND THE REDISTRIBUTION OF SKILLED ENGINEERING LABOUR, 1940-45

(i)

The Manpower Requirements Committee

IN THE EARLY SUMMER of 1940, attention was focused on the production of equipment which could be used against the enemy within three months. Long-term planning of labour requirements and supply therefore went the way of all long-term plans; there were no settled programmes to which estimates of labour requirements could be related. In August, however, when new programmes were already under discussion, the Minister of Labour asked for a survey of manpower demands. He needed this in order both to plan training arrangements and to measure the competing requirements of industry and the Army against the available personnel. The work of compiling these estimates and of considering their implications for programme planning and labour supply policy was entrusted to the Manpower Requirements Committee, an interdepartmental committee under the chairmanship of Sir William, later Lord, Beveridge, which reported first in November, and finally in December 1940.

The work of this Committee is fully discussed elsewhere.¹ It is sufficient to say here that it estimated² that the operatives employed on work for the three supply departments in the engineering and allied industries would need to increase from 1,450,000 in August 1940 to 2,250,000 in August 1941, that is by 800,000. If large scale land fighting was expected before the end of 1941, a further 275,000 would be required. Of the estimated total requirements in August 1941, 1,030,000 were required for the Ministry of Aircraft Production, 790,000 for the Ministry of Supply and 430,000 for the Admiralty. Total requirements for labour in the munitions industries—comprising not only engineering but also shipbuilding, chemicals, explosives and filling, and including a small amount of labour for

¹ See H. M. D. Parker, *op. cit.*, Ch. VI.

² The Committee pointed out that its estimates were by no means completely reliable.

civilian demands—were put at 4,650,000 by August 1941, or 350,000 more if serious land fighting developed before that date.¹

These figures were very large, but it was not so much the total demands that caused anxiety; the most difficult labour supply problem remained that of skilled labour. The demands for skilled workers were, however, particularly difficult to formulate. In June 1940 37 per cent. of the wage earners in the engineering industry were classified by their employers as skilled men;² if this proportion were to be maintained some 250,000 of the additional 800,000 workers required before the end of 1941, even if there were no large scale land fighting, would need to be skilled. The Manpower Requirements Committee thought, however, that if dilution were vigorously pursued nowhere near this number of skilled workers would be required. It hoped that the percentage of labour paid at skilled rates could be reduced to 28 per cent. by August 1941; instead of 250,000 skilled workers only 20,000 would then be required.³

In August 1940 the newly established Directorate of Labour in the M.A.P.⁴ put the possibilities of dilution in the aircraft industry even higher. At that date the proportion of labour paid at skilled rates in the aircraft industry was 40 per cent. According to the Directorate it was generally accepted that the industry could without loss of efficiency work to an overall percentage of roughly 30 per cent. of skilled labour. On this assumption there was therefore no valid reason why the total labour force required at August 1941 could not be recruited without any substantial addition to the existing skilled labour force.

If there was to be no large increase in the total number of skilled men employed, there would clearly have to be a considerable redistribution of the existing labour force. These overall figures of the

¹ The Admiralty thought its engineering requirements were underestimated by some 25,000. The engineering and allied industries as defined by the Committee corresponded substantially but not completely with the group of industries defined in the Ministry of Labour classification as engineering, etc., construction of vehicles (including aircraft), other metal industries and scientific and photographic instruments. They comprised the bulk of the Ministry of Aircraft Production's labour force but not of the Ministry of Supply's and the Admiralty's. 175,000 were required in addition for filling and 200,000 (including clerical and administrative staff) for shipbuilding, metal manufacture and chemicals other than filling.

² This included setter-operators on single purpose machines, whose range of skill was narrow; cf. p. 78 below.

³ The Committee also hoped to see the proportion of women employed in the industry considerably increased, and suggested that half the demand for 800,000 additional workers could be met by women.

⁴ After the new Ministry was set up in May 1940 the section responsible for labour questions, which in the Air Ministry had been part of a joint Directorate dealing also with priorities and planning, was made a separate Directorate and the Ministry of Labour Liaison Officer in the Air Ministry was made Director of Labour. At the same time a trade unionist, Mr. J. W. Stephenson, was appointed Labour Adviser to the Minister.

proportion of skilled labour already employed and estimated to be required concealed very wide variations between firms. The older factories possessed large reserves of skilled labour; in the machine shops of some of the old-established private firms and engineering R.O.Fs, for example, some fifty to sixty per cent. of the workers had served an apprenticeship. Even though the nature of production in some of these factories demanded a relatively high proportion of skilled workers there remained considerable scope for dilution. Initially the newer factories needed help in building up their skilled labour force. On the other hand the possibilities of dilution were relatively greater in these factories with their many automatic and special purpose machines and they did not in general need to employ such a high proportion of skilled workers as the older factories.¹

The need for extensive redistribution of skilled labour became the more apparent when the location of demands was taken into account. For the demands for men were heavily concentrated in certain areas; over half of the total demands for skilled engineering labour in 1940-41 were expected to fall in the Midland and in the North-West regions. In the North-West region particularly a very high rate of increase was required chiefly owing to demands from new factories. There were three new aircraft engine shadow factories in the North-West region, the Bristol Aeroplane Company's at Accrington, the Ford Motor Company's at Trafford Park and Napier's at Liverpool. Each was planned to employ some 10,000 workers on a double shift, and in August 1940 their demand for skilled engineering labour represented over half the total demand for such labour in the region. Other new factories with heavy demands were the No. 2 engine shadow factory group in Coventry, Rolls-Royce at Crewe and Hillington, Glasgow, and the airframe factories of Metropolitan-Vickers at Trafford Park, A. V. Roe at Yeadon (Yorks.) and Vickers-Armstrong at Blackpool as well as a number of new engineering R.O.Fs at Leeds, Blackburn, Patricroft (Lancs.), Maltby (Yorks.) and Hayes (Middlesex).

The Manpower Requirements Committee did not of course deal with labour requirements in such detail; it was concerned with total requirements over a relatively long period. From the point of view of day to day administration, however, it was important to know

¹ Outstanding examples of the possibilities of dilution in the new factories were the engineering R.O.Fs at Cardiff and Newport where a very large percentage of women was employed. Another instance was the Rolls-Royce factory at Hillington, near Glasgow, where in October 1943 only 4½ per cent. of the workers employed were said to be skilled men. A further 4½ per cent. were adult male workers with experience of the engineering industry before the war. The remainder were men and women without any such experience who had been brought into the industry for purposes of war production. 39 per cent. of the factory's labour force were women. *Report by a Court of Inquiry concerning a dispute at an engineering undertaking in Scotland*, Cmd. 6474, October 1943, para. 11.

how much labour individual factories needed week by week; but the new factories in particular found it difficult to forecast the exact rate of intake of the skilled labour they required because it depended on the very uncertain rate of delivery of American and other machine tools. The machine tools in the factory quickly got out of balance and skilled labour got out of balance too, for the erratic supply of one type of labour would hold up the intake of another type.

The Manpower Requirements Committee was not concerned either with the different requirements of the various skilled trades. In general, however, it was reasonable to expect that quantity production would lead to an increase in the demand for toolroom workers, setters and machinists proportionately to other types of workers. It would also deskill the work of both fitters and machinists. Skilled fitters, who under bench methods of production had to make the parts fit as well as to assemble them, could be increasingly replaced by semi-skilled assemblers. This did indeed happen and led to redundancy among skilled fitters in 1940-41. This whole problem was summed up by a member of the management of Rolls-Royce, speaking of their Hillington factory early in 1941, when he said that they had 'no trouble at all in putting the pieces together. It was the sweat and tears of getting the machined parts'.

(ii)

The Dwindling Supplies of Trained Labour

Given time, skilled labour could be trained—in months or years according to the degree of skill required; years would be necessary in the case of the highly skilled labour that was initially most in demand for the new factories. But time was the one thing that was not given in May 1940. The first obvious source of supply to meet the demands for skilled labour was, therefore, trained labour not already employed on government work.

In August 1940 an attempt was made to mobilise these resources. All men not wholly engaged on government work who were employed in certain specified engineering occupations, or who had been so employed for at least twelve months during the previous ten years, were required to register at the employment exchanges.¹ Some 320,000 men in the named occupations registered; of these many who were employed in engineering factories were in fact already employed on government work for such a large proportion

¹ Industrial Registration Order, 1940, S.R. & O. No. 1459, 7th August 1940. The registration did not include men in the railway engineering workshops.

of their time that they could not be taken from it;¹ others were drawn into government work after they had registered by the allocation of munitions contracts to their employers. Of the 320,000 who registered some 50,000 were men who, though engaged in engineering occupations at some time during the previous ten years, had since transferred to other work, and a large number were maintenance engineers in industries other than engineering. Many of the former group were men engaged in one-man businesses, which they were reluctant to give up, or men whose skill was rusty through long absence from the industry. The great majority of the latter group were already employed on essential work, for instance in transport, gas or electricity undertakings or in textile factories with government orders. Nevertheless the Manpower Requirements Committee estimated that some 20,000 from each of these two groups could be transferred to munitions in the course of the year.

It is not known how many skilled engineers in all were in fact transferred to munitions work as a direct result of the registration. Many of those who registered no doubt transferred of their own accord or were drawn into munitions production by the allocation of government contracts to their employers. A review in July 1941 of 250,000 registrations showed that 217,000 of the men concerned were by then employed on essential work in the munitions industries or elsewhere and a further 11,000 were not transferable for other reasons. Among the rest, nearly 3,000 transfers had already been effected by the exchanges and action was pending on some 8,500 others. From Plymouth, examples were quoted of a greengrocer, a milk roundsman and of the Lord Mayor's mace bearer who returned to their skilled trades in engineering factories as a result of the Order.

Only skilled tradesmen were required to register. It was, however, important to secure the transfer to the munitions industries of semi-skilled engineering workers employed on non-essential work. For these workers could be trained for skilled work in a considerably shorter time than those with no engineering experience. A substantial number of engineering workers employed on work for the home and export markets were transferred to munitions work between June 1940 and September 1941—a period slightly longer than that covered by the Manpower Requirements Committee's survey. In June 1940 a total of 598,500 workers² in the engineering and allied

¹ When the registration was held, employers were also asked to make a return of the number of their workers in the named occupations not wholly employed on government work. The number so returned was 216,000 compared with the 270,000 men then employed in engineering work who registered; at least part of the difference between these two figures can be explained by the fact that men were advised 'when in doubt, register', and presumably some already employed on government work did so.

² All classes of workers except non-manual workers earning over £420 per annum.

industries were employed on work for the home, and 215,700 on work for the export market. By September 1941 the numbers employed on work for the home market had fallen by 121,000 to 477,400 and those employed in the export trade by 88,800 to 126,900. The majority of these 206,000 workers lost to production for the home and export market were by then presumably employed on government orders.

There were no figures to show how far this total was made up of individual transfers and how far it represented the growth of sub-contracting. Sub-contracting was naturally the more popular arrangement with both managements and men, but it was not always practicable. There was, for example, a considerable untapped reservoir of skilled labour in small firms to whom it was not possible to give war contracts. Moreover sub-contracting would not meet the problems of the new factories; the whole engineering industry would have to release labour to help man them. There was considerable opposition from non-munitions firms to proposals made by the Ministry of Labour that they should release labour for this purpose. For example in August 1940 the Railway Executive Committee resisted the transfer of labour from the London Midland and Scottish Railway's workshops at Crewe to Rolls-Royce on the grounds that they could themselves take on additional war contracts; similar opposition came from firms manufacturing cotton machinery.

On the whole, however, it was easier to transfer skilled labour from civilian to munitions work than to redistribute labour within the munitions industries, in spite of the fact that little direct compulsion was used in either case.¹ As supplies of material for civilian work were reduced labour automatically became redundant if the firms concerned did not receive war contracts. Many individual skilled workers voluntarily transferred to war work before they became redundant, either from patriotic motives or because the wages were higher and prospects for the time being better in munitions factories. This movement was speeded up after April 1941 by a revision of the Schedule of Reserved Occupations which fixed two ages of reservation in many occupations, the lower one for workers in so-called 'protected' establishments who were on essential work.²

One other minor source of labour was tapped by the aircraft industry. In May 1940 the Minister of Aircraft Production made a broadcast appeal to garage mechanics urging them to transfer to aircraft work. The response was immediate, but in so far as the men were skilled—and many turned out to be car washers or petrol pump attendants—they could only be employed immediately without further training as fitters, the type of labour in least demand. Many

¹ See pp. 63-6 below.

² *Schedule of Reserved Occupations and Protected Work, Revision of April 1941.*

were in the London area where skilled labour was relatively plentiful. An enquiry covering over 200 firms revealed that they had rejected nearly 40 per cent. of the applicants. The Ministry of Labour thought that more of the men could have been absorbed if the firms had been pressing on with dilution, and was concerned that nearly 3,000 of them were still on the employment exchange registers in August 1940.

In general it was true to say that the skilled labour made available to the munitions industries in 1940 by transfer from other industries was insufficient in quantity and quality. Moreover, it was more plentiful in the Midlands and the South, whereas the heaviest demand came from the new munitions factories in the North-West. Another source of skilled labour, the steady inflow of apprentices, was also of little use to the new factories in their initial stage.

(iii)

Dilution and the Redistribution of Skilled Labour

It became increasingly clear that the skilled labour requirements of the munitions factories, and of the new ones in particular, could only be fully met by dilution, upgrading and the redistribution of the existing skilled labour force. As has been seen the Manpower Requirements Committee hoped that the percentage of labour in the engineering industry paid at skilled rates could be reduced from thirty-seven per cent. in June 1940 to twenty-eight per cent. in August 1941. For some time, however, the progress of dilution was slow. By the time the Manpower Requirements Committee's second report was published in December 1940, the Chairman realised that dilution was not proceeding as fast as he had hoped. There was not much real chance, he thought, of being able to achieve the munitions programme within the time set for it. This was not surprising for the amount of dilution and training accomplished in the factories before the summer of 1940 was quite inadequate to meet the tremendous demands of production in the post-Dunkirk period and it was bound to be some months before the leeway was made up. Moreover, for some months to come the pace of dilution remained unsatisfactory. There were a variety of possible reasons for this slow progress.

(a) THE SUPPLY OF UNSKILLED LABOUR

Dilution on an appreciable scale was impossible without an adequate supply of unskilled workers coming into the factories to release more experienced labour for upgrading to higher skilled work. This meant that far more women would have to be employed in the

engineering industry. Between June 1939 and June 1940 the proportion of women to men employed in the engineering and allied, chemicals, explosives and shipbuilding industries had only increased from eighteen to twenty per cent. In May 1940, however, greater employment of women was foreshadowed by agreements made between the employers and the unions for the employment of women on all types of work in the engineering industry previously done by men.¹

In the summer of 1940 there was still no shortage of unskilled workers. The number of insured persons registered as unemployed was 657,000 in August 1940 and it rose to 732,000 in October. Subsequently the number fell, more quickly among men than among women, until in July 1941 it was down to 198,000. Already in December 1940, however, the unemployment figures overstated the amount of real unemployment; nearly half of those on the register at that date had been unemployed for less than a fortnight—an indication that many of them were changing their jobs and being transferred to war work. In the winter of 1940-41 there were already certain shortages of women workers, particularly in the filling factories.² There was, however, no serious shortage of unskilled labour in the engineering or aircraft industries in these years, partly because, in the new factories particularly, shortages of skilled labour limited the demand for semi-skilled and unskilled workers. Taking the country as a whole it was not until the latter part of 1942 that the shortage of unskilled labour became a serious obstacle to the extension of dilution in the engineering industry.³

(b) THE INTERFERENCE WITH PRODUCTION: THE ATTITUDE OF MANagements

The reasons for the slow progress of dilution in 1940-41 must be sought not in shortages of unskilled labour but elsewhere. In May 1940, it is true, the Minister of Labour had been given, in general terms, the most sweeping powers; he could direct any person in the United Kingdom to perform such services in the United Kingdom as might be specified.⁴ But although in the stress of the Dunkirk period it was possible to give the Minister of Labour such wide powers he in fact preferred to rely on voluntary methods, using compulsion only as a last resort. The transition from the peace-time methods of the pre-Dunkirk period to a strict war-time control of labour was

¹ See pp. 57-9 below.

² See pp. 178-86 below.

³ For the problems of supply of unskilled labour see Ch. VII.

⁴ Emergency Powers (Defence) Act, 1940; Order in Council adding Regulation 58A to the Defence (General) Regulations, 1939 (S.R. & O. 1940, No. 781, 22nd May 1940). See also H. M. D. Parker, *op. cit.*, pp. 157-8.

only gradual and was never complete. Meanwhile efforts to redistribute the skilled labour force continued to meet with opposition from production departments, managements and men.

The new Minister of Labour accepted immediately the responsibility for deciding whether firms were using labour properly and for removing it if they were not; it was agreed that the Ministry of Labour could, if necessary, override the objections of the supply Ministries. In the summer of 1940 the Ministry of Labour accordingly set up a staff of labour supply inspectors responsible both for vetting vacancies for skilled labour to ensure that they could not be filled from within a firm's own organisation and for visiting firms to search for skilled men who could be spared for transfer elsewhere. These officers were originally intended to act on behalf of local Labour Supply Committees, representative of employers and workers, set up by the Ministry of Labour in 1940. These committees, which were separate from the Ministry's existing regional organisation, were given executive responsibility to provide welfare facilities, to organise transfers and dilution of labour and training. The committees were not, however, a great success and in practice the labour supply inspectors took over executive responsibility themselves, working under the guidance of a chief inspector of labour supply at the Ministry's headquarters. The quality of the labour supply inspectors naturally varied. There was an acute shortage of production engineers and most of them were already employed, at higher salaries than the Ministry offered, in industry; a considerable number of the inspectors appointed were trade unionists. Side by side with the Ministry of Labour's organisation the supply Ministries also had regional staffs responsible for labour questions, though initially these were small.¹

It was not surprising that the labour supply inspectors met with opposition in urging dilution and above all in securing releases of skilled labour for the new factories. Indeed, although psychologically the emergency of 1940 made it easier to impose controls, it was the worst possible moment, from the point of view of production, for building up an entirely new system of labour inspection and redistribution. Dilution could clearly not be achieved without a certain short term loss of production—for example it was the experience of a group of aircraft factories that it took at least a month to train an experienced setter-operator as a fully qualified setter—and this temporary setback in production had to be accepted by the firms and the supply Ministries concerned. Mr. Bevin's predecessor had had forebodings on this very point; he had been reluctant to accept the responsibility of labour inspection partly because his officials would have to go into the works and interfere with questions of

¹ See p. 56 below.

management; and he had feared that the supply departments would resent the inspectors' action if it tended to restrict output.

These fears were, as it proved, justified. The Ministry of Labour's difficulties with the Ministries responsible for production will be discussed in the next section; for the moment we are concerned with the managements. As the Ministry of Labour intensified its efforts to promote dilution and redistribution of skilled workers, the Minister complained that these efforts met with almost continuous opposition from employers. The M.A.P. also complained of the almost completely negative attitude displayed by contractors to the many appeals made to release skilled labour. Even the parent firms of M.A.P. shadow factories were reluctant to release labour to help their offspring. Firms were also unwilling to release semi-skilled labour for higher grade training in the Ministry of Labour's Training Centres.¹ Opposition to dilution also arose in some R.O.Fs. Ministry of Labour inspectors observed of one in October 1941 that though the higher management was in favour of dilution opposition was most marked on the shop side; the whole training of departmental heads persuaded them that only the best type of skilled operatives could produce guns.

The immediate reaction of any firm asked to release labour was that it was being pressed to increase production and needed any skilled men who could be freed by upgrading to expand its own labour force. This seemed a reasonable point of view to the individual firm, but it did nothing to help the new factories. It was of course true that the demands of production were constantly changing. It took some time before men could be selected and persuaded or directed to transfer and often enough before they could actually be transferred they were legitimately needed for the expansion of the firm's own labour force. This problem arose particularly when joint investigations² were made and agreement was reached about the quantities of male labour which could be released gradually and for which women could be substituted. The substitution often took place but the men were reabsorbed, frequently in dispersal units, in the same organisation. Even if this procedure were not open to criticism, other habits of the firms were. In 1940-41 the labour supply inspectors, having secured agreement to the release of so many workers in a certain trade, left the selection of individuals to managements. Sometimes the firms chose those of least skill in their particular occupation, the bad timekeepers and idlers, or the very young or very old, and therefore the least mobile of their workmen.³

¹ See p. 72 below.

² See p. 56 below.

³ After the Manpower Boards were set up in 1942, however, the employer had much less freedom of choice in this matter; see pp. 67-8 below.

Both private firms and the older R.O.Fs were naturally most willing to release the skilled fitters they could most easily spare, and these were the men who were least urgently needed in the new factories. R.O.F. Maltby in Yorkshire, for example, which was building up its labour force, asked in December 1941 for large numbers of setters and toolroom turners; whereas in the early months of 1942 R.O.F. Nottingham released nearly one hundred fitters compared with only fifteen setters and two turners.

(c) THE ATTITUDE OF THE SUPPLY MINISTRIES

Very often, of course, the objections of the firms were legitimate, were upheld by the supply Ministries and agreed to by the Ministry of Labour. The Ministry of Labour complained, however, that the objections of the firms were sometimes unwarrantably upheld by the supply Ministries. The issue was bound up with the question of priority. In June 1940 the Production Council, a committee of the War Cabinet, accorded the highest priority for labour and raw materials to any work in connection with the production of aircraft and its equipment, anti-aircraft equipment, small arms and small arms ammunition and bombs. This was essentially a short term emergency direction, suited to the needs of the summer of 1940, but bound if continued for a long period to have disastrous results on other essential war production. The Ministry of Labour was obliged to meet the demands of first priority work for skilled labour in full, which might mean that other important work would be indefinitely delayed. Moreover, the priority direction made it impossible to take account, when supplying a firm with skilled labour, of the amount of dilution achieved in the factory. Some aircraft firms—particularly since their employees were completely protected from May to September 1940 from being called up to the Forces—therefore had no incentive to dilute their labour force to meet their own needs, let alone the needs of new aircraft or other munitions factories.

The Ministry of Labour disliked this position. It thought that the criterion of need should be not the urgency of the product being produced, but the number of other workers who were given employment by the employment of one skilled worker in a particular job. It could also point to the fact that there was some skilled labour idle in the aircraft factories waiting for materials.

The Ministry of Labour's case was strong. But the M.A.P. did not feel able to accept it. The M.A.P. was called upon to produce aircraft at all costs, even at the expense of its own future expansion and of other current production essential to the long term war effort. The Ministry contended that a certain amount of idle time in the factories was incidental to the rapid production of aircraft. If skilled men were released from the aircraft factories the M.A.P. was anxious that they

should not be transferred outside the aircraft industry. The Ministry of Labour gave a limited assent to this principle, though in practice it was often impossible to apply it because of the difficulty of transferring men away from home. The M.A.P. also asked that no labour should be removed from aircraft factories without the consent of M.A.P. headquarters. The Ministry of Labour, highly decentralised as it was, did not favour this procedure; it would have preferred for the sake of speedy action that the M.A.P.'s regional staff should have full discretion in this matter.

The continued opposition of M.A.P. made it difficult for the Ministry of Labour to secure a reversal of the priority decision of June 1940. The proposal to supersede the priority direction by an orderly system of allocation was first made by the Ministry of Supply in August 1940, and was accepted by the War Cabinet in October. The M.A.P. maintained, however, that the War Cabinet's decision was not intended to override the priority of production direction and the issue was again referred to the Prime Minister for settlement. As a result it was laid down that the 1A priority must remain with aircraft production for the purpose of executing approved target programmes, but that it was not to be used in such a way that aircraft production completely monopolised any limited commodity. Where the approved M.A.P. demands absorbed the total supplies a special allocation was to be made, even to the prejudice of aircraft production, to provide the minimum essential needs of other departments. Special aid, and even occasionally temporary priority, was to be given when output of any item lagged behind the programme.

On the basis of this ruling the Ministry of Labour issued a circular to its local officers, which was agreed with all the supply departments, and which laid down that

The granting of priority for the production of particular articles does not necessarily confer upon the undertakings engaged in their manufacture any exclusive right to such skilled labour as may be available. The aim should be first to see that any bottlenecks in the production of essential war materials are overcome, and second that in so far as labour may not be available to the full extent required it is distributed in accordance with such indications with regard to priority as may be given from time to time.

This circular was approved in draft by the M.A.P. The M.A.P., however, resisted all attempts by the Ministry of Labour to set up machinery for interdepartmental consultation to determine such bottlenecks on the grounds that such a procedure would be contrary to existing priority directions. The Ministry of Labour, therefore, assuming it had the general blessing of the ministerial Production Executive, issued instructions on labour priority on its own initiative,

with whatever measure of interdepartmental agreement it could obtain, and in spite of the protests of M.A.P. It was not until August 1941 that an agreed interdepartmental procedure was established for deciding which products and undertakings should have priority for labour, taking account not only of their production priority, but of their need for labour.¹

It was obvious that the supply Ministries, who had full knowledge of the firms' programmes and could most easily bring pressure to bear on managements, must co-operate with the Ministry of Labour in pressing dilution on the firms. In June 1940 the Directorate of Labour in M.A.P. made an enquiry into the future labour requirements of a number of its contractors and urged upon them the necessity of meeting a large part of their skilled labour demands by training and dilution. The survey was extended in August to provide information on the existing labour force and future requirements in firms covering altogether some 80 per cent. of M.A.P.'s labour force. This was followed up by visits to the larger firms by technical officers on the staff of the Directorate to give guidance on training and dilution and to advise local officials of the Ministry of Labour of any labour which could be released. These officers were also used for *ad hoc* visits to firms to secure releases of labour to meet urgent demands arising elsewhere in the industry; the Minister himself approached heads of firms to secure releases of labour. The technical officers were, however, few in number, and the Directorate was obliged to fall back on the far less satisfactory circular letter to firms.

The Ministry of Labour was somewhat suspicious of these activities, probably associating them with the Ministry of Aircraft Production's desire to draw a ring fence round its own labour force. The M.A.P. for its part could, however, claim that the Ministry of Labour's policy towards the transfer of labour was so uncertain in this period that it was justified in resorting to self help.² When the Ministry of Labour initiated interdepartmental meetings with the supply Ministries in September 1940 to work out a scheme of co-operation in securing dilution, the Minister of Aircraft Production would not allow his officials to attend.

Relations between the Ministry of Labour and the Ministry of Supply were from the outset rather easier. In October 1940 the two Ministries reached agreement on the division of responsibility for dilution and on the practical measures required to secure co-operation. The Ministry of Supply was very ready to agree that dilution was a function of management. The Ministry therefore accepted responsibility for convincing managements that they must carry out

¹ See pp. 208 ff. below.

² See pp. 63-6 below.

the instructions of the Ministry of Labour and agreed to use compulsion on managements in the last resort, either by issuing directions to them under the Defence Regulations or by replacing them. The Ministry of Supply also agreed that production might for a time have to give way to the more pressing needs of training and agreed to take any reasonable risk. The emphasis in this agreement was on regional and local action. Both departments felt that general directions and exhortations were ineffective and that the problem must be tackled firm by firm.

To implement these decisions the Ministry of Supply strengthened its regional labour staff. Its regional labour officers were continually called in to settle disputes—by employers to restrain inspectors who, they thought, were over-zealous and by inspectors to persuade recalcitrant firms to dilute their labour force. Ministry of Supply regional officers were given, like their colleagues in the Ministry of Labour, discretion to settle disputes without reference to headquarters. The position and experience of the regional officers of the production Ministries did indeed well qualify them to exercise discretion. They were driven to consider the labour needs of all factories working for a given Ministry, to judge impartially the claims of its various production directorates, and to exercise give and take with their opposite numbers in the Ministry of Labour, on whom they were dependent for the supply of labour to the factories with which they were concerned.¹ The headquarters labour departments of the supply Ministries were of course also impartial judges, but they were dependent on the regional staff for knowledge of the local situation. Unfortunately, the supply Ministries' regional controllers complained for a long time that their work was hampered because they were not kept adequately informed by headquarters of the production position.²

The agreement between the Ministry of Labour and the Ministry of Supply about responsibility for dilution provided a pattern for subsequent agreements reached between the Ministry and the M.A.P. and the Admiralty respectively in January 1941. The agreement with the M.A.P. differed in that the M.A.P. was still less willing than the Ministry of Supply to devolve responsibility to its local officials; but this was partly because its regional organisation was not yet strong enough on the labour side. By mid-1941 there was,

¹ As time went on, regional machinery for co-operation in labour matters was improved. The regional controllers of the Ministry of Labour and of the production Ministries were already, of course, members of the Regional Boards and of the Boards' Executive Committees which were established in May 1941. In October 1941 the Boards were instructed to set up Labour Supply Committees to assist the Ministry of Labour in meeting demands for labour and as far as possible to settle disputed cases concerning labour transfers and dilution. See J. D. Scott and Richard Hughes, *op. cit.*, pp. 419-21.

² *Ibid.*, pp. 448 and 468.

for all practical purposes, complete decentralisation of responsibility to the M.A.P. regional labour staffs. Both the M.A.P. and the Admiralty were less specific than the Ministry of Supply about the methods they proposed to use to bring pressure on managements. There were further difficulties with the Admiralty which insisted on a special position for its establishments.¹

Apart from *ad hoc* visits by Ministry of Labour inspectors to vet demands for labour, various larger investigations of the firms' use of labour were carried out by these inspectors acting alone or in co-operation with the officials of the supply Ministries. Already in 1940 arrangements were made for joint inspections of certain airframe factories by the labour supply inspectors and the Directorate of Aircraft Production's resident production officers to investigate allegations of idle time. In 1941 these inspections were extended to cover M.A.P. firms manufacturing other products, and the M.A.P.'s regional labour staff took a greater share in them; for it was sometimes found that officers of the production directorates were reluctant to agree to releases of labour which might give the firms an excuse for not meeting delivery dates.² It was common for Ministry of Supply regional labour officers to attend at the end of inspections made by labour supply inspectors to discuss disagreements with the firms and reach settlements on the spot. Unfortunately, neither the labour supply inspectorate nor the regional labour staffs of the supply Ministries were large enough to meet all the demands on their time. As late as September 1941 it was reported that the Ministry of Supply regional staff in the Midlands had been so occupied with billeting problems and with appeals by firms against proposals to re-call ex-miners employed by them to the mines that they had so far not been able to do anything under the heading of training, upgrading and dilution.

As time went on the interest of the supply departments in dilution grew. In January 1942, for example, the question of dilution was raised at the Ministry of Supply Executive Committee in a discussion on labour utilisation. Comparisons, it was said, showed a great inequality in the extent of dilution between factories on similar production, and officials of the Ministry would in future have to examine demands for skilled labour much more carefully than in the past. Not only was increased knowledge of the dilution achieved by individual firms needed but also increased control, based on that knowledge. The meeting concluded that it was chiefly the responsibility of the Ministry's production departments to see that firms used their labour properly. In the later years of the war Ministry of Supply firms were advised by efficiency officers on the staff of the

¹ See pp. 112-15 below.

² Cf. p. 134 below.

Director-General of Programmes and Statistics and M.A.P. firms by members of the Production Efficiency Board¹ as well as by the ordinary regional labour staff. These staffs were strengthened in numbers and their knowledge of the firms with which they had to deal was continually increasing. Moreover by 1943 the regional controllers' constant requests to Whitehall to be kept fully informed of programme changes were at last rewarded with success.²

(d) THE ATTITUDE OF THE MEN

So much for the problems of production. The final obstacle to dilution and transfer of labour was the objection of the men themselves. On the whole the trade unions were more ready to agree to dilution in the shops after the formation of the Coalition Government than they had been before. The new Minister of Labour's influence was not, it is true, as great with the craft unions as with the unskilled workers. Nevertheless he took specific steps to remove some of the grounds of their previous opposition to dilution—for example by a special drive to re-absorb into industry the long unemployed.³

The number of stoppages of work in opposition to dilution were few in the Second World War compared with the First. How far the mere threat of opposition hindered managements in introducing dilution it is, however, difficult to judge. For objections to dilution were often strong, particularly among the highly skilled workers in the toolroom, the stronghold of trade unionism in the factory. Setter-operators, who earned high piece rates, were for their part unwilling to transfer to higher skilled work as setters or toolmakers on time rates. This particular trouble was partly met by an agreement of June 1940, which provided for toolroom workers' earnings, exclusive of merit bonuses, to be based on the average earnings of skilled workers on production. There were certain difficulties in applying this agreement, but these and other compensatory payments made to time workers did alleviate, though they did not entirely remove, the grievances of those to be upgraded.⁴

Substitution of Men by Women

In all sections difficulties arose also because the skilled men in the industry (as well as the women) were dissatisfied with the rates paid to women workers under the agreements for dilution with women;

¹ See p. 229 below.

² See J. D. Scott and Richard Hughes, *op. cit.*, pp. 486-7.

³ During 1940 dilution agreements were made between the Engineering Employers' Federation and various craft unions in the engineering industry, e.g. the National Union of Foundry Workers (29th May), the E.T.U. (5th June), the National Society of Copper-smiths, Braziers and Sheet Metal Workers (2nd August); see also p. 61 below.

⁴ See pp. 339-51 below.

and this dissatisfaction sometimes found expression in a reluctance to pass on skill to women dilutees.¹

By mid-1940 there were already in certain districts so few men available that the munitions industries were obliged to contemplate the employment of more women. In the following months, therefore, agreements governing the employment of women were negotiated. The first agreements to be reached covered the private sectors of the engineering industry; two separate but practically identical agreements were signed in May 1940 between the Engineering Employers' Federation and the A.E.U.² and between the Federation and the Transport and General Workers' Union and the National Union of General and Municipal Workers.³ In the course of 1940-41 government departments also negotiated agreements with the unions for the extended employment of women in their establishments.

The Air Ministry and the Admiralty made agreements with the general unions in June 1940 while the Ministry of Supply's agreement with them followed in September, by which time the Ministry had in fact already begun to substitute women for men at Woolwich and certain other R.O.F's.⁴ The A.E.U. was not, however, a party to the 1940 agreement with the Ministry of Supply. The Union was very jealous of the position of the skilled workers and this jealousy was the more strong in the R.O.Fs since many of the mechanics in the older ones were exceptionally highly skilled. There was originally, therefore, a tacit understanding between the Union and the Ministry of Supply that women workers would not be placed on skilled men's work in R.O.Fs; and as late as September 1941 the A.E.U. was reassured that no women would be employed as setters. However, by the autumn of 1941 it was clear that the increasing shortage of skilled workers made the extended employment of women essential. Terms under which dilutee women were to be employed in R.O.Fs were therefore agreed between the A.E.U. and the Ministry at the end of November. In November 1942 the Ministry also made an agreement with the Electrical Trades Union.

The unions' agreements with outside industry and with govern-

¹ Sometimes the employers were reluctant to substitute men with women because they did not feel the women earned the full men's rate in all cases when the agreement obliged them to pay it; see p. 358 below.

² The text of this agreement is given in Appendix (iii), p. 441.

³ The general dilution agreements made between the Engineering Employers' Federation and the other craft unions (see p. 57 fn. 3) usually included provision for the employment of women but not always in the same terms as the agreements with the A.E.U. and the general workers' unions. For example, unlike these agreements, the agreement with the E.T.U. stipulated that there should be prior consultation before women replaced men.

⁴ The Ministry's agreement with the shop stewards at Woolwich was based almost word for word upon the famous L2 circular issued by the Ministry of Munitions in October 1915. Cf. *History of the Ministry of Munitions*, Vol. IV, Part I, pp. 64 and 103 (H.M.S.O., n.d.).

ment departments were in many ways similar, but they were not identical. The main purpose of all of them was to provide for the employment of women on work normally done by men; but it was also agreed, in the words of the Engineering Employers' Federation Agreement of May 1940, that there would be 'no objection to the extension of employment of women in establishments where women have not hitherto been employed on work commonly performed by women in the industry'.¹ Women employed in this way, like those replacing men, were to be registered as temporarily employed. The departmental agreements contained on the whole more detailed and specific assurances safeguarding the men's interests than those covering outside industry.

The provisions of the agreements that gave rise to the greatest difficulty were those concerning wages. The agreements laid down that there should be an initial probationary period of thirty-two weeks during which the women substitutes would be paid on a progressively increasing scale. After this period they were to receive the basic rate and national bonus of the men they replaced, provided they could do the same work without additional supervision or assistance. If such assistance was necessary an appropriate rate and bonus were to be negotiated. The Ministry of Supply's agreements with the unions did not include a detailed time schedule but fixed rates for training and probation by a more flexible clause which left the rates during training subject to negotiation. All the agreements provided that when the employment of women was extended to establishments where women had not hitherto been employed, even though these were engaged in what was normally women's work, the women were to be paid according to the Women's Wages' Schedule or that for boys and youths, whichever yielded the higher rate.

Owing to the diversity of existing practice in the industry the agreements proved very difficult to interpret and, particularly in the private engineering industry, gave rise to much dispute; this was chiefly on the question of which jobs were entitled to the women's, and which to the full men's rate, but also on such matters as what constituted 'additional supervision or assistance'.² Although these difficulties must have been foreseen, there was no provision for prior consultation, as in the men's dilution agreements, nor was any special local procedure set up to deal with disputes which might arise. Indeed the employers deliberately rejected the A.E.U.'s request for prior consultation partly because they realised the delays to which it would lead. The unions for their part must have been aware

¹ Clause 3b.

² See p. 358 below.

of the lack of clarity in the agreement; the A.E.U. probably only accepted it at the time because it did not think that skilled workers were in practice likely to be replaced by women. Indeed in November 1941, after reports from the districts that women were being employed on skilled work under the 1940 agreement, the A.E.U. asked for a conference with the employers. Here they claimed that neither side in 1940 had visualised the employment of women on skilled work as a practical problem and that the Union had never agreed to it. At the end of 1941, however, the A.E.U. withdrew its objection.¹ Nevertheless the uncertainties and disputes about the wage rates of women dilutees remained unsettled to the end of the war and must have interfered with the smooth progress of dilution.

Dilution in the Sheet Metal Shops

Male workers in all sections of the engineering industry objected to the wages clauses of the women's dilution agreements, but these objections were not in the long run a very serious obstacle to the extension of dilution. More deep-rooted, though fortunately confined to a smaller section of the industry, were the objections of the sheet metal workers. The difficulty in securing dilution in the sheet metal shops affected the aircraft factories particularly, though it affected many other branches of the engineering industry as well. Sheet metal working was a very old craft in which much of the work was done by manual processes with hand and bench tools which had not been changed for generations. It was also a dying craft, tending to be replaced by the power press and the automatic tool. Nevertheless sheet metal work held very considerable scope for dilution. Much of the work, such as the hollowing, raising and stretching of metal into shape, when done by free hand methods was certainly very highly skilled. But even when production was carried out in this way there were a number of operations, such as drilling and riveting, which could be done by semi-skilled workers under the supervision of skilled men. In general such methods of production persisted only where the demands were small and variable, for example in the production of prototypes. Where large quantities were required many sheet metal working operations, simplified by the use of jigs and templates, could be done by semi-skilled workers, whether men or women. It was in fact the practice in some aircraft firms for such mass production work to be done under engineering conditions in new shops or factories separate from the sheet metal shops proper. Some hidden dilution of sheet metal work proceeded in this way from an early stage in the war.

¹ See *Report of Proceedings of the Twenty-Third National Committee of the A.E.U., 1941*, pp. 33-40; and *Twenty-Fourth National Committee, 1942*, pp. 61-4.

It was partly for this reason that there was no shortage of sheet metal workers, a fact which strengthened the National Union of Sheet Metal Workers and Braziers and the Birmingham and Midland Sheet Metal Workers' Society in their strenuous opposition to dilution. In June 1940 these unions made a dilution agreement with the Engineering Employers' Federation which differed from the employers' agreement with the A.E.U. in that it was confined to work of national importance and to dilution with male workers. Further, there was no provision for the introduction of semi-skilled labour and all dilutees were to be paid the skilled rate. The unions refused to admit that any sheet metal work of a semi-skilled character existed, although under modern methods of quantity production such as existed in the aircraft factories a very considerable proportion of the work was in fact semi-skilled.

Evidence collected by the Ministry of Labour in 1941-42 showed plainly that the opposition of the sheet metal workers to dilution was not limited to isolated instances. In the Midlands particularly, they resisted substitution on a broad front, not only upon skilled processes but also upon obviously semi-skilled processes which had been newly developed during the war. Some employers, too, were reluctant to accept substitution with women; others, as has been said, found a way round the opposition to dilution by removing the work to separate shops. This was not, however, always possible and there was still very considerable scope for substitution with women workers at the end of 1941. Though there were shortages of sheet metal workers in certain districts there was, however, even now no general shortage, and the unions could point to many firms where skilled sheet metal workers were only working a forty-seven hour week. Dilution was nevertheless essential to release fit men for the Services or for heavy work, not necessarily in their own trade, in the aircraft or in other industries.

Failing to make any impression on the unions, the employers appealed to the Minister of Labour to intervene. He met both parties in April 1942 and called for substitution with women on all jobs that could be done by them; he left the settlement of the wages question to the industry. The two sides failed to agree and in May the Minister of Labour appointed a Committee of Investigation. The Committee recommended that there was considerable scope for substitution with women and that the dilution agreement should be amended accordingly. The older men so released should be transferred to other industrial work and the younger men called up. But the unions would still only agree to the employment of women at skilled rates, a condition which the employers naturally rejected since much of the work concerned was only semi-skilled. In August 1942 the unions agreed to substitution with women at lower rates

subject to agreement shop by shop, but both the Ministry and the employers rejected this suggestion. The unions' resistance was being worn down.

In 1942, however, the general workers' unions and the A.E.U. began negotiations with the employers on the revision of the women's dilution agreement of May 1940 and further discussion on the dilution of sheet metal working was held over pending the outcome of the wider negotiations. These did not lead to any agreement, and with their failure the attempt to persuade the sheet metal workers to accept women dilutees failed too. The Ministry of Labour had to confine itself to calling up the younger men; even so substitution with women was sometimes opposed in the strictly union shops and the Manpower Boards had to suspend call-up of the men concerned. In July 1943 even this weapon of the Ministry of Labour was blunted when all aircraft workers were temporarily protected from call-up. Altogether the position about dilution in the sheet metal shops remained unsatisfactory to the end of the war.

The Obstacles to Labour Transfer

The action of the sheet metal workers was exceptional; in general the greatest obstacle to redistribution of skilled labour was not the men's opposition to dilution within the factory as such but their unwillingness, if dilution made them available for transfer, to remove to other districts. Men naturally objected to being transferred away from home, particularly with the war-time shortage of housing and billets; they objected even more strongly if their transfer involved a considerable drop in earnings. According to a Ministry of Labour official who had arranged thousands of transfers the first question men selected for transfer always asked was 'What shall I earn?' A great strain was put on a skilled worker's patriotism if he was asked to train a dilutee to earn, as he had done, some £8-9 a week and then leave for another factory to earn £6-7 himself.

Engineering earnings varied very considerably between districts and between firms; a national bonus was agreed for the whole country but basic rates varied to the extent of some five shillings a week from district to district. More important were differences which arose from widely varying piece rates and merit bonuses paid in different districts and by different firms in the same district. The national agreement provided for piece work earnings of at least 25 per cent., increased in 1943 to 27½ per cent., over time rates; earnings of 40-50 per cent. over these rates were usual, but in some aircraft firms in the Midlands in 1940-41 the percentage was between 100 and 200. Weekly earnings of all classes of workers tended to be higher in the Midlands and the South than in the North

of England and in Scotland,¹ and though this was connected with the prevalence of aircraft and motor manufacture in the former and of heavier engineering in the latter, regional differences also existed within individual industries. The position was, of course, particularly unfortunate since it was necessary to transfer skilled labour from South to North. An aircraft factory in London for example had great difficulty in transferring men to its shadow factory in Liverpool because of the lower earnings there.

Even if wages could not attract skilled workers where they were needed, the Minister of Labour did, from May 1940 onwards, possess in general terms full power to control the movement of labour. The Restriction on Engagement Order of June 1940 made it compulsory for employers in the engineering, building and civil engineering industries to engage labour only through the employment exchanges or through recognised trade union channels.² This restricted poaching. It was, however, of no assistance on the positive side in securing a redistribution of labour already in employment. For this purpose the Ministry of Labour had powers to issue directions compelling men, subject to appeal to independent tribunals, to move to other work; but, as has been emphasised, the Minister of Labour was strongly in favour of relying as far as possible on voluntary methods. This was not simply for the sake of administrative convenience but because the Minister believed such methods enhanced the worker's self respect. A policy of voluntaryism could not, however, be successful unless men asked to transfer were satisfied with the earnings offered by their new employment.

So far as labour transfers were concerned the Ministry of Labour adopted the principle that a man should be paid 'the rate for the job' to which he was transferred. But in the later months of 1940 the Minister of Labour tried hard to persuade the engineering industry to introduce a uniform basic rate for the country as a whole. In this he was unsuccessful, although (on the initiative of the Ministry of Supply) a uniform basic rate was introduced for skilled workers in the engineering and filling R.O.Fs outside the London area and South Wales and for certain Admiralty establishments. Uniform skilled rates already existed in the explosives R.O.Fs outside these areas.³ The private engineering industry chose instead a dispersal bonus scheme which superseded the principle of 'the rate for the job'. In June 1941 the Engineering Employers' Federation and the A.E.U.

¹ K. G. J. C. Knowles and D. J. Robertson, 'Earnings in Engineering 1926-1948' in *Bulletin of the Oxford University Institute of Statistics*, June 1951, and K. G. J. C. Knowles and T. P. Hill: 'The Structure of Engineering Earnings', *ibid.*, September and October 1954. See also p. 320 below.

² S.R. & O. 1940 No. 877, 5th June 1940.

³ See pp 338.-9 below. Greater uniformity was at the same time introduced in the rates for unskilled workers in all three types of R.O.Fs.

reached an agreement that men transferred should receive the basic rate of the district in which they previously worked if it was higher than that of the district to which they were transferred.¹ Originally intended to apply to workers transferred between factories under the same management, this agreement was later extended to include all workers compulsorily transferred. From June 1940, also, the Ministry of Labour gave financial assistance to transferred workers, including the payment of their initial travelling expenses and a lodging allowance of 24s. 6d. a week to married workers, and to single workers with dependants, who were obliged to live away from home. These various arrangements helped to make transfers easier, but did not remove all the difficulties. For example, neither the new more uniform basic rates for government establishments nor the dispersal bonus agreement did away with the anomalies in earnings which arose from differences in piece rates.

Under the arrangements made by the Ministry of Labour in the summer of 1940 the local Labour Supply Committees² were intended to secure the redistribution of labour on a voluntary basis. By the winter of 1940-41, however, it was clear that the Committees were not effective and that voluntary methods were inadequate. Already in May 1940 national service officers (usually the employment exchange managers) had been appointed to exercise the Minister's powers of direction and in June 1940 they were told to use them if necessary in certain circumstances. Nevertheless in 1940 the Ministry of Labour only used its powers of direction very sparingly and hesitated to prosecute anyone who refused to obey a direction to move to another job or to return to employment which he had left against his employer's wishes. The issue of directions which were not followed up had inevitable results. The threat of compulsion was indeed a stimulus to voluntary movement, if carried out in the last resort. But when the Ministry's bluff was called, the threat lost its force, and men who would not have resisted transfer if they expected to be prosecuted were inclined to be bold when they found their friends disobeying with impunity.

In January 1941 the Minister of Labour was obliged to abandon his reliance on voluntary methods to secure transfers of labour and he proposed in the Production Executive of the War Cabinet that directions should be used to the extent necessary to provide an adequate supply of labour for essential work. Soon afterwards he

¹ 'Clause (2) A worker transferred to a district in which the recognised rate for his class is lower than in the district from which he is transferred shall, in addition to the rate referred to, receive from the employer a "Dispersal Bonus" equal to the difference between the rates in the two districts. (3) The Dispersal Bonus shall be subject to the recognised additions in respect of overtime, night shift, Sunday and holiday allowances. (4) Individual merit rates where previously paid shall continue to be paid in addition to the Dispersal Bonus.'

² See p. 50 above.

also made the Essential Work Order¹ which removed some of the grounds of the men's objections to transfer. One difficulty which the Minister of Labour had met in 1940 when trying to transfer workers, particularly those in more casual occupations like building, was that the men resisted transfer because of the uncertainty of continuous employment in their new jobs. Under the Essential Work Order men transferred to scheduled undertakings were given more certainty of continuous employment, for they could not be dismissed without the permission of the national service officer. The Minister was also empowered to satisfy himself that terms and conditions of employment and welfare provisions in a factory reached a certain standard before scheduling it under the Order; and the employees were to be paid a guaranteed weekly wage. Having safeguarded working conditions, the Order then made it impossible for workers in scheduled establishments to leave their employment without the permission of the national service officer. Thus by ensuring that certain minimum standards were observed in scheduled establishments the Order made it easier for the Ministry of Labour to direct workers to them, and also made it more likely that workers would remain in the same employment; it dealt, that is, with the problem of wastage, which had become acute in the winter of 1940-41. Nevertheless the Order was by no means universally welcomed. The A.E.U., for example, strongly attacked it and criticised the Minister of Labour for abandoning the voluntary principle.²

As the war went on the Ministry of Labour became more confident in the use of its powers; up to July 1941 less than 3,000 directions in all were issued compared with over 11,000 in the last five months of the year and nearly 24,000 in the first half of 1942. If directions to building workers were excluded, however, the number of directions issued in 1942 was still relatively small; but many workers no doubt agreed to take the employment they were offered because they knew that they could be compelled to accept it.³ The Ministry of Labour was, of course, bound to take account of the attitude of the independent Boards, to which men directed to transfer had a right to appeal, if a proposed transfer involved a considerable loss of earnings. In January 1942 national service officers were still being told that transfers involving loss of earnings were as far as possible to be avoided. Nevertheless the instructions pointed out that there were an increasing number of cases where it was impossible to avoid transfers of this kind; where it was in the national interest they were to be insisted upon and directions issued.

¹ S.R. & O. 1941 No. 302, 5th March 1941. See H. M. D. Parker, *op. cit.*, Chs. VI and VIII.

² *Monthly Journal of the A.E.U.*, March 1941, p. 631.

³ H. M. D. Parker, *op. cit.*, Ch. XIII.

As it happened compulsion did not greatly help with the skilled labour demands of the new munitions factories which were at their peak in 1940-41 when compulsion was so sparingly used. The credit side of a policy of voluntaryism was a contented labour force; it also meant that skilled men tired of idle time and not declared redundant by their employers found their way to factories where they were more urgently needed. The debit side was that it was impossible accurately to plan the supply of labour and difficult to build up the skilled labour force in new factories where earnings were below the very high earnings in Coventry and Birmingham. Many of the new factories, particularly the engine shadow factories in the North-West, suffered a continual shortage of toolmakers and setters in 1940-41. Their life was a series of crises: shortages became desperate, were temporarily overcome by special measures, and gradually developed until they became serious again. At the end of 1941 the idle machine tools in the engine shadow factories attracted the attention of the Ministry of Supply, which was responsible for the supply of machine tools, and the Ministry made representations to the M.A.P. on the subject.¹ The labour shortages arose partly because under no scheme for importation of labour did the North-West region receive anything like its intended quota of skilled labour from other factories in well-supplied regions. In November 1941 regional officials there were still pleading for a ruthless combing of Coventry, with the use of directions.

The difficulties of redistribution and dilution that persisted were amply illustrated by the attempts to transfer skilled men from the older to the newer engineering R.O.Fs. A certain number of skilled men were transferred to the new factories in 1940, particularly from Woolwich during the air raids on London. In March 1941, however, the Minister of Supply pointed out in the Ministry's Supply Council that much might still be done in Ministry establishments themselves to forward dilution and release skilled men for employment elsewhere; no women, for example, were yet employed in the R.O.F. at Nottingham where there was still a considerable reservoir of trained men. In 1940-41 there had been resistance to dilution from both management and men at Nottingham. In March 1941 the Works Committee there had ruled that women were not to be allowed to set up; and in 1942 they were still not allowed to use precision measuring instruments.

Perhaps the greatest obstacle, however, was that piece work prices at Nottingham were very high—though not, it is true, higher than or indeed as high as in some private firms; transfers from Nottingham to other R.O.Fs or to private firms would, therefore, often involve a

¹ There was some unbalance in the supply of tools, some of which could not have been used even if labour were available to man them.

drop in weekly earnings of several pounds. In January 1942 there were some men at Nottingham earning £4 10s. to £5 on a 10½-hour shift. The men at Nottingham also thought that there was some scheme afoot engineered by private industry to take work from an efficient government factory; some of them were to be transferred to private firms at a time when, owing to a change in programme and design, there was a slack period at Nottingham. At the beginning of March 1942 it was agreed that 200 men should be released in March and April, but only 10 were transferred in March and 60 by the end of April. In April there was a protest strike and it was not until the end of the month that the Ministry of Labour issued directions, against which there were many appeals; 176 had been transferred by mid-June, but in the autumn the shop stewards were still making difficulties about transfers from the factory. Similar trouble arose in transferring men from R.O.F., Leeds.

The difficulty of getting men to transfer between R.O.F.s where loss of wages was involved was partly overcome by the introduction of the Ministry of Supply Mobile Skilled Corps in December 1941. The Ministry called for volunteers from toolmakers and setters-up to join this Corps. As long as they were members they were liable for transfer to any provincial R.O.F. for periods not expected to exceed one month, though they might extend to two. Members of the Corps were paid on a very attractive scale.¹ A considerable number of men were transferred from the older to the newer R.O.F.s under this arrangement, and the majority of them remained in the same factory for the duration of the war. In practice the Corps was of more value in facilitating such long term transfers than in providing a highly mobile group to meet very short term needs—a result that was probably intended by its founders. A proposal in M.A.P. to start a similar Corps for aircraft factories came to nothing.

There was another means which the Ministry of Labour used to facilitate the redistribution of skilled labour within the munitions industries to equalise the burden of dilution. In December 1941 the system of block reservation from military call-up was replaced by a system of individual deferment. In many occupations the age of reservation was raised by one year every month until the occupation ceased to be reserved at all; as men became dereserved their employers, and failing them the men themselves, were entitled to apply for deferment to the newly formed District Manpower Boards. When the Boards found that men engaged on munitions work were not needed in their existing employment or were only needed temporarily

¹ They were paid a retaining fee of £1 a month and on the job 90s. basic + 37s. 6d. bonus (35s. 6d. for men in the provinces), a rate which took into account that special efforts might have to be made to meet the special conditions of the job; subsistence and travelling allowances on the R.O.F. scale; and a special bonus of 20s. a week payable when maximum effort was required and given and/or when other special circumstances justified it.

while their employers made alternative arrangements, they usually transferred the men concerned to other work in the munitions industries, in preference to calling them up for the Services.¹

(e) TRAINING

As the war went on the necessity of dilution was increasingly accepted by employers, workers and supply departments alike; at the same time the administrative machinery to secure its extension was improved. But the extension of dilution was clearly dependent also on a steady supply of trained workers; and the measures taken to increase the facilities for training engineering workers must now be outlined. Training in the engineering industry could be given, according to the type of work concerned, in separate training sections or in the production shops, or by a combination of both these methods. While for many jobs some instruction divorced from production was often desirable, the essential thing was that whichever method was used the instruction should be effective. Too many workers picked up their knowledge by a haphazard process of trial and error involving much waste of effort both during 'training' and afterwards.²

The main burden of training engineering workers, whether in separate training departments or on the job, was naturally borne by the industry. While in many firms, particularly the larger ones, training arrangements were elaborate and of long standing, in others they were quite inadequate. Much effort was spent in the course of the war by the Ministry of Labour and the supply Ministries, by employers' organisations and by other interested bodies, such as the Institute of Welding or the National Institute of Industrial Psychology, to improve and extend the scope of training in industry.

War-time demands for skilled labour were, however, so heavy that it was felt that the training resources of industry must be supplemented. After the change of Government in May 1940, the capacity for providing engineering training in Ministry of Labour Training Centres was very considerably increased, chiefly to meet the needs of smaller firms and of the new factories, but also to assist any firm in need of help. The history of the war-time expansion of government training schemes of all types is fully recorded in another volume in this series; the measures taken to assist the engineering industry need therefore only be briefly summarised here.³

¹ In the spring of 1943 the work of the Manpower Boards was extended to include control of the placing of all civilian labour; see H. M. D. Parker, *op. cit.*, Ch. XVIII.

² Cf. National Institute of Industrial Psychology, *Training Industrial Workers*, 1940; and the Ministry of Labour's *Manual on Training for Wartime Work in the Engineering Industry*, July 1940.

³ For a more detailed account see H. M. D. Parker, *op. cit.*, Ch. XXII. A scheme to train riveters and welders for the shipbuilding industry is described on pp. 123-5 below.

The Ministry's Training Centres were originally established after the First World War and continued during the inter-war years to train ex-service men and unemployed workers in various engineering skills. In the early months of war the Ministry of Labour's training activities declined, but in mid-1940 the Ministry embarked on a programme of expansion which aimed at establishing 40 Centres to provide training on a three shift system. The Minister of Labour spoke in the House of Commons of providing capacity to train some 200,000 workers a year¹—a very much higher figure than the numbers actually trained. By 1941 38 Centres had been established, although their number was gradually reduced in the later years of the war. The places available proved to be fewer than the Ministry had expected owing to the difficulty of obtaining enough instructors; and even these places were, for reasons explained below, never fully occupied.

The Ministry had considerable difficulties at the outset in providing the Centres with enough instructors and in equipping them with a sufficient number of machine tools. The Ministry's demands for tools and instructors provoked at once the kind of clash between the short-term demands of production and the long-term desirability of increasing the supply of skilled labour which ran through the whole history of training. They also raised the whole question of the merits of training in Government Centres compared with training in industry. So far as machine tools were concerned, the Machine Tool Control agreed to supply the Centres with a proportion of new and up-to-date tools, since trainees would obviously meet these in employment; the majority of tools used in the Centres, however, were older types. Even so there was considerable heartburning in at least one Regional Office of the Ministry of Supply about the number of new and scarce machine tools in the local Training Centre—so much so that the regional staff hesitated to encourage employers who were clamouring for such tools to visit the Centres and investigate the courses offered.

Similarly when the Ministry of Labour appealed to the supply Ministries for their assistance in finding 2,000 instructors for the Centres from industry, these Ministries felt strongly that the majority of instructors should come from firms engaged on non-essential work. The Ministry of Supply took the view that no labour of this type could be spared from the R.O.Fs.² On the understanding, therefore,

¹ H. of C. Deb., Vol. 364, Col. 384, 8th August 1940.

² There was the further difficulty that foremen and instructors in the R.O.Fs were paid lower rates than those offered by the Ministry of Labour, and the Ministry of Supply feared a rush of recruits for the Ministry of Labour posts and discontent among those whom they were obliged to retain. The Ministry afterwards secured Treasury agreement to raising the rates for instructors in the R.O.Fs to the same level as in the G.T.Cs.

that the R.O.Fs would train some 11,000 skilled and semi-skilled workers to help meet their own requirements, and would also train a considerably larger number for less skilled work, the Ministry of Labour contented itself with the agreement of the Ministry of Supply to release a token number from the R.O.Fs for instructional work in Government Training Centres; in practice the Ministry of Labour did not press for the implementation of this agreement. The Ministry of Supply did its best to fulfil its part of the bargain and already by December 1940 it could report considerable success in the development of training schemes in the R.O.Fs. By October 1944 100,000 operatives and supervisory staff had passed through training courses—mainly short courses for process workers—in the Filling Factories alone. From March 1942 training in the factories was directed and co-ordinated from headquarters and included not only production courses but training for stores personnel, Whitley Council members, nurses, etc.

In the course of the discussions on the release of men from the R.O.Fs to act as instructors in Government Centres the Supply Council of the Ministry of Supply recorded its view that the bulk of training must be carried out in industry and that the Ministry of Labour proposal for expanding Government Training Centres went too far. Training within industry had, it is true, the great advantage that factories could plan their training schemes exactly to meet their own needs. But the Ministry of Labour had good grounds for planning a large expansion of government training. For one thing, training concentrated in a number of larger centres was more economic than if it were spread out over many medium sized and smaller firms. Experience proved, however, that the Ministry of Supply was right in doubting if the planned expansion were not too great.

The Ministry of Labour was anxious to use the facilities of the Centres to train workers to a reasonably high degree of skill. Broadly speaking, the requirements of the engineering industry were firstly for highly skilled workers whose long training had to include considerable experience in the shops; secondly, at the other end of the scale, for machinists on repetition work, many of whom could well be trained in short periods, mainly on the job; and thirdly for an intermediate grade of skilled and semi-skilled workers who could undertake a limited range of skilled work, such as setter-operators experienced on one type of machine. The demand for such workers grew with the increase in mass production and the breaking up of skilled jobs. It was intended in 1940-41 that the Government Training Centres should chiefly concentrate on recruiting workers with little or no engineering experience and on bringing them within—for the majority of engineering trades—a period of four to

five months up to this intermediate level of skill.¹ It was hoped that after some experience in industry workers so trained would be excellent material for upgrading to fully skilled work.

The rapid increase in the demand for welding operatives made it even more essential than with other trades to supplement training within industry by government schemes. A number of the firms manufacturing welding equipment ran training schools, and some individual engineering firms had their own schemes, but these were not enough. In 1941, therefore, the number of welding places in Government Training Centres was increased to 320 places for arc and 380 for gas welding, and it was estimated that on a three shift system 5,000 trainees a year could be provided.² In fact between the outbreak of war and the end of August 1944 some 13,000 welders, of whom rather under one third were women, were trained in Government Training Centres.

A small proportion of places in the Centres was available for higher grade training. This was intended to assist firms with upgrading by training semi-skilled engineering workers as setters, tool-room fitters, etc. In such cases the employer continued to pay the man, who would return to his employment after training,³ and was allowed in agreeing prices with the supply Ministries to include the cost of working time thus lost in overhead expenses.

In all nearly 300,000 workers completed their training between 1940 and 1945 in engineering courses in Government Training Centres and in technical colleges operating government-sponsored training schemes. In addition there were some 80,000 workers who began but did not complete courses, predominantly on grounds of ill-health. The total numbers trained were very considerably less than the Centres could have produced if more recruits had been forthcoming. The primary cause of the shortage of recruits was that as labour of all types grew scarcer such labour as there was found its way straight into the factories. The urgent demands of employers for any type of labour and the resulting temptation to potential recruits for the Training Centres to go straight into industry inevitably led to the by-passing of the Centres. In the later years of the war even the Ministry of Labour was obliged to reduce the quota of labour allocated to the Centres; this happened for example in

¹ Some courses, e.g. in draughtsmanship, were longer. In addition to draughtsmanship, courses were provided in fitting, instrument making, machine operating, sheet metal working and welding. A Ministry of Labour official claimed that trainees after 16 weeks in a Centre would be equal to third-year apprentices in the work they could undertake.

² The Ministry of Supply and the Admiralty were jointly and directly responsible for running a training school for welding foremen and charge-hands at Portobello, near Edinburgh. But this was an exceptional arrangement and in 1945 the Ministry of Labour agreed to take over the school.

³ See p. 72 fn. 2.

1943 to meet the pressing needs of the aircraft industry. The growing labour shortage also led to a shortening of the time spent in the Centres by those who did pass through them. In 1943-45 some of the resources of the Centres were diverted to assist firms in developing their own training schemes. Within the factories themselves there was increasing pressure in these years of labour shortage to train wherever possible on the job.

The field of recruitment to Government Training Centres was, of course, progressively widened: when, in 1940, supplies of unemployed recruits dried up the Centres were opened to men on non-essential work who wished to train for employment in engineering and, in 1941, to women. In 1941 also it was decided that in order to stimulate recruitment trainees should be paid, in place of the allowances previously given, a wage approximating at the beginning of training to that paid to new entrants in industry; increments were given during training if a satisfactory standard was reached. This was, however, only a limited inducement, since the additional skill which trainees acquired in a Centre did not necessarily increase their financial prospects when they entered industry.¹

The difficulty in obtaining replacements also partly explained the reluctance of employers to release semi-skilled workers for training to higher degrees of skill.² If no replacement labour at all was available the men could perhaps not be spared,³ but in 1940 and 1941 green labour was relatively plentiful. Many employers, however, were unwilling to accept unskilled workers as replacements and to upgrade workers already in their employment in the place of men to be released for training. In December 1941 only 89 of the 370 places available in the North-West Region for higher grade training were filled, and the excellent facilities available in this and other areas were never fully used. In 1942 the M.A.P. suggested that labour supply inspectors should use compulsion to secure releases of labour for higher grade training, but the Ministry of Labour was not able to accept this suggestion. Great as was the pressure on firms for immediate production, the reluctance to face some temporary loss of output for the sake of an expansion of the skilled labour force was short sighted.

The pressure to get available labour into the factories and on to production as quickly as possible partly explained why the Ministry

¹ See p. 73 below.

² There was also considerable apprehension among firms that workers sent for training would not necessarily want to return to their original employment, or would be sent elsewhere by the Ministry of Labour. This persisted in spite of the assurances of the Ministries of Labour and of Aircraft Production that workers who did not voluntarily return would be directed to do so. The Ministry of Labour could not, however, prevent the Appeal Boards from allowing a man's appeal against directions.

³ Changeovers in production provided an opportunity which was not always used for releasing redundant workers for higher grade training.

of Labour decided early in 1942 to shorten the time spent by some trainees in the G.T.Cs. But there were other reasons for this decision. Whilst those firms who could do so no doubt had good reason for preferring to train in their own factories to meet their own specific needs, the fact remained that there was an ingrained prejudice in industry, amongst both employers and workers, against institutional training for skilled trades. This chiefly concerned higher grade training but it applied to the sixteen-week basic engineering courses as well. The result was that in some firms trainees from the Centres were not used on work requiring their full skill. This was not only a waste of the training they had received, but had financial repercussions which caused difficulties. By the time trainees had spent sixteen weeks in the Centres they were receiving in January 1942, for men and women respectively, 15s. and 9s. above the basic minimum time rate for new entrants to industry; but the Ministry found difficulty in getting employers to offer so much to trainees starting in employment.

The existence of this prejudice makes it very difficult for the historian to evaluate the evidence from industrial sources on the quality and suitability of the training given by the Government Training Centres. The Ministry of Supply's experience was that:

Contractors appear to be divided into two distinct groups in their attitude to Ministry of Labour trainees: those who are fully satisfied and those who feel that the trainees are of no value. Contractors who take the trouble to find out what the Ministry of Labour schemes can do for them, and to co-operate with those responsible in arranging training to suit their requirements, have, almost without exception, been fully satisfied. It has nearly always been found that those who regard the Ministry of Labour trainee as of no value have not taken the trouble to help the trainee on arrival at the factory and have not previously visited the Centre or school.¹

To assist the Centres in adapting their training to the needs of industry, special meetings were arranged at the Centres of groups of contractors engaged on a particular type of work; and individual firms lent jigs, drawings and samples of finished work. Instances could be found of large and notably efficient engineering firms who co-operated with the Centres from an early date, receiving during the course of the war hundreds of trainees; this in itself was sufficient proof of their general high standard.

¹ Co-operation between the Centres and prospective employers was particularly important in the training of welders. For though the ground work and basic principles of welding were best taught in separate training departments, training had to be completed in the production shops and it was essential that trainees should be given the necessary guidance during their initial period in employment. Complaints by employers about welding training in the Centres could often be traced to the fact that this guidance was not given.

It was, however, true that the normal four-monthly course provided by the Centres was not altogether meeting industrial requirements. Many employers chiefly wanted machinists trained to do repetition work of a comparatively simple kind. As early as the autumn of 1940, when the Ministries of Labour and Supply discussed the assistance which the Government Training Centres could give in training workers for the R.O.Fs, the Ministry of Supply said that the Centres could best help by providing two monthly courses to give new recruits the necessary grounding to make them competent machine operators. The Ministry of Labour replied that this would be a waste of the resources of the Centres. As it pointed out, it already had a scheme, the Emergency Training Scheme, providing courses of eight weeks' training in technical colleges, to meet this kind of need.¹ The popularity of these courses with employers and the success of this scheme indicated, however, the kind of training which industry preferred.

It was also felt by some firms that the courses in Government Training Centres were unnecessarily elaborate even to train the somewhat more skilled type of labour such as setter-operators proficient on one type of machine. Early in 1942, therefore, the sixteen-week courses were shortened to eight weeks, for all but the more promising trainees, who were to remain for the full sixteen weeks or longer; some of the theoretical instruction was cut out, the training was made less general and was concentrated more exclusively on one type of machine. Courses in draughtsmanship, which had been and remained longer than those for most engineering trades, were also shortened. The Ministry of Labour was still anxious to encourage the use of the longer courses, but from 1942 onwards many trainees remained for only eight weeks and were afterwards used in industry on comparatively simple work.

This shift in emphasis in 1942 from the training of the more skilled worker to the training of semi-skilled machinists was not surprising. Increasing numbers of employers had been persuaded of the necessity to train up their own labour to more skilled work; their demands for green labour were high and were, moreover, becoming increasingly difficult to meet from the normal employment market. The need for giving some preliminary training to repetition workers increased as more and more women quite unused to industrial work were drawn into the factories.

In view of the growing shortage of labour there was also bound to be a shift in emphasis towards training in the factories and, further, towards training on the job. Towards the end of the war,

¹ The Ministry of Labour also made arrangements for similar courses to be run by non-munitions employers and by munitions employers who could train in excess of their own requirements, but the numbers trained under these schemes were small.

moreover, as the labour force in the munitions factories first became static and then began to fall, the comparatively small intake required to replace wastage did not always justify the use of separate training departments. For much repetition work training on the job was in any case agreed to be the most suitable. It was, therefore, realised by the Ministry of Labour that despite the alteration in the length of courses in Government Training Centres all the remaining places would not be filled. The number of Centres was reduced by May 1942 to twenty-five as compared with the original thirty-eight and other Centres were subsequently closed.¹

As a result of the closing of these Centres a number of experienced managers and instructors were made available for other work. Since training facilities in some firms remained inadequate it was a natural development that the resources of the Centres should be used to assist firms in improving their own training arrangements. This was first done under a scheme known as the Training Within Industry Advisory Service. It originated with a suggestion made by the Deputy Director of Labour in M.A.P.² that a mobile squad of instructors from Government Training Centres should go round and assist the aircraft firms with their training problems.

Attention had already been given to these problems by the M.A.P. The Ministry had sent a number of circular letters to firms on the subject of training, although by 1942 it suspected that paper exhortation was getting it nowhere. In addition the regional labour staffs of the Ministry—as of all the supply Ministries—had co-operated with the Ministry of Labour in pressing firms to improve their own training arrangements and to make use of the Government Training Centres. But some Regional Offices of the M.A.P. had, through lack of time or interest, neglected training problems; in 1942, therefore, the Ministry allocated two headquarters officials to visit the Regions both to investigate their organisation for dealing with training and to assist in giving guidance to individual firms. The Ministry also assisted firms who were turning over to war production with their training problems. For example, when a paper mill and paper bag factory in Kent started making empennages for aircraft the M.A.P. arranged for groups of personnel from the factory to be trained by firms experienced in the work and arranged special courses at Maidstone Technical College. Key workers thus trained then taught the remainder.³

¹ Four of those closed had been used by the War Office for training soldiers in Service trades.

² This official was before the war Director of Training in the Ministry of Labour.

³ The M.A.P., in conjunction with the Prison Commissioners, also arranged a training course in Maidstone Prison where a number of men who eventually went into the aircraft industry were trained.

The aircraft industry was, however, very large; its intake of green labour at this time was high and it was felt that greater efforts were needed to help the backward firms in training it properly.¹ The new Minister of Aircraft Production (Sir Stafford Cripps) attached great importance to this matter. The Regional Personnel Officers of the Ministry's newly formed Production Efficiency Board² were therefore brought in to assist the existing regional labour staff in advising firms on training problems and the Training Within Industry Advisory Service was introduced. This Service, set up by the Ministry of Labour at the suggestion of the M.A.P., was available to the whole munitions industry. It provided for visits by the staff of individual firms to study training methods in the Government Training Centres and for visits to firms by staff from the Centres, who were if necessary loaned to firms full-time for short periods. Special women demonstrators were also available to demonstrate the degree of skill that women could attain. In addition the Ministry published a Manual for Employers on *Training New Entrants to Industrial Work*.

The rapid expansion of the use of welding and the comparative inexperience of many firms in this type of work made them particularly dependent on guidance from professional bodies like the Institute of Welding and from experts in government departments. The Welding Advisory Service attached to the Directorate of Scientific Research in the Ministry of Supply provided a common advice service to contractors of all the supply Ministries on all welding problems, including training.

Training in industry was not, however, always satisfactory; there was evidence of a considerable amount of faulty welding as a result of inadequate instruction; and, as the Ministry of Labour pointed out, the rapid dilution of the welding labour force had deprived it of any yardstick to measure the quality of the labour offered to firms. To meet such difficulties various attempts were made in the course of the war, on the initiative of the Advisory Service on Welding, the British Standards Institution and other bodies, to draw up standard courses in the various types of welding work which would be generally accepted for use in industry, in technical colleges and in Government Training Centres.³ A similar proposal had been discussed before the war, but nothing had been done because the en-

¹ Some firms when pressed to improve training facilities raised the question of cost. The cost of training labour for use on government work was, however, an admissible expense recoverable in price through overheads. Arrangements were made for Ministry of Labour inspectors to report cases in which firms complained of the cost of training to the supply Ministries for investigation.

² See pp. 229-30 below.

³ The syllabuses in use in the Training Centres had been drawn up with the advice of the Institute of Welding.

gineering and shipbuilding employers' organisations feared that any grouping of welders according to proficiency would disturb existing labour relations in these industries.

The employers' organisations maintained their objections at a conference held in September 1941 and the imposition of standard syllabuses proved to be out of the question. As a result of the discussions, however, the British Standards Institution, in co-operation with the Institute of Welding, prepared standard syllabuses and tests which were adopted by some employers. This, together with the work of the Government Training Centres and the assistance given to firms by the Advisory Service on Welding, led to greater standardisation and improvement of welding training.

A further development in assisting industry with its training problems was the scheme known as Training Within Industry for Supervisors (T.W.I.). This was based on an American scheme for training on the job which was reported to be having considerable success in munitions factories in the United States. The scheme aimed at improving the skill of supervisors at all levels from charge-hands upwards, both in the training and handling of workers and in production methods. There were no formal lectures, but a series of small group discussions were held in the factory concerned under the guidance of Ministry of Labour staff or, in the case of larger firms, of members of the firm's staff who had been trained in the methods used in T.W.I. The trainer confined himself to the discussion of principles and did not enter into discussion of any technical point, and could therefore be used in any factory, irrespective of the type of production concerned. T.W.I. was in fact used in many industries besides engineering. This scheme was very popular, as were also evening and other part-time courses in foremanship and production planning, conducted in convenient centres throughout the country.

Another training scheme was developed in the second half of the war by the Machine Tool Control which set up an Emergency Machine Tool Armament Corps. This consisted of volunteers from the machine tool companies who remained on the staff of their respective firms. E.M.T.A.C. squads usually visited firms for periods of from six to twelve weeks and gave direct instruction to employees, particularly to setters and toolroom staff, on the use of tools.

There is evidence to show that partly as a result of assistance from these various sources, the amount of training given by firms increased and its quality improved. Officers of the Directorate of Materials Production in the M.A.P. who investigated the causes of excessive scrap in the aircraft firms in 1944 concluded that it was not on the whole due to lack of training or experience on the part of the workers. By this time, however, programme reductions were being made and firms were getting rid of their least efficient workers.

(f) THE AMOUNT OF DILUTION ACHIEVED

In view of the many obstacles the amount of dilution finally achieved was very considerable. It is, however, very difficult to give any satisfactory statistical measurement of the progress of dilution during the war. There are no figures which show the extent of upgrading—which show, for example, how many upgraded or alternative skilled workers were doing the work of highly skilled turners and fitters. Figures do exist (see Table 3) which show the changes in the proportion of skilled to semi-skilled workers, but these changes resulted largely from changes in the methods of production. The figures are, moreover, of limited value because the definition of semi-skilled worker was neither stable over a period of time nor between different areas at any given time. 'Skilled' meant 'paid at skilled rates' not apprenticeship skilled. The number of machinists who fairly quickly became skilled at setting as well as operating their own machines increased rapidly with the extended use of mass-production methods and automatic machines; as the bargaining power of the trade unions increased more and more of these setter-operators and other workers of limited skill secured the skilled rate. This factor meant that, increasingly as the war progressed, the proportion of highly skilled to those of more limited skill was in reality less than the figures might suggest. Indeed in some factories in 1943 the percentage of men paid at skilled rates actually increased, but this did not mean that there was less dilution. The payment of skilled rates to many workers of only limited skill no doubt explained why the decrease in the proportion of workers rated as skilled was slight.

The definition of semi-skilled worker also varied between districts.¹ For example, in the marine and other engineering firms on the North-East coast or in Glasgow only an apprentice-trained craftsman would be paid the skilled rate;² setter-operators on single-purpose machines there would receive a semi-skilled rate. In Coventry, on the other hand, where in order to attract labour a fully skilled rate had been offered for a very wide range of operations, these workers would be rated as skilled. And while in Glasgow there would be a qualifying period of several years before an operator received even the semi-skilled rate, in the Midlands he would receive it irrespective of the time spent at the job.

No overall figures at all exist to show the degree of skill possessed by the women dilutees. The number of women employed in the engineering and allied industries increased from 411,200, or 18 per

¹ It was only in certain areas that recognised district rates for semi-skilled workers existed; elsewhere the rates were negotiated firm by firm.

² On Clydeside there were two grades of skilled workers, the five-year and the three-year men; the former were employed on centre lathe turning and the latter on capstan, milling and planing work, etc.

Table 3: Engineering and Allied Industries—Great Britain

Number of wage-earners (excluding office staffs) in the undermentioned categories expressed as percentages of the total number of wage-earners

| Industry | Date | Males | | | |
|--|------------|--|--------|-----------|-------|
| | | Skilled and Semi-Skilled (including apprentices and other persons being trained) | | Unskilled | Total |
| | | Paid at Skilled Rates | Others | | |
| Engineering and allied industries* | June, 1940 | 50 | 31 | 19 | 100 |
| | " 1941 | 84 | | 16 | 100 |
| | " 1942 | 51 | 36 | 13 | 100 |
| | " 1943 | 48 | 38 | 14 | 100 |
| | " 1944 | 48 | 38 | 14 | 100 |
| Engineering (incl. marine engineering) | June, 1940 | 51 | 30 | 19 | 100 |
| | " 1941 | 83 | | 17 | 100 |
| | " 1942 | 51 | 35 | 14 | 100 |
| | " 1943 | 47 | 39 | 14 | 100 |
| | " 1944 | 47 | 39 | 14 | 100 |
| Marine engineering | June, 1940 | 1 | 1 | 1 | 1 |
| | " 1941 | 80 | | 20 | 100 |
| | " 1942 | 57 | 24 | 19 | 100 |
| | " 1943 | 53 | 28 | 19 | 100 |
| | " 1944 | 50 | 29 | 21 | 100 |
| Motor vehicles, cycles and aircraft | June, 1940 | 48 | 36 | 16 | 100 |
| | " 1941 | 85 | | 15 | 100 |
| | " 1942 | 48 | 40 | 12 | 100 |
| | " 1943 | 47 | 40 | 13 | 100 |
| | " 1944 | 47 | 40 | 13 | 100 |

Source: Ministry of Labour and National Service

* See p. xiiin.

cent. of the workers employed, in June 1939 to 1,544,000, or 39 per cent., in December 1943. In June 1940 seventy-five per cent. of the women employed in the engineering and allied industries were in the skilled and semi-skilled categories and the remainder were unskilled. The proportion employed in the skilled and semi-skilled categories increased and between 1942 and 1944 stood at some eighty-four to eighty-five per cent. of the total.¹ How many of these

¹ The figures for the aircraft and motors section of the industry were approximately the same as for the engineering industry in general. In the marine engineering industry only some 65-70 per cent. of the women employed were engaged on skilled and semi-skilled work.

were skilled is not known; but it can be said that many were employed as semi-skilled workers and only a very small proportion in the highly skilled grades; many women were employed on welding work requiring various degrees of skill, and at this they excelled.

One instance may be quoted of successful dilution with women: in September 1942 it was reported that in a shop at one R.O.F. the operative labour force consisted of over 200 women (millers, turners, borers, fitters, etc.) working with 26 skilled men acting as instructors, foremen and setters; up to 50 per cent. of the factory's staff were women, although it was second only to Woolwich in the amount of experimental work done. Further dilution at the factory was held up by the shortage of women. This example from the R.O.Fs could of course have been paralleled in private industry.

Differing regional and sectional practices in the definition of semi-skilled work make it difficult to draw conclusions from statistics of the proportion of skilled to semi-skilled workers in the different sections of the engineering industry. On account of the differences in production methods the proportion of highly skilled workers to those of more limited skill was of course greater in, for example, the marine engineering than in the aircraft and motor vehicles sections of the industry; similarly the proportion of women employed varied very considerably, and here the statistics (see Table 4) are a reliable guide.

Differences in methods of production also partly explained dif-

Table 4: Proportion of Women employed in Various Sections of the Engineering Industry, Great Britain

| Industry | Women employed as a Percentage of Total Labour Force in mid- | | | | | | |
|--|--|------|------|------|------|------|------|
| | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 |
| Engineering, boilermaking, etc. (including marine engineering) . . . | 10.5 | 13.2 | 21.6 | 31.9 | 35.2 | 34.8 | 31.2 |
| Marine engineering . . . | 2.1 | 2.5 | 4.8 | 9.1 | 14.7 | 15.8 | 12.9 |
| Motor vehicles, cycle and aircraft manufacture and repair. . . . | 9.5 | 13.0 | 23.0 | 31.9 | 36.6 | 36.5 | 31.8 |
| Construction and repair of railway and other carriages. . . . | 5.0 | 5.8 | 9.7 | 14.8 | 16.2 | 16.3 | 15.0 |
| Electric cables, apparatus, etc. | 40.6 | 44.8 | 50.7 | 56.1 | 59.2 | 61.1 | 59.9 |
| Scientific instruments, watches, clocks, etc. . . | 37.0 | 40.6 | 42.8 | 46.1 | 48.4 | 49.9 | 50.1 |

Source: Ministry of Labour and National Service

ferences in the proportion of skilled workers employed by individual firms within any one section of the industry; and the proportion of skilled to other workers varied very widely. Necessity often drove the new factories to a greater effort in training and upgrading than was made in some of the older ones. After 1941 it became increasingly difficult for any firm to secure adequate supplies of skilled labour without upgrading workers already employed, and in the later years of the war differences in the amount of dilution achieved in various firms could sometimes be attributed to the amount of unskilled labour available to replace workers who were upgraded.

For though shortages of skilled labour were chronic, in the later years of the war they could often be attributed in the last resort to the shortage of unskilled labour. According to one war-time expert who was concerned with labour problems as an official in the Ministry of Production, shortages of particular kinds of skill remained to the end of the war a more serious problem than failures of total manpower supplies.¹ This may have been true in a number of individual firms and in some of the employment exchanges. On the other hand by the end of 1941 many firms had clearly realised the extent of the shortage of skilled labour and had devised their own measures to meet it; and by that date, too, the Government's policies towards training, dilution and the redistribution of skilled labour had largely been worked out. There were only a few shortages of specialised types of labour—the shortage of engineering draughtsmen was one—that became the subject of considerable discussion at national level in the later years of the war. The overriding pre-occupation in Whitehall from 1942 onwards was the shortage of labour in general, discussed in Chapter VII.

¹E. A. G. Robinson, 'The Overall Allocation of Resources' in D. N. Chester, ed., *Lessons of the British War Economy* (1951), p. 52.

CHAPTER IV

SHIPBUILDING LABOUR

I: THE RESERVES OF SKILLED LABOUR AND LABOUR TRANSFERS

(i)

Introductory

IN WAR-TIME as in peace-time the majority of shipbuilding workers were employed in the private shipyards. In 1943 nearly 180,000 workers were engaged on shipbuilding and repairing work in the fifty-two main firms (see Table 5). The five royal dockyards employed some 48,000 workers in those departments that were mainly concerned with shipbuilding and repairing work,¹ although only fifty to sixty per cent. of these were actually engaged on shipbuilding and repairing.²

This chapter will be concerned with both sections of the industry, but they cannot always be dealt with together. For the private shipyards and the dockyards did not differ merely in the form of ownership. The dockyards were larger than the average shipyard and undertook a wider variety of work. Apart from Harland and Wolff in Belfast, which employed some 16,000 workers in 1943, and some of the bigger naval firms, like John Brown with some 6,000 and Cammell Laird with 8,600, the majority of private shipbuilding³ firms employed between 1,000 and 2,000 workers. By comparison, Chatham dockyard employed at peak at the end of 1942 some 10,500, Devonport 13,900 and Portsmouth 15,700 workers in the four departments concerned *inter alia* with shipbuilding and en-

¹ In November 1942 employment in these four departments was as follows:

| | | |
|--------------|---------|--------|
| Captain's | | 2,700 |
| Constructive | | 20,800 |
| Engineering | | 16,350 |
| Electrical | | 8,750 |
| Total | | 48,600 |

Other departments such as the Director of Stores or the Civil Engineering departments do not concern this book.

² See p. 84 fn. 1 below.

³ 'Shipbuilding' is frequently used in what follows to cover the repair side of the industry as well.

gineering work. Rosyth, dismantled after the war of 1914-18, and reopened in 1939, employed 6,400 at peak in September 1944. Sheerness was much smaller with less than 3,000 workers. The great

Table 5: Operatives at Work in the Member Firms of the Shipbuilding Employers' Federation according to Type of Work*

Thousands

| Period | Naval Construction | Merchant Construction | Naval Repairs | Merchant Repairs | Total |
|----------------------------|--------------------|-----------------------|---------------|------------------|-------|
| 17th April 1939 | 30.6 | 27.7 | | 32.3 | 90.7 |
| 30th October 1939 | 41.1 | 25.5 | | 53.1 | 119.7 |
| February 1940 (average) | 43.4 | 23.3 | 28 | 31.7 | 126.4 |
| March 1940 | 46.9 | 23.6 | 27.3 | 35.3 | 133.2 |
| 2nd Quarter 1940 | 49.5 | 27.4 | 30.5 | 36.6 | 144 |
| 3rd Quarter 1940 | 55 | 28.4 | 26.1 | 39.5 | 149 |
| 4th Quarter 1940 | 55.1 | 29.7 | 31 | 38.2 | 154 |
| 1st Quarter 1941 | 53.5 | 30.4 | 32.1 | 38.8 | 154.8 |
| 2nd Quarter 1941 | 53.9 | 33.6 | 29.7 | 45.4 | 162.6 |
| 3rd Quarter 1941 | 53.4 | 34 | 28.5 | 46.1 | 164 |
| 4th Quarter 1941 | 57.2 | 36.2 | 30.1 | 48.3 | 171.8 |
| 1st Quarter 1942 | 57.2 | 35.9 | 28.5 | 47.1 | 168.7 |
| 2nd Quarter 1942 | 59.1 | 37.2 | 28.9 | 47.1 | 172.3 |
| 3rd Quarter 1942 | 56.6 | 36.4 | 27.5 | 45.1 | 165.6 |
| 4th Quarter 1942 | 59.5 | 40.3 | 29.6 | 46.2 | 175.6 |
| 1st Quarter 1943 | 58.1 | 39.7 | 31.4 | 45.2 | 174.4 |
| 2nd Quarter 1943 | 60.2 | 39.8 | 31.8 | 46.4 | 178.2 |
| 3rd Quarter 1943 | 58 | 36.1 | 29.7 | 43.2 | 167 |
| 4th Quarter 1943 | 62.2 | 37.5 | 29.6 | 47.4 | 176.7 |
| 1st Quarter 1944 | 60.1 | 35.9 | 31.3 | 47.1 | 174.7 |
| 2nd Quarter 1944 | 60.1 | 35 | 27.1 | 47.9 | 170.1 |
| 3rd Quarter 1944 | 56 | 31.9 | 27.9 | 41.6 | 157.4 |
| 4th Quarter 1944 | 58.7 | 34.4 | 32.3 | 41.3 | 166.7 |
| 1st Quarter 1945 | 55 | 34.7 | 31.3 | 41.3 | 162.3 |
| 2nd Quarter 1945 | 52 | 38.5 | 27 | 46.3 | 163.8 |
| 12th September 1945 | 41.6 | 42.5 | 20.1 | 54.2 | 158.4 |

Source: Shipbuilding Employers' Federation

* See p. 117n.

majority of shipbuilding workers employed by the Admiralty were employed in these five dockyards; a few thousand in addition were employed in new war-time bases such as those established in the Orkneys and on the West Coast of Scotland chiefly for the repair of escort vessels. Thus unlike the private yards, concentrated as Table 6 shows in Scotland and Northern England, the dockyards were chiefly centred in the South. The dockyards were mainly concerned with the construction, and more particularly with the repair and refit, of naval vessels, but a considerable number of dockyard employees were engaged on work which had no counterpart in private

industry.¹ The composition of the dockyard labour force was also considerably different. The dockyard shipwright in particular, who was shipwright and plater, sheet metal worker, welder and plumber as well, had no counterpart in private industry.

Table 6: *Geographical Distribution of Contract Labour* in the Shipyards according to Types of Work, September 1943*

| Districts | No. of Firms | Naval | | Merchant | | Total | % |
|------------------------------|--------------|------------------|-------------------------|------------------|-------------------------|---------|------|
| | | New Construction | Repairs and Conversions | New Construction | Repairs and Conversions | | |
| North-East Coast | 89 | 19,574 | 8,180 | 21,754 | 8,436 | 57,944 | 23 |
| West Coast of Scotland . . . | 104 | 27,622 | 3,643 | 11,851 | 7,506 | 50,622 | 20 |
| North-West Coast | 141 | 11,020 | 6,771 | 1,742 | 19,471 | 39,004 | 15.2 |
| London . . . | 196 | 8,005 | 8,496 | 385 | 5,543 | 22,429 | 8.8 |
| Southampton . . . | 94 | 10,732 | 4,415 | 327 | 2,899 | 18,373 | 7.2 |
| East Coast of Scotland . . . | 75 | 5,541 | 3,852 | 4,340 | 2,029 | 15,762 | 6.2 |
| Humber . . . | 90 | 2,186 | 4,425 | 1,523 | 3,937 | 12,071 | 4.8 |
| Bristol Channel . . . | 65 | 2,117 | 3,076 | 192 | 6,800 | 12,185 | 4.8 |
| Falmouth . . . | 49 | 4,235 | 1,205 | 2 | 2,149 | 7,591 | 3 |
| N. Ireland . . . | 8 | 8,843 | 2,565 | 5,214 | 1,056 | 17,678 | 7 |
| Grand Total | | | | | | | |
| United Kingdom . | 911 | 99,875 | 46,628 | 47,330 | 59,826 | 253,659 | 100 |

Source: Admiralty Contract Labour Branch Analysis of Ministry of Labour September L.I. Returns

* Operatives only.

Both in the private shipyards and in the dockyards the supply of skilled labour was from the beginning, and remained throughout the war, a—perhaps the—major problem. The labour supply problems of the shipyards differed in many fundamental ways from those of the light engineering and aircraft factories. In the first place, comparatively little dilution proved possible in shipbuilding and repairing, where the skilled labour force only fell from some fifty per cent. of the total at the beginning of the war to some forty-eight per cent. in 1943.² Secondly, shipbuilding and repairing was heavy, cold, dirty work. Much of it had to be done out of doors in all

¹ Some 50–60 per cent. of the total labour force of the vote 8 departments was employed on the construction, refitting and repair of ships, and the rest on such miscellaneous services as the installation and upkeep of appliances of all kinds—from guns to wash basins and black-outs—in gunnery schools, victualling yards, barracks, hospitals or R.N. Air Stations (Portsmouth in 1941 was responsible for 380 such establishments and Rosyth for some 200), or the manufacture of valves, torpedo tubes and other items for which there was an urgent stores or operational demand which could not be met in time from outside industry. For the numbers employed in the dockyards and other bases on shipbuilding and repairing work see Table 7.

² See p. 141 below.

weathers, with the persistent din of riveting in the ears, or in small stuffy compartments filled with the fumes of red lead. Thirdly, there was the influence, material and mental, of the acute depression which the shipyards suffered between the wars. The depression affected the private shipbuilding industry in many ways: its plant was old, it was short of managerial and supervisory staff and of skilled labour and the average age of its existing labour force was high. Memories of the past and fear of unemployment in the future strengthened both employers and the strong craft trade unions in their dislike of dilution. The depression was partly to blame for the bad industrial relations which existed in some districts and some yards, and which, in the field of labour supply, made the negotiation of dilution agreements more difficult. Moreover, in the early years of the war wage rates were relatively unattractive and people were not anxious to return to or to enter an industry where present conditions were unattractive and future prospects poor. All this made the industry's and the Government's task more difficult. Even the recruitment of Ministry of Labour and Admiralty staff with knowledge of the industry was limited by the shortage of technical and managerial staff.

There was another problem which increased the difficulties of shipbuilding labour supply: the different balance of shipbuilding trades required by different types of shipbuilding and repairing work. There were some seventeen trades of major importance in the industry, most of them covered by different trade unions, and very few of them interchangeable. These trades fell into two groups: the basic ironworking (hull) trades, such as platers, riveters, caulkers, and the finishing trades, such as joiners, fitters, electricians and painters. These trades were required in varying proportions according to the type of work in hand and to the stage in building reached. In peacetime the shipbuilder's aim was to keep a balanced labour force and to secure appropriate work for it, but his endeavours were often frustrated by the fluctuation in demand for ships. In war-time total demand was more constant; while the planning of work to minimise fluctuations in labour requirements did have some success, particularly on the merchant side. But such planning was made very difficult by frequent changes in staff requirements to meet new strategic and tactical needs.

For example, because of the elaborate defensive and other equipment required by a warship, naval construction needed a higher proportion of fitting out labour than merchant work;¹ when,

¹ An increasing amount of defensive and radar equipment was, however, being provided on all types of ships and additional accommodation was needed for wireless and gunnery crews. The crew complement of a normal tramp ship was double its peacetime size by the end of 1943. As a result of these developments the proportion of electricians to other tradesmen employed in the shipyards increased as the war progressed.

therefore, in 1943 a number of escort vessels were built in yards which had previously built only merchant ships the escort vessels required four to five times the amount of fitting out labour needed on the merchant ships they replaced. Conversely, the substitution of tank landing craft for naval and merchant vessels made fitting out labour redundant. The heavy demand for conversion and repair work and for degaussing in the early years of the war caused a shortage of fitting out labour, especially of electricians. This happened even in the dockyards which normally undertook a fair amount of new construction in peace-time, but which had turned over almost entirely to repair and conversion work in the early years of the war. This resulted on the one hand in a shortage of electricians and engineering fitters and on the other in some under-employment among shipwrights. The demand for electricians again became exceptionally heavy over the whole industry in the later stages of the war when ships were being fitted out for service in the Far East. The repair side of the industry provided another example of the difficulties in securing continuous employment for a balanced labour force; these were particularly great in the repair yards because the quantity as well as the type of work in hand varied very considerably; certain districts concentrated almost entirely on repair work and when this fell off for seasonal or strategic reasons men had to be transferred away from home if they were to remain in the industry.

Nor did the maintenance of a balanced labour force depend only upon the work coming into the yard. Provision of an even flow of work for any trade depended also, for example, upon adequate numbers of, and satisfactory output by, other trades—a condition which was not always fulfilled. From whatever cause they arose the constant variations in demand made the need for mobility of labour between yards and districts and for interchangeability between trades matters of major importance in shipbuilding labour supply.

Shortages of shipbuilding labour were all the more conspicuous in that they were not obscured by any serious shortages of capacity and machine tools. Many shipyards were very cramped, and their equipment old, but capacity in 1939 was relatively plentiful; in September 1939 all available berths in active use were full, but many yards were undermanned. The annual launching capacity of the industry was estimated at about three million gross tons in 1918 and by the 1930's had reached, if only through technological progress, some 3½ million tons; but the annual output of merchant ships fluctuated between 1921 and 1938 from a peak of 1,523,000 tons in 1929 to 188,000 and 133,000 tons respectively in the extreme depression of 1932 and 1933.¹ In the early 1930's National Ship-

¹ *Lloyd's Register Shipbuilding Returns*, figures to nearest thousand.

builders Security Limited closed 150 berths, equal to over one million tons annual building capacity;¹ the majority of these were dismantled, though some were retained on a care and maintenance basis. Even so at the beginning of 1938, when the peak of naval and merchant work in the years immediately before the war was reached, only about two-thirds of the physical capacity of active yards was in use. The idle berths remained; but the labour force drifted away. The number of insured workers fell by some 100,000 between the wars, but in spite of this the workers who remained suffered heavy unemployment; as late as July 1939 20 per cent. of the 176,000 insured workers in the industry were unemployed.

At the outbreak of war, therefore, the plant and capacity of the yards—particularly of those engaged on merchant work—exceeded their available labour force. But other factors of production were of course involved. To some, though not a very great, extent output suffered from occasional shortages of materials. In the early months of the war there was a shortage of steel which caused idleness among the existing labour force and prevented its expansion. In 1941 heavy naval construction was limited by the available supply of armour plate. But apart from these temporary difficulties the supply of raw materials did not seriously limit the output of hulls. More damaging in their effect on production were shortages of components.

Shipbuilding was an assembling industry and the output of completed ships depended on the ability of the marine, electrical and general engineering industries to provide engines, auxiliary machinery, gun mountings, guns and equipment of all kinds. Since naval vessels contained a far greater amount of such equipment than merchant ships, naval construction suffered far more than merchant shipbuilding from shortages of equipment. Though the labour supply problems of the naval yards were great, warship production was throughout the war hampered even more by delay in the provision of building information and fittings, and by a shortage of fitting out capacity, than by labour shortages in the yards.² On the merchant side, however, after a serious bottleneck in the supply and installation of engines and boilers, which lasted throughout 1940 and 1941, production was largely determined by the labour available in the shipyards, particularly by the supply of riveters (and failing them of welding equipment and welders) and the rate of 'closing the work'.

¹ *Lloyd's List and Shipping Gazette, Annual Review, 1935.*

² See M. M. Postan, *op. cit.*, pp. 49-50, 299-300.

(ii)

Programmes and Labour Requirements, 1939-41

In December 1939 the Interdepartmental Committee on Labour Requirements proposed that the number of operatives¹ on shipbuilding and repairing, which was some 158,000 in the autumn of 1939, should rise to 200,000 in the summer of 1940 and possibly further in 1941; when, early in 1940, the merchant programme was expanded the figure of 200,000 was increased to 220,000. By the end of 1940 the industry did in fact employ nearly 200,000 operatives. During the crisis in labour supply at the beginning of 1941² the shipbuilders estimated their additional requirements at 10,000 workers; the Admiralty regarded this as conservative and asked the Ministry of Labour for 10,000 every two months; but as it turned out the number of operatives employed increased by less than 30,000 in 1941.

The greatest share of this labour went to conversion and repair work, for in the early years of the war, from September 1939 to the summer of 1941, emphasis within the shipbuilding programme was on this type of work. By February 1940 some 2,145 merchant ships had already been taken up for conversion for minesweeping or other duties. In addition, merchant ships had to be provided with defensive equipment; and soon after the outbreak of war the Germans began to use the magnetic mine, which created a large demand for electricians for degaussing both naval and merchant ships. The events of the spring of 1940 brought a vast increase in repair work, both naval and merchant. Seventy-three destroyers alone were laid up in dock after Dunkirk,³ while by mid-March 1941, as a result of the U-boat campaign and of particularly severe winter weather, the number of merchant ships repairing or awaiting repair in British ports had reached the alarming figure of over 2½ million tons. The demands on labour for repair work were such that by the spring of 1942 the labour force in firms affiliated to the Shipbuilding Employers' Federation engaged on naval and merchant repairs was 77,500, nearly half their total labour force, compared with 32,000 in April and 53,000 in October 1939;⁴ by far the greatest increase had been on the merchant side.

¹ i.e. excluding administrative, technical and clerical workers.

² See pp. 90-1 below.

³ First Lord's speech on the Naval Estimates, H. of C. Deb., Vol. 378, Col. 385, 26th February 1942.

⁴ See Table 7. Before June 1940 the more comprehensive Ministry of Labour statistics of numbers employed in the shipbuilding industry did not show the type of work on which men were engaged.

Table 7: Numbers employed in (a) Shipbuilding and Ship-repairing* and (b) Marine Engineering, Great Britain, according to Types of Work

Thousands

| | Total | SHIPBUILDING AND SHIP-REPAIRING | | | | | | | MARINE ENGINEERING |
|-----------------|-------|---------------------------------|----------------|---------------|-------------------------|-------|------------------|-------------------------|--------------------|
| | | Naval Vessels | | | | | Merchant Vessels | | |
| | | Total | H.M. Dockyards | Private Yards | | Total | New Work | Repairs and Conversions | |
| | | | | New Work | Repairs and Conversions | | | | |
| 1939 | | | | | | | | | |
| June . . . | 144.7 | | | | | | | | 52.2 |
| 1940 | | | | | | | | | |
| June . . . | 203.1 | 130.3 | 26.4 | 62.4 | 41.5 | 72.8 | 28.8 | 44.0 | 58.9 |
| September . . . | 208.6 | 131.3 | 28.6 | 65.8 | 36.9 | 77.3 | 28.1 | 49.2 | |
| December . . . | 215.5 | 135.2 | 29.5 | 68.5 | 37.2 | 80.3 | 30.6 | 49.7 | |
| 1941 | | | | | | | | | |
| March . . . | 221.7 | 139.8 | 30.0 | 67.1 | 42.7 | 81.9 | 31.6 | 50.3 | |
| June . . . | 232.4 | 141.9 | 30.1 | 73.0 | 38.8 | 90.5 | 36.0 | 54.5 | 69.2 |
| September . . . | 234.9 | 141.9 | 30.1 | 74.3 | 37.5 | 93.0 | 36.6 | 56.4 | |
| December . . . | 239.5 | 146.3 | 33.5 | 75.1 | 37.7 | 93.2 | 35.9 | 57.3 | |
| 1942 | | | | | | | | | |
| March . . . | 244.3 | 148.6 | 34.9 | 75.3 | 38.4 | 95.7 | 37.2 | 58.5 | |
| June . . . | 249.3 | 153.6 | 35.4 | 78.2 | 40.0 | 95.7 | 38.2 | 57.5 | 71.7 |
| September . . . | 257.7 | 158.7 | 36.2 | 81.4 | 41.4 | 99.0 | 40.5 | 58.5 | |
| December . . . | 260.5 | 158.3 | 36.1 | 81.6 | 40.6 | 102.2 | 43.1 | 59.1 | |
| 1943 | | | | | | | | | |
| March . . . | 265.1 | 163.3 | 36.3 | 83.0 | 44.0 | 101.8 | 42.8 | 59.0 | |
| June . . . | 272.3 | 167.5 | 36.7 | 87.5 | 43.3 | 104.8 | 42.0 | 62.8 | 88.9 |
| September . . . | 272.5 | 170.1 | 36.7 | 89.3 | 44.1 | 102.4 | 42.9 | 59.5 | |
| December . . . | 272.3 | 168.5 | 37.8 | 88.0 | 42.7 | 103.8 | 42.2 | 61.6 | |
| 1944 | | | | | | | | | |
| March . . . | 271.7 | 169.7 | 37.5 | 87.7 | 44.5 | 102.0 | 40.7 | 61.3 | |
| June . . . | 271.1 | 164.6 | 37.4 | 88.3 | 38.9 | 106.5 | 41.3 | 65.2 | 87.4 |
| September . . . | 265.5 | 168.8 | 37.4 | 86.2 | 45.2 | 96.7 | 41.0 | 55.7 | |
| December . . . | 260.6 | 167.5 | 37.1 | 82.7 | 47.7 | 93.1 | 40.0 | 53.1 | |
| 1945 | | | | | | | | | |
| March . . . | 258.7 | 161.4 | 36.7 | 77.0 | 47.7 | 97.3 | 41.6 | 55.7 | |
| June . . . | 252.3 | 148.4 | 35.7 | 73.9 | 38.8 | 103.9 | 42.5 | 61.4 | 80.5 |

Source: Admiralty and Ministry of Labour and National Service

* Males under 65 and females under 60, but excluding non-manual workers earning over £420 per annum. Part-time female workers are included, two being counted as one unit. See also p. 117n.

With the outbreak of war the emphasis within the naval programme shifted from the larger fleet units to the provision of small vessels for convoy escort and anti-submarine duties. Until 1942 the building of larger naval vessels had to be curtailed in favour of smaller ships, and of repair and conversion work. Nevertheless after merchant repair work naval new construction received the

largest share of new entrants to the shipbuilding industry between the outbreak of war and the end of 1941. By the end of 1940 the labour force employed on this work had increased by some 14,000, from 41,000 to 55,000, compared with an increase of only 4,000 on merchant building work. During 1941, however, the numbers employed on naval new construction actually fell, owing to diversions to other work, and by the end of the year had only risen to 57,000, an increase of 2,000 during the year compared with an increase of some 6,500 on merchant building.

It had always been realised that merchant ship production in the first year of war would depend on the rate of production and the size of the labour force at the outbreak of war. Owing to the grant of a shipping subsidy in July 1939, the depression in the industry had been checked.¹ Nevertheless the labour force on merchant new construction fell from about 48,000 in 1936-37 to 28,000 in April 1939 and was only 25,500 at the end of October in spite of the increase in work. On the outbreak of war the War Cabinet approved the principle of maintaining an annual output of not less than 1,100,000 gross tons and hoped that a rate of building of 1 million tons a year would be reached by the spring of 1940. But the sudden increase in conversion work diverted labour from merchant construction; and, in any case, there was a serious shortage of steel which prevented the expansion of the labour force. By March 1940, the labour force engaged on merchant construction had fallen further to 23,600. In February, when merchant output had only reached the rate of 750,000-800,000 tons a year, special plans were made to expand merchant production. The responsibility for merchant production was taken over by the Admiralty from the Ministry of Shipping in order to centralise the control of shipbuilding capacity, the naval programme was cut to provide more steel and labour for merchant work and the target of 1,500,000 tons a year was set.² This proved impracticable and was later reduced but during the last four months of 1941 output was at the rate of 1,400,000 gross tons a year. By the end of 1941, the numbers employed on merchant building in the main firms had risen rapidly to over 36,000.

The demands of the greatly expanded merchant programme fell heavily on the ironworking trades, but the emphasis on conversion and repair work, the high demand for electricians for degaussing and the increasing complexity of equipment called for a disproportionate increase in the finishing trades and particularly in electricians. Demands were building up throughout the winter of 1940 and early in 1941, when the repair load reached its peak, the storm

¹ Cf. Sir Amos Ayre, 'Merchant Shipbuilding during the War' in *Proceedings of the Institution of Naval Architects*, 1945, p. 3.

² M. M. Postan, *op. cit.*, p. 62.

broke. The difficulties that had arisen on the repair side were at least as much due to capacity as to labour shortages. Nevertheless it was clear that resolute action to mitigate the labour shortage was needed.

(iii)

Labour Supply, 1939-41

As a result of this crisis in the ship-repairing industry efforts were made to direct labour from naval new construction to repair work and an unsuccessful attempt was made to build up a double day shift in some of the repair yards.¹ More important, discussions held at this time between the Admiralty and the Ministry of Labour on shipbuilding labour requirements led up to the making of the Essential Work (Shipbuilding) Order and of the Shipbuilding Industrial Registration Order, both of which are described in more detail below.

In the first years of the war the shipbuilding industry was able to call on a certain amount of ready trained skilled labour, apart from the steady supply of skilled recruits through apprenticeship. There were, first, the unemployed shipbuilding workers, most of whom had been re-absorbed into the industry by the end of 1940; secondly there were tradesmen from other industries, such as electricians from building or engineering; and thirdly there were tradesmen who had left the industry for other work during the depression, who were drawn back into the industry during 1941 and 1942.

Unfortunately, however, there were fewer trained men available in the finishing trades, which were in greatest demand, than in the basic ironworking trades; for most fitters, turners or electricians who had been thrown out of shipbuilding work had already found employment in the engineering and aircraft industries from which they could not easily be removed. Moreover many of the ironworkers available were elderly or had lost health, hardiness or skill through unemployment or long years away from their trade. Nevertheless the industry received valuable additions to its labour force from the three sources mentioned above. Between June 1939 and June 1941 the numbers employed on shipbuilding and repairing work (including those employed in the royal dockyards) increased from 144,700 to 232,400.² The high demand for electricians was more than met in the summer of 1941 by the transfer of men from other industries; and as a result of the influx of ready trained labour the industry was

¹ See pp. 309-10 below.

² See Table 7.

able largely to postpone dilution among platers and riveters until 1942.

(a) LOSSES TO THE SERVICES

The increase in the shipbuilding labour force was achieved in spite of certain losses. Although measures had been taken to prevent the call-up of shipbuilding workers with commitments to the Services in the event of war, the industry lost a number of skilled and other workers in the winter of 1939-40. According to the Shipbuilding Employers' Federation, by April 1940 some 6,300 Reservists, Territorials and others, of whom about 1,250 were skilled, had been called up.¹ Following pressure from the Federation and the Confederation of Shipbuilding and Engineering Unions a number of the skilled men and apprentices were released in the course of 1940, some for work on tank landing craft. Shipbuilding workers in specified occupations and age groups who were not already Territorials and Reservists were of course protected under the Schedule of Reserved Occupations from call-up in war-time. Soon after the outbreak of war arrangements were made for firms on munitions work to obtain deferment for individual workers not covered by the Schedule, provided the supply department concerned supported the application; in the course of the war, however, the less skilled workers so deferred were dereserved. The skilled and some of the semi-skilled workers, like platers' helpers, were never throughout the war called up for general service.² But in the course of the war the deferments of less skilled workers were cancelled; for example labourers and fitters' mates, who were vitally important to the industry, both in their own capacity and as material for upgrading, were liable to be called up for general service if they were under thirty-five years of age.

Skilled men were not called up for general service but some were lost to the shipbuilding industry in other ways. Thus losses of workmen appointed as overseers and transferred abroad were a considerable drain on the skilled dockyard labour force though a far smaller one on the private firms'. The dockyards were the chief source of recruitment of Admiralty overseers in contractors' works and between September 1938 and the end of 1943 over 700 technical subordinate officers and some 460 workmen were appointed to this work. Workmen transferred abroad were a more serious loss. Dockyards abroad were normally manned partly by local recruitment and partly by transfers from home, but in the course of the war local recruitment became increasingly difficult. By August 1941 nearly all

¹ In February the Ministry of Labour put the figure considerably higher at 9,000, but this probably included shipbuilding workers who were unemployed.

² The skilled workers were, however, liable to be called up in their trades for the Navy or for the Fleet Repair Bases.

the established workmen in home dockyards who could be spared had been transferred abroad and the Admiralty had been obliged to offer permanent pensionable employment as a prize to anyone who would volunteer, but even so it became increasingly difficult to obtain sufficient volunteers. Some hundreds of skilled men were also recruited direct from outside industry for service in Gibraltar dockyard. The Ministry of Labour had, however, no powers to direct civilians abroad and this fact, together with the disadvantage of employing civilians in operational areas, resulted in the decision in July 1942 to form a special branch of service in the Navy, 'Special Repair Ratings (Dockyard)'. The Admiralty continued to transfer civilian workmen to the dockyards like Gibraltar, but the new bases in the Indian Ocean, established to replace Hong Kong and Singapore, and in other operational areas were staffed by Repair Ratings.

Between September 1938 and the end of 1943, 2,600 dockyard workmen and 418 technical subordinate officers were appointed abroad as civilians. Private industry suffered no similar loss, but shared the burden of providing the Special Repair Ratings who were expected in 1942 to be recruited from private industry and the dockyards in the proportion of 5 : 1. In November 1944 the complement of the Special Repair Service was 94 officers and 4,700 men. Losses of dockyard shipwrights were particularly serious because they were very difficult to replace; and those who went were the younger men.¹

(b) THE ABSORPTION OF THE UNEMPLOYED

To return to the measures for increasing the labour force: the most obvious source of recruitment was the unemployed. In February 1939 there were some 37,000 workers wholly unemployed whose last employment had been in the shipbuilding industry; they amounted to 21·4 per cent. of the industry's current labour force. Although by February 1940 this number had fallen, it was still high and stood at 14,500, or 8·4 per cent. of the industry's labour force. But only a minority of the unemployed workers were skilled and not even all of these were suitable for re-employment in the industry. The Shipbuilding Employers' Federation complained that the published figures were misleading and were a stumbling block if they asked the unions for dilution; both they and the Confederation of Shipbuilding and Engineering Unions therefore pressed for a review of the registers.

This was begun on the Clyde and the Tyne in March 1940. In June the registers of unemployed in all skilled shipbuilding occupations throughout the country were reviewed, the men were interviewed by panels of employers and workers and classified according

¹ See p. 147 below.

to their suitability for employment. As a result of the review it transpired that only 2,000 skilled workers were unemployed in June and of these nearly 400 were thought to be unsuitable for re-employment in shipbuilding, through age or physical disability. For example, many of the unemployed workers were elderly hand riveters who were not easy to re-train as machine riveters. The review of the registers also revealed that there were very few unemployed workers in the fitting out trades which were in great demand in the shipbuilding industry at that time because of the large amount of conversion work in hand. Unemployed turners and electricians from the shipyards or from any other industry had long since found employment in engineering and aircraft production. There were only 12 ship electricians, 50 shipwrights and 75 platers unemployed at the time of the review compared with 400 riveters and 190 holders-up.

It was not always easy to place the unemployed men who were available for employment. Some firms did indeed take great pains to rehabilitate men who had been long unemployed but others did not. Sometimes the men themselves objected to being placed where the Ministry of Labour wanted them to go. For example, in December 1940 there were seventy unemployed riveters at Jarrow who resisted the Ministry's attempts to persuade them to accept work on new construction, preferring intermittent but more highly paid repair work. Until the summer of 1940 the Government had no power to compel the unemployed workers to accept the jobs they were offered and even thereafter powers of direction were used sparingly.¹

The extent of unemployment among shipbuilding workers in mid-1940 is, however, evidence that, apart from the shortage of electricians, the labour supply position in the industry was as yet relatively easy. For even if the number of skilled men unemployed was small there were still many semi-skilled men, who were suitable as dilutees, without work. The numbers employed on shipbuilding and repairing (including the royal dockyards) increased between June 1939 and September 1940—mainly owing to the absorption of the unemployed and of men from other industries—from 144,700 to 208,600.² This was a more rapid rate of increase than at any time in the war and, on the whole, and again excepting electricians, it represented the absorptive capacity of the shipyards. For the managements could only gradually build up to full production after being underloaded, and recruitment was also held up through shortages of steel. By November 1940, however, when a further review of the unemployed registers was undertaken, only 4,000 skilled and unskilled shipbuilding workers were unemployed and many of these proved unsuitable for re-employment in the industry. The reserve was now

¹ See pp. 64-5 above.

² See Table 7.

very nearly exhausted. Nevertheless, owing to the nature of shipbuilding work there were often temporary redundancies in individual districts and trades. And well into the war the Boilermakers' Society sometimes opposed dilution because there remained elderly riveters for whom it was difficult to find employment.

(c) THE TRANSFER OF SKILLED LABOUR FROM OTHER INDUSTRIES

Most of the finishing trades in shipbuilding were also common to engineering and to building, and there were riveters and platers in railway workshops and in the constructional engineering industry who could be used in the shipyards. There was from the beginning of the war some movement of tradesmen from other industries into shipbuilding. For example, in the early months of the war a number of unemployed house electricians entered the shipbuilding industry but their numbers were not as large as they might have been. Wage rates in the building industry were higher than in shipbuilding, especially in London, where many of the unemployed were. The electricians demanded London rates, subsistence and travelling allowances as a condition of transfer to other districts. The refusal of the Shipbuilding Employers' Federation to do more than recommend firms to pay outward fares and of the Government to assist in any way strengthened the men's preference to wait for building work in London. Some electrical and other workers were also being released in the engineering industry owing to the contraction of less essential work; but there too recruitment for the shipyards in 1940 was difficult partly because the aircraft industry enjoyed higher priority but chiefly because the aircraft and light engineering industries were more attractive. This relative unattractiveness of shipbuilding was the more marked in the early years of the war when the fitting out tradesmen in the industry were time workers.¹ Indeed not only were men reluctant to enter the shipbuilding industry; they were drawn away from the shipyards to the aircraft and engineering factories. 140 workers, mostly electricians, left a Merseyside shipbuilding firm in the last six months of 1940 for neighbouring factories, in spite of efforts by the firm and by Ministry of Labour officials to dissuade them.

The shortage of electricians in the shipyards remained acute and early in 1941 some of the electricians made available from more essential industries by the raising of the reservation age were allocated to shipbuilding. With these and the electricians transferred under the Industrial Registration Order² the current demand was satisfied by mid-1941. Indeed in certain districts in the summer of

¹ See pp. 328-32 below.

² See pp. 97-100 below.

that year electricians were put into naval building firms as they became available, at the expense of overmanning the work in hand, as an insurance that they would be available when needed. At later periods in the war, as in 1942 and early 1943 and again in 1944-45, when the shipbuilding industry had a high priority, additional electricians and fitters from engineering factories were transferred to the shipbuilding industry; and throughout the war building tradesmen—joiners, plumbers, carpenters and painters—were recruited for the shipyards when they could be spared from their own industry.

There was also a small trickle of riveters and platers into the shipyards from outside, for riveters and platers with constructional engineering experience could, with some additional training, be used on ordinary ship construction. But conditions in the shipyards were not very attractive. They involved work out of doors and at heights whereas in the constructional engineering shops work was done under cover and at ground level. Conditions in outside constructional work were, it is true, more like those in shipbuilding, but on the whole the employers did not find constructional engineering men very suitable for ship work, and the men themselves were not anxious to transfer in case they should not make an adequate wage on piece work. The greatest use made of them was in the constructional engineering shops on the prefabrication of tank landing craft, tramps and frigates.

Constructional engineering erectors were, however, often well suited to the erection of tank landing craft. It was easy for men without shipbuilding experience working under the supervision of shipbuilding foremen to erect good prefabricated work with fair holes, and the work on tank landing craft, which was mostly done in derelict yards reopened for the purpose, was light. The use of constructional engineers on such work was, however, limited by the unwillingness of the Boilermakers' Society to allow members of the Constructional Engineering Union to engage in it. Both unions had members in the constructional engineering shops and there was a long-standing rivalry between them, particularly on the Clyde, where latterly the Constructional Engineering Union had been gaining ground. The boilermakers also felt that their future employment in the shipyards was threatened by the extension of prefabrication; and, finally, they protested because the members of the Constructional Engineering Union employed in the yards were on time work, which the boilermakers felt was a threat to their conditions. Objections to the employment of Constructional Engineering Union members in temporary yards on the Clyde led in the summer of 1941 to a strike of Boilermakers' Society members in those yards—a strike which threatened to spread to all the Society's members on the river. The two unions were barely on speaking terms and neither had approached the Disputes Committee of the T.U.C. A Committee of

Investigation appointed by the Minister of Labour and the subsequent intervention of the Minister himself failed to secure a compromise. Eventually the small number of Constructional Engineering Union members remaining in the temporary yards joined both unions for the sake of peace, and only Boilermakers' Society members were subsequently recruited for the work.

There was, indeed, no difficulty in recruiting members of the Boilermakers' Society already employed in the shipyards, as well as those with constructional engineering experience, for work on tank landing craft. The earnings were very high because the piece rate prices were agreed by the constructional engineering firms before they had sufficient experience of the work; and it was said that riveters and platers in the shipyards 'adopted all kinds of tricks to get away to the golden barges'.

Difficulties between the Boilermakers' Society and the Constructional Engineering Union also arose on the North-East coast. There the labour supply position was somewhat easier than on the Clyde and for the sake of peace the Constructional Engineering Union members already employed on the erection of tank landing craft were 'diplomatically weeded out' and replaced by shipbuilding workers. Some of these ex-shipyard workers were elderly and unsuited to ordinary shipyard work but there is no doubt that men who could ill be spared from ordinary ship construction were employed on work which could easily have been done by constructional engineering workers who were available for it.

(d) THE SHIPBUILDING INDUSTRIAL REGISTRATION ORDER

Since the insured labour force of the shipbuilding industry had declined by over 40 per cent. between 1923 and 1935 it was clear that a large number of men with experience of skilled work in the shipyards were employed elsewhere. Even during the partial recovery in shipbuilding in 1936-9 shipbuilding tradesmen had left the yards for the aircraft industry; and it was significant that a thirty per cent. decline in merchant shipbuilding activity in 1938 was accompanied by only a one per cent. increase in unemployment. The Minister of Labour was pressed by the Confederation of Shipbuilding and Engineering Unions early in 1940 to secure the return of these men, though the Shipbuilding Employers' Federation was sceptical as to whether they could be persuaded to come back. After the new Government secured compulsory powers over the use and movement of labour in June 1940 this argument had less force; and when the acute shortage of certain shipyard tradesmen, particularly of electricians, developed at the end of 1940 it was agreed to ask all men who had worked in any one of a number of specified occupations in the shipyards for twelve months or more within the past fifteen years

to register at employment exchanges. This registration took place in March 1941¹ and nearly 60,000 ex-shipyard workers registered, of whom 13 per cent. were unskilled. The number of skilled men in the fitting out trades who registered was smaller in proportion to their importance in the shipbuilding labour force than the number of men in the constructional trades.

There were a number of obstacles to the return of these men to shipbuilding. The Minister of Labour had had experience in 1940 of the difficulties of transferring men without guaranteeing them continuous work in the jobs to which they were transferred; at the same time as he made the Industrial Registration Order, therefore, he also made the Essential Work Order which gave this guarantee.² Other obstacles were smoothed; for example, fares and subsistence allowances were paid by the Ministry. Nevertheless conditions of work and wages in the shipbuilding industry remained relatively unattractive, and the men had good grounds for doubting whether it offered any security of employment. Such considerations must sometimes have weighed with them even when their avowed objections to transfer were on domestic or health grounds. Moreover, if a man refused to transfer voluntarily the Ministry of Labour hesitated, particularly in the early years of the war, to direct him to lower-paid employment. Another difficulty was that 85 per cent. of the men who registered were already engaged on work of national importance and many employers were as loth to part with the men as the men were to go. These employers were frequently supported by the supply departments whose contracts they held; and in 1941 disputes between the Ministry of Labour and the supply departments about releases were often carried to headquarters, with consequent delays. In a second drive to make transfers in 1942 special efforts were made to convince the supply departments of the importance of releasing men for shipbuilding, but it was still found that a number of the remaining ex-shipyard workers were employed on key jobs and could not be released.

There was a further difficulty of quite another kind: delay in absorbing men available for release into the shipyards. Employers on the North-East coast accepted only 2,000 of 3,000 men submitted between March and May 1941, and Scottish employers also rejected a large proportion of men submitted to them from the Midlands, all of which naturally caused doubts as to the urgency of the demand. Men were rejected partly because they were not in trades in greatest demand and partly because employers were over-selective. They were, for example, unwilling to accept single riveters and to take upon themselves the task of making up riveting squads.

¹ S.R. & O. 1941, No. 239, 24th February 1941.

² The special shipbuilding Essential Work Order is discussed on pp. 102-6 below.

Thereby they appeared to show, as the Ministry of Labour complained, 'how ingrained the easy practices of peace-time working were'.¹ The Ministry and the Admiralty joined in pressing contractors not to be over-selective.

In general many more men in the trades in less demand could have been absorbed given more interchangeability and dilution. In 1942 the Minister of Labour suggested that to overcome the difficulties of co-ordinating the supply of Industrial Registration Order men with the demand for them, the Admiralty should engage them as soon as they were available and, if they were not immediately accepted by a firm, pay them wages until they were. This proposal was accepted by the Admiralty; but it was never put into effect because it was part of a larger plan for the reorganisation of the control of shipbuilding labour which, early in 1943, was finally abandoned.² By that time transfers under the Industrial Registration Order had in any case ceased.

By February 1943—the date when transfers virtually stopped—over 15,000 of the 60,000 registered had been placed in the industry, of whom 12,000 were placed before the end of 1941. Of these nearly 80 per cent. were skilled men. The wastage of men transferred under the Order was higher than the average. Nevertheless the industry got a considerable number of useful skilled workers under the scheme and, as a result, was able to postpone a good deal of dilution until 1942.

The recruitment of unemployed skilled labour and of men who had left the shipbuilding industry was on the whole more difficult in the dockyards than in private industry. It will be remembered that the dockyards were mostly in the South; since there were usually other opportunities of employment, the percentage of unemployment among shipbuilding workers in the South was low; and most of the men who registered there under the Industrial Registration Order were already in steady and reasonably good employment, often on work of national importance. Those who were available for employment might have preferred to work in the private repair yards where wages, particularly for the ironworking trades, were somewhat higher.³ It happened, however, that most of these workers became available just at the time in 1941 when the southern dockyards were disorganised by air attack and their demand for labour was small. Indeed the numbers employed in these yards actually fell

¹ Men would, however, often refuse to work with strangers; and there were even cases when personal enmities prevented the formation of squads. There was also the fact that the capabilities of proposed members of the squad would affect piece-work earnings.

² See pp. 111-12 below.

³ Dockyard workers did not receive the 3s. a week repair allowance paid in private industry although, following a claim for this allowance, adult male dockyard workers in the four vote 8 departments were in May 1941 given an advance of 1s. 6d. a week.

in 1941 partly because a number of men were transferred from them to Rosyth. Rosyth, however, had obviously to recruit a substantial part of its labour force among men previously employed in private industry both locally, in the West of Scotland and in England.

(e) MARINE ENGINEERING

In the spring and summer of 1941 similar measures were taken to meet a shortage of labour in the marine engineering firms; this shortage was one of the factors—though not the most important—which made the supply, and later the fitting, of engines a bottleneck in merchant shipbuilding and repairing. Estimates of the labour requirements of the marine engineering firms made in the first half of 1941 ranged from 3,000 to 10,000 workers. The second figure, however, was based on the assumption of a full double shift which could not have been worked without adding to the number of heavy machines, many of which were already being manned for up to twenty hours a day.

Unlike shipbuilding labour, marine engineering labour was always treated as part of the common pool of engineering labour, but men with experience in marine and similar heavy engineering work were obviously needed in the marine engineering shops. In March 1941 the employment exchanges were told to review the registrations of skilled engineering tradesmen engaged on non-essential work, who had registered in August 1940, to discover men with marine engineering experience available for transfer to marine engineering firms. In order to trace marine engineers on government work the Ministry of Labour ordered, in May 1941, the registration of all men not already employed in shipbuilding and marine engineering who at any time since January 1929 had worked as fitters and turners on marine engineering or similar work for a period of not less than twelve months. Men who had served with the Merchant Navy had already registered earlier and nearly 13,000 men with marine engineering experience registered in these two categories, about 25–30 per cent. of them as having served with the Merchant Navy.¹

Here, however, the same difficulties with employers and supply departments and the same objections from the men arose as in the attempts to transfer shipbuilding workers. In March 1941 the Ministry of Labour gave the marine engineering firms priority for skilled labour equally with R.O.Fs and second only to radio production. But M.A.P. still claimed to have overriding priority for labour and in February 1941 asked its contractors to release men with marine engineering experience only when skilled labour became

¹ Both these registrations were made under the Registration for Employment Order, S.R. & O. 1941, No. 368, 15th March 1941.

surplus—a rare occurrence in aircraft factories in 1941. By June 1941, however, M.A.P. had fallen into line with the other supply departments and agreed to releases providing these did not involve a serious loss of output.

By the end of July 1941, although 5,000 of the men registered under the Marine Engineering Industrial Registration Order had been interviewed, less than a thousand men with marine engineering experience registered under this Order and the General Engineering Order of 1940 had been transferred. A few hundred more men with heavy engineering experience had been squeezed with great difficulty out of the textile machinery firms and the railway workshops. With these men and those provided from the common pool of engineering labour the shortages were made good by the autumn of 1941. By this date also the serious shortages of capacity which had existed in the industry were overcome by bringing inland firms engaged on other work into marine engineering production. In the later years of the war the marine engineering firms relied increasingly on dilution to expand their skilled labour force and labour shortages were never again so serious as in 1941.

(iv)

The Redistribution of Labour within the Industry

(a) THE EARLY TRANSFER SCHEMES

The possibility of recruiting additional ready trained skilled labour for the shipyards was strictly limited after the summer of 1941, and the supply of unskilled male labour was becoming increasingly difficult. It was therefore vitally important to ensure that the existing labour force was fully utilised and was properly distributed in relation to the work in hand. It was, of course, always preferable to take the work to the labour where that was possible, rather than to transfer labour. But it has been shown that however carefully the work was planned in shipbuilding and repairing, there were bound to be fluctuations in work and temporary redundancies of labour within individual yards and even within districts. It was therefore particularly important that shipbuilding labour should be mobile.¹

Though war-time circumstances emphasised the need for mobility they did not make it easier of achievement. In peace-time there was a great deal of casual employment in the shipbuilding, and particularly in the ship-repairing, industry. After the outbreak of war, however, employers were inclined to cling to temporarily redundant

¹ For the attempts made to secure interchangeability between trades see pp. 149-54 below.

labour for fear of losing it permanently, and when men were stood off they often waited until their employer had work for them again rather than take work elsewhere. This was clearly an intolerable arrangement in war-time. It was quite unnecessary if employers could be persuaded to lend men temporarily, in the confidence of getting them back, and if a clearing house could be set up in each district where men stood off could be offered and persuaded to take work in another yard. The need for local transfer schemes was so obvious that early in the war they grew up spontaneously and independently in a number of districts, with the encouragement of the Shipbuilding Employers' Federation and the Confederation of Shipbuilding and Engineering Unions. The most substantial progress was made after July 1940 with the assistance of the special shipyard labour supply officers appointed by the Ministry of Labour to be responsible for the supply and use of labour. The most successful schemes were developed in the winter of 1940-41 in London and on the Clyde, but some districts still had no such schemes in the spring of 1941.

There were serious limitations to the efficiency of these early schemes. One was the lack of clear rulings on priorities within the Admiralty programmes. In 1940 and early in 1941 there were constant complaints from Ministry of Labour officials and from the employers that they 'had not any idea which ship the Government wanted progressing'. Another difficulty was the now familiar one that the Ministry of Labour's powers to direct workers were little used in 1940. Men were free to leave the shipbuilding industry and to move about within it as they pleased, without even the obligation that was imposed on engineering workers in June 1940 of obtaining work only through an employment exchange or a recognised trade union. Fortunately the incentive to move from job to job was not so great in shipbuilding as in engineering; there was none of the new capacity competing for labour which helped to force up engineering wages, while shipbuilding employers acted more closely together on wage questions than did the engineering employers.¹ But there was a tendency for men to move from new construction to repair work because it offered higher earnings, whether or not such a movement was desirable on production grounds, and there was also some movement between firms according to the amount of overtime they offered.

(b) THE SHIPBUILDING ESSENTIAL WORK ORDER

This situation was remedied by the making of the Shipbuilding Essential Work Order and the control of shipbuilding labour estab-

¹ See pp. 328 ff. below.

lished under it. As is explained elsewhere, the Minister of Labour was convinced that he could not expect men to give up the right to free choice of employment without guaranteeing them certain conditions of work, including a guaranteed week and the restriction of the employer's right to dismiss.¹ The Admiralty, it is true, accepted the proposal for a guaranteed week without enthusiasm, because it thought that the effect on costs might be liable to criticism. Both the Boilermakers' Society and the Confederation of Shipbuilding and Engineering Unions, however, had stressed the importance of these guarantees in discussions with the Minister of Labour in January 1941. And the surrender by the worker of his freedom of movement in return for a certain security of employment was the basis of the Essential Work (General Provisions) Order which was made in March 1941. An Order of this kind had obviously to be applied to the shipbuilding industry; there were, however, a number of conditions peculiar to that industry which necessitated a special shipbuilding Order, and special machinery for the control of shipbuilding labour.

In the first place it was decided that since the industry employed men with specialised skill and worked only for one supply department, the Admiralty,² it should be treated as a self-contained unit. A 'Ring Fence' had in principle been put round the shipbuilding industry in October 1940 when the Admiralty was given a guarantee that, so far as possible, labour once employed in it would not be sent to another industry—a guarantee which could not be implemented until the passing of the Essential Work Order made it possible to compel men to stay in the industry. Secondly, the Minister of Labour wanted to establish under the Order controls which would 'utilise labour in any district as a pool' and which would move men about as needed; he hoped that the men themselves would feel they were working for the 'Control' rather than for the individual employer.³

In wishing to see the shipbuilding industry 'carried on as a great public service and not limited by the pre-war conceptions of private interest and limited individualism' the Minister of Labour was not only thinking of the need for greater mobility of labour. He had larger issues in mind. In 1940 both the Minister of Labour and Sir William Beveridge had made proposals—which had come to nothing—for state control of the munitions industries during wartime;⁴ it was suggested that existing managements should work under the

¹ See p. 65 above.

² Apart from a few boatbuilding firms who were contractors to M.A.P.

³ It was also intended that shipbuilding workers, as part of their side of the bargain, should accept speedy dilution and interchangeability, but this proved difficult (see pp. 131-2 and 151-2 below).

⁴ To Sir William Beveridge the strongest argument in favour of state control was that without it the workers would never agree to the degree of wages control which he believed to be necessary.

control of the Government and receive a fixed dividend. The supporters of state control had argued that its psychological effect would be great. Men would work harder and more co-operatively if they were 'consciously servants of the State, working for the community and not for personal gain'. Certainly it was to some extent true that peace-time practices and peace-time suspicions continued in the shipbuilding industry. There were, for example, complaints from the Boilermakers' Society that the peace-time relationship between individual shipowners and builders and repairers was maintained; as a result work was not evenly distributed among repairing yards and the specifications for repair and for new work were dictated by the peace-time standards of shipowners and not by the necessities of the war. There was indeed some truth in these complaints and the Admiralty had already done something to remedy them. Nevertheless in the discussions that preceded the making of the Shipbuilding Essential Work Order the Minister of Labour again proposed radical changes. He suggested that as a first step towards state control of the shipbuilding industry the private yards on the Thames should be 'operated directly by the Admiralty subject to the same rules as the Dockyards'. The First Lord of the Admiralty, however, rejected this proposal as being, irrespective of other considerations, impracticable in war-time.

But the First Lord naturally shared the Minister of Labour's desire to see both sides of the shipbuilding industry co-operate more closely with each other and with the Government in the solution of war-time labour problems, and the system of control established under the Essential Work Order was designed to this end. In preliminary discussions of the Order the Minister of Labour first proposed a central 'Control' of three, consisting of an Admiral and one representative each of the employers and workers, with local Controls on a similar pattern, jointly responsible to the Ministry of Labour and to the Admiralty. This was rejected¹ in favour of a proposal that the Admiralty alone should be responsible for the control of shipbuilding labour, with employers and unions associated with it in an advisory capacity. This arrangement was not to infringe the constitutional responsibility of the Minister of Labour but he 'virtually delegated' that responsibility to the Admiralty, which was to take over the shipyard labour supply officers and to be entirely responsible for seeing that shipbuilding labour was properly utilised and that dilution was carried out in the yards. The only task remaining to the Ministry of Labour was to provide unskilled labour and a limited number of tradesmen such as electricians and ex-shipyard workers

¹ The scheme was rejected by the Admiralty because it contained the proposal that the Control should allocate work with due regard to priorities; the Admiralty argued that it alone could do this in the light of the operational position.

from other industries. This arrangement was agreed to, and the necessary machinery was devised, but when the Shipbuilding Essential Work Order actually came to be made, in March 1941,¹ the Minister of Labour changed his mind and the control was made a joint one under the Ministry of Labour and the Admiralty. He was chiefly influenced by the opinion of a number of his divisional controllers who thought, on the one hand, that if the shipbuilding industry were under Admiralty control they would have no guarantee that its labour force was being properly used and, on the other hand, that the Ministry's officials had more experience than naval officers of handling industrial problems.

No particular alterations were made in the administration of shipbuilding labour at Admiralty or Ministry of Labour headquarters in connection with the new control scheme. But nine local Controls² were set up, consisting of the Flag Officer in Charge, who came in addition to be known as the District Shipyard Controller, as chairman and three executive officers, two of them representing naval and merchant production and the third, the Shipyard Labour Supply Officer, representing the labour side. In practice other Ministry of Labour and Admiralty officials, such as the Deputy District Shipyard Controller, also took an important part in the work of the Controls. These officials frequently met in each district as an executive committee, but much business was of course done by them individually and in consultation outside the committees.

The Controls were responsible for all shipbuilding and repairing labour questions, except for industrial disputes, and were also responsible for handing on instructions on priorities from Admiralty headquarters. The movement of labour according to these priorities was made under the direction of the district shipyard controllers; but the responsibility for deciding on the individual worker's ability to transfer, for example on domestic or health grounds, rested with the Ministry of Labour's shipyard labour supply officers, who acted as national service officers for the shipyards; their decisions were subject to appeal to tribunals set up for the purpose. When both sides of the industry were consulted during the drawing up of the Order they thought that prior permission from the Control for the engagement or transfer of labour under all circumstances would inevitably lead to loss of production. At their suggestion establishments were grouped together and employers were allowed to transfer labour within these groups at will, as long as they notified the district

¹ Essential Work (Shipbuilding and Shiprepairing) Order, S.R. & O. 1941, No. 300, 7th March 1941.

² The District Shipyard Control areas were West of Scotland, East of Scotland, North-East Coast, Humber, London, Southampton, Falmouth, Bristol Channel and North-West Coast.

shipyard controller immediately. There were for example three groups set up in the West of Scotland Control, for the Upper and Lower Reaches and for the Ayrshire ports.

The Unions had wanted an executive share in the Control. This request was rejected but the Minister of Labour stressed that the Government wanted the industry to participate in the direction of the Control by advising it 'in the right thing to do . . . in adjusting differences and helping in every possible way'. There were Central and Local Consultative Committees, consisting of employers and workers together with Ministry of Labour and Admiralty representatives, and in order to give flexibility, their terms of reference were deliberately left undefined. The Committees were only referred to in the Order itself as courts of reference to decide what was suitable 'alternative work' for men for whom work was temporarily not available in their own occupation.¹ In practice they were consulted on a wide range of subjects such as dilution, transport and travelling allowances, publicity, personnel management, training and apprenticeship.

The jurisdiction of the Control and of the Consultative Committees did not extend to marine engineering shops, even when these were situated inside shipyards. Marine engineering labour was common to the whole engineering industry and therefore remained under the control of the regional offices of the Ministry of Labour and its munitions labour supply officers and of the Admiralty regional representatives.² Nor, for other reasons outlined below, did the authority of the Control extend to the royal dockyards.

(c) LABOUR TRANSFERS UNDER THE NEW CONTROLS

The provisions of the Essential Work Order, the machinery established under it, and a number of contemporary reforms in Admiralty organisation for the placing of repair work and the determination of priorities, considerably improved the working of the local transfer schemes.

After 1941 the district shipyard controllers were kept informed of the priority of the various types of work. There was no official in the Admiralty responsible for deciding on the relative importance of naval and merchant production. Broad priorities as between naval

¹ See pp. 151-2 below.

² This created some difficulty in the later years of the war, because although the marine engineering firms' demands for fitting out labour and for repair workers fluctuated, the Admiralty was not able to transfer marine engineering labour temporarily from firm to firm without obtaining special preference for the firm to which labour was to be moved. When it was proposed to transfer complete control of shipbuilding labour to the Admiralty in August 1942 the Admiralty therefore suggested the inclusion also of marine engineering labour; but the whole proposal was abandoned (see pp. 111-12 below).

and merchant work were settled from time to time on a long term basis by the War Cabinet; but there was some risk that, as priorities were determined in more detail from day to day, merchant and naval work would compete for special treatment and that the Admiralty priority list would thus become overloaded. Difficulties of this kind were very largely avoided by close co-operation between those responsible for naval and merchant production; and co-operation on the repair side was improved by the setting up in 1941 of the Repairs and Conversions Co-ordinating Committee, which included representatives from the naval and merchant sides and from the Contract Labour Department. In the districts the district shipyard controllers were the arbiters in the event of a clash between the demands of naval and merchant repair work.

Nevertheless priorities were not always settled smoothly and effectively. In some districts, including the important Merseyside area, there was never complete co-ordination of the various claims on repair facilities. There were also difficulties on the production side. In general the Admiralty view was that, except for ships required by a definite operational date, all ships should progress steadily; but as the labour shortage increased the granting of priority to certain named vessels seriously impeded the production of other ships. For example, in the view of the Controller of Merchant Shipbuilding and Repairs priority granted to escort vessels in 1942-43 had injured merchant production more seriously than the Government had intended.¹ He argued that many priority instructions were only necessary because of inadequate programme planning in the first instance. A priority system was, indeed, essential, but it could lead to some loss in total output; for, when labour in a yard was concentrated on priority, at the expense of other, work, the labour force which remained on the non-priority work was often unbalanced and men became redundant. Moreover, the priority of other work gave firms a ready made excuse for the non-fulfilment of completion dates. After discussions during 1943-44 in which the Controller of Merchant Shipbuilding and Repairs pressed his point of view it was agreed that in priority instructions issued to district shipyard controllers the stress should be on placing labour on priority work as men became available. There were to be no labour transfers which would alter completion dates without the consent of the Board of Admiralty.

On occasions, therefore, it could be argued that labour was too mobile. It was, however, often essential to transfer men between different jobs in the same yard, between yards in the same locality and between districts. Such transfers were not easily made. In spite

¹ For the escort vessel programme see p. 118 below.

of the industry's request when the Essential Work Order was under discussion to be allowed to transfer labour without reference to the Control, at least as many transfers were made through the shipyard labour supply officers—and often on their initiative—as by the employers, though the proportion varied between different districts. This suggests that some official pressure was necessary to promote transfers. The Control was in any case the best clearing centre since it had a complete picture of labour supply and demand and of priorities. In some districts in the later years of the war all the labour available in those trades where labour shortages were most acute was allocated by the Controls in accordance with priorities and future requirements and supply were planned. Firms were obliged to man urgent work at the expense of other work in the yard and if necessary labour was transferred from other yards where work was less urgent or where the percentage of dilution was low. The degree of control and the mobility achieved should not, however, be over-stressed. The relatively small number of shipyard labour supply officers and of local Admiralty officials and the complicated organisation of a shipyard made it difficult for these men to have a very full knowledge of the labour position in the firms, and requests for labour were rarely vetted as thoroughly as those in the engineering industry.

Probably the chief obstacle to the success of the local transfer schemes was the objections from the men themselves. The Essential Work Order made it possible to use compulsion but did not remove the objections to transfer. Short term transfers to meet emergencies needed to be speedy, but if a man objected to a transfer the issue of directions and his possible subsequent appeal against them took time. During slack periods it was often desirable to transfer men from repair work to new construction. But in all trades, and particularly in ironworking, earnings on repair work were higher than on new work;¹ and while ironworkers on new work were paid piece rates, on repair work they were sometimes paid lieu² rates. When there were redundancies in the repair yards the managements generally dismissed their oldest and least efficient workers, who were unable or unwilling to work at piece work speed on new work. Sometimes indeed there was no movement of labour from repair to new work even within individual yards.

Inter-yard transfers were of course still more difficult; on the Clyde such transfers from repair to new work were held up for years while negotiations went on between the two sides of the industry about the payment of a lieu rate on new work until the repair worker was

¹ See p. 328 below.

² Piece working was not always possible on repair work because measurement of the work was difficult. It was then the practice to pay a lieu rate which gave a man an earning equivalent to a piece worker's, whether or not he worked at piece work speed.

acclimatised.¹ A further obstacle to transfers was that until August 1942 there was no national agreement for payment of travelling allowances, such as was made in the engineering industry in June 1941; only in some individual districts was agreement on travelling allowances reached in 1940. It was chiefly for lack of such agreement that on the North-East coast men transferred 'used to come and hang around the Ministry of Labour office and complain to the shipyard labour supply officer instead of getting on with the job'.

Wage difficulties were still more prominent when it came to transferring men from one shipbuilding district to another. Such transfers were restricted to the minimum but were sometimes necessary—for example when repair work fell off heavily in districts where little new work was done and where it was not always possible to put in standby new construction or conversion work. There was also little scope for the expansion of production in some areas where capacity was limited or poor in quality. Such circumstances did not always lead to redundancies of labour; but since the districts concerned did not need to expand their labour force they did not have to dilute it. As late as 1943 it was said to be difficult to press dilution and the employment of women in Grimsby because the industry there was so well staffed. If the burden of dilution in the industry were to be evenly borne, some of the skilled workers in districts such as this would have to be transferred to other areas.

Sometimes, however, considerable redundancies of labour did occur. For example, when repair work on the North-East Coast fell off in the summer of 1942, skilled men were thrown out of work and a large number were put on time work. The heaviest redundancies arose in the port of London at those times when the amount of repair work declined. London was particularly over-staffed in mid-1942 for though the number of ships under repair had fallen by one-third compared with March 1941 the labour force had increased by over 2,000, most of them skilled men. The Ministry of Labour thought the redundancy might be 2,000 and suggested the immediate transfer of 1,000 workers, mostly skilled. But minimum time rates on repair work in London were 94s. 6d. for a 44-hour week compared with the rate of 83s. 6d. for a 47-hour week which applied on new work in most districts. London electricians had previously resisted transfer even to Southampton, where rates were also high, while transfers from London to the North, which involved financial loss, were most unpopular. The difficulties were increased because of the industry's delay in agreeing to a 'dispersal bonus'; such a bonus was granted in the

¹ Inter-union disputes also sometimes delayed transfers. For example, the refusal of members of the Boilermakers' Society to work alongside members of the breakaway Sheet Ironworkers' Society obstructed for months a transfer of sheet ironworkers between the Clydeside yards.

engineering industry in 1941, but was not adopted in the shipbuilding industry until mid-1943 and then only after constant pressure by the Minister of Labour on the Shipbuilding Employers' Federation.¹ Workers transferred outside daily travelling distance were then given an allowance of 1s. 6d. a day.

Not only did the men object, but many employers showed little enthusiasm for inter-district transfers. They preferred to keep their yards well manned in anticipation of further work and, in the receiving districts, they were reluctant to take on men unwillingly transferred. Even officials preferred to keep labour under-employed in the industry or transfer it to other local industries until there were local shipbuilding demands.

In spite of the difficulties some men were persuaded or directed to transfer. Others were transferred by indirect means: for example men were de-reserved and offered transfer as an alternative to military service; and a relatively high proportion of men required for the Fleet Repair Bases were called up from London and other districts where there was redundancy.

However, few of the men who were transferred settled down. London electricians on the North-East Coast were said to be giving a great deal of trouble to managements. Members of the Boilermakers' Society transferred to the Clyde had genuine cause for complaint. They had to face the overcrowded living conditions of Glasgow² and consequent ill-health while their earnings were low, not only because they were unused to new work and were discontented, but also because of prejudice against southerners on the Clyde which prevented their being fully used. Towards the end of 1942 labour shortages developed in London and local union representatives were reluctant to agree to dilution while men were transferred away from the port. Many had already drifted back to the South, with or without the permission of the national service officer. Towards the end of 1943 the remaining boilermakers on the Clyde were quietly allowed to return, together with electricians from Southampton. When redundancies arose again in London in the autumn of 1944 the Admiralty decided against transferring electricians to the Tyne, where they were badly needed, in view of the wage difficulties, the past bitter experience and the possibility of civilian employment in London.

Transfers from London presented special problems and the obstacles to them must have resulted in considerable waste of labour

¹ The Shipbuilding Employers' Federation had been afraid that the granting of a dispersal bonus would lead to a claim for transferring the 3s. a day repair allowance permanently to new work.

² It was reliably reported in 1944 that men transferred to the Clyde could often get billets only by sharing a bed.

in the course of the war. Transfers from the Tyne or Merseyside to Southampton were rather more successful. A number of electricians also transferred voluntarily from Merseyside to the Clyde, Southampton and Falmouth to man up specific high priority naval vessels. And a scheme for transfer of men from Northern to Southern ports for post D-day repairs had all the conditions of success which the transfers from London to the North lacked. These transfers were specifically temporary; they had all the glamour of D-day; and, although normal repair rates in the South were in any case high, the men were offered special rates which made it very unlikely that transfer would involve them in financial loss. As a result the district shipyard controllers were overwhelmed with volunteers far in excess of needs. Some 900 men in Scotland volunteered and 750 on the North-East coast.

Apart from this particular instance, however, transfer of shipbuilding workers both within and between shipbuilding districts had only a limited success. A senior Shipbuilding Labour Supply Officer attached to Ministry of Labour headquarters, who spent a good deal of time in the second half of the war in travelling around the districts, was convinced that many of the labour shortages in the industry could have been met if labour had been more mobile between districts. Though this may have been an exaggeration, and though transfers were inevitably restricted by accommodation and other difficulties, there was certainly scope for more transfers than took place. Similarly in mid-1942 the Barlow Committee, appointed to report on the industry's labour requirements, 'formed the impression', which could, it said, 'be confirmed only by a detailed examination of the labour employed at each yard, that some yards were short of labour, whilst others appeared to be staffed generously for the orders on hand'. The Committee, however, visited the yards in the summer when there was usually a seasonal fall in the load of repair work.

The existence of redundancies was also revealed by a comparison of the labour force employed in shipbuilding with the weekly output. There were some 8,000 more men employed on merchant ship repairs at the end of 1942 than at the beginning of 1941, whereas the average weekly output in the same period had fallen from 860,000 to 709,000 gross tons. This represented an apparent decline in output per head of nearly 50 per cent. Controller of Merchant Shipbuilding and Repairs attributed 20 per cent. of this to an increase in work not apparent from the tonnage figures, and the rest equally to dilution and indiscipline. Some of it was, however, undoubtedly due to redundancies caused by the immobility of labour.

It was partly in the hope of securing greater mobility of labour that in August 1942 the Minister of Labour reverted to the proposal he had originally made when the Essential Work Order was first under

discussion—the proposal to transfer complete control of shipbuilding labour to the Admiralty. He wanted the workers to feel ‘that they would not merely be allocated to the individual employer but to the group of shipyards’. He therefore suggested the establishment of a ‘managerial labour section’ in the Admiralty with Admiralty labour managers, experienced in handling industrial labour, for each group of shipyards. Under this proposal the Ministry of Labour would post labour to the Admiralty as it did to individual factories, without questioning how it was allocated between different jobs.

In putting forward his proposals the Minister compared the shipbuilding industry with the docks and the Merchant Navy, both of which had a system of pooling labour. Work was, however, less casual in shipbuilding than in these two services and the Admiralty questioned the whole basis of the Minister’s proposal. Loyalty to the firms, it said, was strong, and it would not be necessary to transfer labour on such a scale ‘as to give the theory of loyalty to the group any solid foundation’. Moreover the basic obstacle to transfers was the wage differentials, and these would have remained undisturbed. Local officials of the Ministry of Labour itself advised against the transfer of control to the Admiralty, as they did in 1941, and for this and other reasons¹ the proposal was abandoned.

(d) THE POSITION OF THE DOCKYARDS

The history of labour transfer in the royal dockyards is a story to itself, for these yards were never scheduled under the Essential Work Order nor included in the local shipbuilding Controls. The Admiralty’s chief objection to the scheduling of its establishments under the Essential Work Order was that this would weaken discipline.² The Admiralty’s desire, for reasons discussed below, to keep the dockyards—and to a lesser extent its other establishments—outside the normal labour supply and inspection machinery was naturally frowned on by the Ministry of Labour. So far as the dockyards were concerned a not very satisfactory compromise solution was adopted early in 1941; a more satisfactory one was agreed upon in 1943.

In the summer of 1940 demands for additional dockyard labour and allegations received in the Ministry of Labour that dockyard labour was not being effectively used, led the Ministry of Labour in consultation with the Admiralty to set up a committee³ to investigate the use of labour in the dockyards. One of its recommendations was that the dockyards should be subject to inspection by officials ap-

¹ See p. 136 below.

² See p. 286 below.

³ It consisted of a Lloyd’s surveyor as chairman, a retired Engineer-Rear Admiral and a member of the A.E.U.

pointed by the Ministry of Labour, and that the yards should be required to justify their labour demands, in the same way as private firms. The Ministry pressed the Admiralty to accept this recommendation and was inclined to use for the purpose its existing shipyard labour supply officers.

To this the Admiralty had two main objections. The most important one arose from the particular difficulty of determining labour requirements for repair work. The Ministry of Labour, it was argued, could have little or no information about present or future commitments. Future commitments were not even known to the Admiral Superintendents nor even to the Director of Dockyards. The labour force for urgent repair jobs could not be built up as the work proceeded; if the labour was not available in the dockyards the jobs had to be diverted elsewhere. In general the Director of Dockyards assumed that the volume of work would increase and planned to build up the labour force of the dockyards so that they could take on more work.¹ The Ministry of Labour on the other hand was bound to insist that the labour force should be related to the work in hand. If repair work fluctuated, the demand for labour should be evened out by long term refits and other standby jobs. The Ministry's view found some support in the findings of the investigating Committee referred to above. For at the time when it was visiting the southern dockyards pressure of work was not very great. Post-Dunkirk repair work had been cleared off and the Naval Staff were unwilling to send ships for repair to the Channel ports because of the risk of bombing. By December 1940, however, the Admiralty reported that the dockyards were again in the position where they could not fulfil all their commitments.

The Admiralty's second objection to bringing the dockyards within the normal labour supply machinery was that the trade union side of the Admiralty Industrial Council strongly objected to the proposal. The union representatives feared that it would interfere with the established machinery of negotiation through the Whitley Councils, particularly in the negotiation of dilution, and also that it would lead to the transfer of dockyard labour to outside industry. Behind this opposition was the fact that the trade unions had built up conditions in the dockyards which were in some respects better than in private industry and they feared that a man's chance of advancement in the dockyards would suffer if he were temporarily transferred elsewhere; he might for example miss an opportunity of becoming an established workman. The Admiralty also thought that the shipyard labour supply officers, some of whom had been dockyard foremen,

¹ This doctrine of expansion did not always percolate to the dockyards whose officials were often content to agree to very small requirements.

charge-men and inspectors, had not sufficient standing to judge the correctness of dockyard demands.¹

A compromise was eventually hammered out. It was decided to appoint one or more special headquarters officers of high professional standing with national service officer powers to inspect the dockyards. The Ministry of Labour reserved its right to extract labour but did not expect to use it save in exceptional circumstances, and only after consultation with the Director of Dockyards. Any disagreement would be referred to Ministers. Two headquarters officials were appointed successively under this agreement and they each made surveys of the labour position in the dockyards with recommendations on dilution, on the validity of demands and on the possibilities of transfers to private yards.

This compromise had a doubtful start. The official first appointed attempted to make comparisons between the composition and utilisation of the labour force in the dockyards and in private industry. These were very difficult to make accurately and gave opportunity for endless dispute.² Nor did he always discuss his proposals adequately with dockyard officials on the spot. So, in the end, his investigations into the dockyard labour force generated more heat than light. The work of his successor in advising on dilution was far more fruitful. Nevertheless the officials concerned were in a difficult position; the Dockyard Department was somewhat over-sensitive to criticism by the Ministry of Labour, even when it was justified and constructive, and even though the Ministry had the main responsibility for the use of labour.

Inspection of dockyard requirements by headquarters rather than by local officials of the Ministry of Labour had disadvantages, particularly to the Admiralty, who had chosen this method.³ Demands which arose when the inspector was not in the district were sometimes referred to him by the employment exchanges and he sent his advice in writing; he would not be aware if the load of work in the dockyard had increased heavily since he was there. Occasionally demands were not filled pending a visit from the inspector, though sometimes local officials acted as his agent.⁴ The whole procedure by-passed the normal methods of regional consultation and co-operation. Until 1943, the Admiralty gave its regional labour staff very little responsi-

¹ The location of the dockyards would have made difficult frequent transfers of shipbuilding labour between them and private industry which did not involve men living away from home. Very occasionally such transfers were made, but at the end of 1942 there had been only one such transfer from Portsmouth in two years.

² See pp. 83-4 above.

³ Though this was not a criticism of the system it was ironic that dockyard demands were on the whole scrutinised more carefully than those of private industry.

⁴ In Rosyth, where the Admiral Superintendent was also District Shipyard Controller and in daily contact with the Shipyard Labour Supply Officer in that capacity, there was a good working arrangement for dealing with dockyard demands.

bility for the labour affairs of any of the Admiralty establishments, whether store depots, the Royal Naval Torpedo Factory at Greenock or the dockyards. It was not the Admiralty regional controllers' job to press dockyard demands on local Ministry of Labour officials and the admiral superintendents had no regular liaison with them. Unfilled vacancies were either left vacant or made the subject of complaint at the topmost level, via Admiralty and Ministry of Labour headquarters. This was bound to cause delay, for the Ministry of Labour organisation was highly decentralised and the general run of labour supply problems could be more quickly settled locally than by reference to headquarters. In this respect the Admiralty procedure was *sui generis*. The Ministry of Supply had never found it necessary to make special arrangements for its establishments, some of which were the exact equivalent of some Admiralty ones.

These administrative shortcomings were not, of course, alone or wholly to blame for labour difficulties, but the Ministry of Labour and, to a lesser extent, the Admiralty realised that the administrative arrangements could be improved. In mid-1943, therefore, the Admiralty agreed that dockyard demands should be vetted by certain specially assigned local labour supply inspectors. Admiral superintendents were to refer difficulties which could not be settled locally to the Ministry of Labour regional controllers in the first instance. The Admiralty regional labour officers, however, still had no responsibility for dockyard labour questions, although at this date other Admiralty establishments were brought under their care.

On the whole the new arrangement worked well. But although it was possible to make general surveys of the use of labour and the extent of dilution in the dockyards, thorough vetting of day to day demands, difficult in any firm, was well nigh impossible in establishments as large as the dockyards. The inspectors of the dockyards had various criticisms to make. One concerned the wasteful use of shipwrights; this was chiefly due to the attitude of the union and is discussed below.¹ Another criticism was that there was a good deal of idling in the dockyards. It could never have been easy for a visiting inspector to discover whether idling was due to slackness on the men's part or whether it was forced upon them by shortages of materials or parts. The Admiralty agreed with the inspectors that there was a deplorable amount of slacking, but thought that it was no worse than in private industry; supervisory staff in the dockyards was severely depleted, for many dockyard workers had been appointed as overseers in contractors' works and abroad.² It was admitted, moreover, that a considerable amount of time was lost through the men's practice of limiting their earnings to a 33½ per cent. increase on time rates

¹ See pp. 147-8 below.

² See pp. 92-3 above.

for fear that higher earnings would lead to cuts in prices. In 1942 the Admiralty reassured the men that this would not happen and in mid-1943 it proposed to examine its rate fixing methods.¹ Some slackness was also due to overmanning, particularly in the constructive departments, which were well staffed in the early years of the war in relation to the electrical and engineering departments.

Some of this lack of balance might have been rectified by transfers between dockyard departments. The dockyards were so big that they could have organised transfers within their own staffs and thereby need not have suffered through being excluded from the local transfer groups. It was indeed suggested at Devonport in 1940 that the undermanned Electrical Department's demand for 140 skilled men could be temporarily met by transfers from the Constructive and Engineering Departments. The dockyard mechanic was very versatile and there was rather more interchangeability between trades than in private industry—an underemployed riveter, for example, could be sent to help a fitter.² But the Admiralty policy was to transfer work where possible rather than labour. Difficulties in transferring labour were twofold. First the men objected. A certain percentage of dockyard mechanics in each department were given individual merit rates and workers felt that even a temporary transfer to another department, where their own foremen might forget about them, could prejudice their chances of receiving merit rates or even of being established. Secondly each section of the dockyard was fairly self-contained; towards the end of the war the Admiralty considered and rejected the idea of a centralised personnel management to handle labour questions for all departments.³ Individual managers were not always anxious to see interdepartmental transfers. In some dockyards however such transfers did increase as the war went on.

¹ Such fears persisted in the dockyards in 1951; see *Eighth and Ninth Reports from the Select Committee on Estimates*, Session 1950-51, pp. xiv-xv.

² See p. 154 below.

³ See pp. 266-8 below.

CHAPTER V

SHIPBUILDING LABOUR

II: DILUTION AND THE SUPPLY OF UNSKILLED LABOUR

(i)

The Shipbuilding Programmes, 1942-45

BEFORE 1942 the main methods of solving the labour problems of the shipbuilding industry were the absorption of the unemployed, the return of shipyard workers who had transferred to other industries, the transfer of new workers from other industries and the attempt to pool labour supplies. Dilution and interchangeability were then of limited importance, but from 1942 onwards the industry had to rely increasingly on dilution to augment its skilled labour force. Before discussing the progress of dilution it is necessary to glance at the production programmes and the demand for labour between 1942 and 1945.

The years 1942-43 saw a shift in priorities within the shipbuilding programme in favour of naval new construction work and the granting of high priority to shipbuilding within the munitions programmes as a whole. The numbers employed on naval new construction in private firms in Great Britain increased by some 6,500 in 1941 to 75,000 in December, 1941; and those on merchant new construction by over 5,000 to some 36,000.¹ Thus the proportionate increase was greater on merchant work. Moreover, the labour force on merchant repairs had also risen by 7,500 to 57,300, largely at the expense of that on naval repairs and conversions which, though it rose steeply in the first quarter of 1941, fell again during the year; in December 1941 there were 37,700 workers in private yards employed on this work, only 500 more than in December 1940. The labour force

¹ See Table 7; these figures were issued by the Ministry of Labour and have been quoted in preference to those issued by the Shipbuilding Employers' Federation (see Table 5) both because they are more comprehensive and because they are comparable with the figures for other industries used throughout this book. The Federation's figures were in fact based on the returns made to the Ministry of Labour by federated firms. The shipbuilders held that the Ministry of Labour figures, including as they did labour employed by barge and boat builders and in sub-contracting firms which specialised in shipbuilding work, were a misleading guide to the size of the real cadre of the industry. The Ministry of Labour figures referred only to Great Britain, whereas the Federation's included Harland and Wolff, Belfast.

employed in the royal dockyards, however, increased by some 4,000 during 1941.

From the unrealistic target of $1\frac{1}{2}$ million gross tons a year fixed early in the war the merchant programme had been reduced first to a rate of $1\frac{1}{4}$ million and then to one of 1,100,000 tons during the repair crisis in the spring of 1941. But in the last four months of 1941 output reached a rate of 1,400,000 tons a year. The labour force employed on this work reached 43,000 at the end of 1942 and remained at about that level throughout 1943. Through 1942 and early 1943 the load of repair work, though heavy, was less than in 1941, though the labour force on merchant repairs remained high at around 58,000 to 59,000 workers.

On the naval side, by contrast, there was very great concern at the beginning of 1942 over the delays in completion dates which were primarily still due to shortages of gunnery equipment. Demands on the Navy were constantly increasing. The entry of the United States Navy on the Allied side was more than counterbalanced, in the short run, by the extended area over which escort was needed, coupled with the loss of bases, the need for capital ships to meet the Japanese fleet and the additional demands for troop transport and landing and assault craft.¹ Highest priority within the shipbuilding programme was given to naval new construction and before the year was out corvette production was encroaching on merchant building capacity. The numbers employed in private yards on naval new construction were to increase by nearly 13,000 between December 1941 and December 1943 and those on naval repairs and conversions by some 5,000. During the same period the numbers employed in the royal dockyards on shipbuilding and repairing work increased from 33,500 to 37,800.

The share of the national munitions effort devoted to Admiralty work is shown in Table 8. The figures in this table reflect the fact that Admiralty production was further advanced at the outbreak of war than the Ministry of Supply's and that shipbuilding demands were inevitably conservative compared, for example, with the demand for unskilled women for filling factories; but they also reflect to some extent the higher priority given to other work. Early in 1942, however, high priority was given to shipbuilding work and this continued until the summer of 1943 when aircraft production was granted overriding priority which it kept until the end of the year.

In spite of high priority the labour force employed on shipbuilding and repairing increased only from 260,500 in December 1942 to 272,300 in December 1943, an increase of 12,000 compared with an increase of 21,000 in 1942. Nevertheless 1943 was a relatively suc-

¹ M. M. Postan, *op. cit.*, pp. 287 ff.

Table 8: Numbers employed on Work for the Supply Departments, 1941-42*

Thousands

| | Numbers employed in the Munitions Industries December 1940 | % of Total Munitions Labour Force | Numbers employed in the Munitions Industries March 1942 | % of Total Munitions Labour Force | % Increase |
|--|--|-----------------------------------|---|-----------------------------------|------------|
| Ministry of Supply | 937.3 | 33.83 | 1,540.0 | 40.16 | 64.3 |
| M.A.P. | 997.8 | 36.01 | 1,364.2 | 35.57 | 36.7 |
| Admiralty | 619.7 | 22.36 | 685.8 | 17.88 | 10.7 |
| (of which ship-building and repairing) | 215.5 | | 244.3 | | 13.4 |
| | 2,770.3 | | 3,834.3 | | 38.4 |

* All classes of workers except non-manual workers earning over £420 per annum.

cessful year in the shipyards, largely because the shipyard development schemes were bearing fruit in higher output.¹ Though tonnage under construction for the Navy was far higher than in previous years (and slightly higher than in 1944), delays diminished and a high proportion of ships was finished on time. Output of new merchant ships remained high in spite of the encroachment of naval production. Production reached 1.2 million gross tons in 1943 compared with 1.3 million in 1942, but the machinery and equipment of standard tramp ships became progressively more complex and in the later years of the war the merchant programmes included many special types more difficult to produce than the tramps.² In 1943 the repair situation was also kept fairly well in hand.

In 1944-45, however, while the load of work continued to increase the labour force in the shipyards began to fall. In December 1943 the War Cabinet decided that the labour force employed on Admiralty work in the munitions industries, which then stood at its peak of 806,500, should fall by 13,000 in 1944.³ It did in fact fall by 50,400 to 756,100 in December 1944 and again to 667,700 in June 1945. The

¹ In 1942, as a result of a recommendation of the Barlow Committee (see p. 137 below), a technical enquiry was conducted in the shipyards which led to a plan for extended state assistance for the renewal of plant. A Shipyard Development Committee was set up in the Admiralty which approved schemes involving a total cost of about £6.9 millions, of which £5 millions were borne by the Government. This expenditure was largely for shipyard development, welding equipment and cranes to make possible prefabrication; see M. M. Postan, *op. cit.*, pp. 204 and 297. Certain economies in labour were also effected in the later war years by the extension of payment by results in the shipyards; see pp. 330-2 below.

² M. M. Postan, *op. cit.*, pp. 301-2.

³ See p. 195 below.

Admiralty attempted as far as possible to protect the shipbuilding labour force from these losses and to confine the fall in the industrial labour force to such production as ammunition and stores. It proved impossible, however, to prevent a fall in the shipbuilding and repairing labour force, which from its peak of 272,500 in September 1943 fell to 260,600 in December 1944 and 252,300 in June 1945.

Admiralty production requirements, on the other hand, remained very high. In the autumn of 1943 the demand for escort vessels slackened and the programme was not completed. Instead, there was a heavily increased demand for landing ships, which had to be built in the ordinary shipyards as well as in the constructional engineering firms and reopened yards already used for the purpose. Merchant building was also concentrated on special types for use in the invasion, such as crane ships and tankers. Once the invasion was under way the naval and merchant yards were increasingly engaged on the construction and conversion of ships for the Fleet Train to service the Fleet in Far Eastern waters—tankers, repair, crane and hospital ships and many other special types. All these needed special ventilation and refrigeration to meet tropical conditions and the additional accommodation facilities required by ships in service away from established bases.

To take a specific example, in December 1943 the battleship *Howe*, completed only in 1942, was taken in hand in one of the dockyards for modernisation and refit; this lasted more than four months and required 30,000 man-weeks. She was given additional anti-aircraft armament and the latest radar, an extended ventilation system, additional crew accommodation and a laundry and a cinema in place of her catapult and hangars; in all she had to be fitted with more than 35 miles of additional cable.

Demands on the ship-repairing yards were also rising, not falling; a special labour force had to be built up in southern ports to deal with post-invasion repairs. The total allied merchant tonnage at sea and therefore liable to damage—the older ships increasingly so after years of war-time service—was rapidly mounting. In October 1944 merchant tonnage in hand for repair passed the two million mark for the first time since 1941. With the approach of peace came the need not only for the building of merchant ships such as passenger liners which had been neglected during the war but for the reconversion of merchant vessels to their peace-time use. In June 1944 the labour force engaged on merchant repairs and conversion work was over 65,000—higher than at any time in the war—and, though it fell considerably in the second half of the year, by June 1945 it had risen again to 61,400. At one time in mid-1945 12,000 men were at work on the reconversion of trawlers alone. Ship repairers were never more fully occupied than in the closing weeks of the war.

In the last years of the war, therefore, the load of work in the shipyards was heavy. Their labour force depleted, the builders and repairers found it very difficult to meet all commitments. Nevertheless the supply of gunnery equipment remained to the end the greatest limiting factor on the output of warships. In fact the Admiralty was able to economise shipyard labour by putting back the completion dates of ships which would in any case have been kept waiting for equipment. And in the first half of 1945, when shortage of shipbuilding labour considerably delayed the completion of hulls in the naval yards, supplies of gunnery equipment still lagged behind requirements.¹

In the merchant yards, by contrast, the supply of labour, and particularly of ironworkers, was the chief limiting factor on output in the later years of the war. Sir Amos Ayre, who was Director of Merchant Building, made a study, covering a group of firms on similar vessels, of the relationship between the completion times of ships and the number of workpeople employed. From this it appeared that a firm employing only 160 men per berth took twice as long to complete a ship as a firm employing 300, which appeared to be the optimum which could usefully be employed.² Undermanning was greatest on the Clyde and some of its merchant yards were said by the Merchant Shipbuilding Department to have been only half manned on a single shift throughout the war. Estimates of undermanning could, it is true, only be rough ones. They were based on a target output per man per year based on the experience of the best firms, amended for individual firms by the Director of Merchant Building in the light of his knowledge of their plant and managerial capacity. Moreover, it must be recorded that others in the Merchant Shipbuilding Department and in the industry did not agree that there was an absolute shortage of labour and argued that there were enough men in the yards if they only worked hard enough. An attempt was, however, made in 1943 to expand the labour force employed on merchant new construction.

In the winter of 1942-43 it had been decided that the escort vessel programme could not be completed without some sacrifice of merchant construction. First marine engineering capacity used for merchant ships had been diverted to corvettes and then it had been decided to build escort vessels in berths previously allocated to merchant work. The Merchant Shipbuilding Department estimated that with an increase of 10,000 workers in the existing merchant yards the loss in production which would result from this diversion of capacity

¹ The shortage of fire control gear was partly due to labour shortages, particularly of highly skilled workers.

² Sir Amos Ayre, 'Merchant Shipbuilding during the War' in *Proceedings of the Institution of Naval Architects*, 1945, p. 19.

to naval work could be made good; an additional output of 200,000 tons a year could, it was hoped, be obtained from the slips which remained on merchant construction.¹ As it happened it was not possible to find the labour required for this expansion.²

In general it was accepted in the later years of the war that any substantial increase in the shipbuilding labour force must be of unskilled men and women and that the industry would have to train its own skilled workers. This was particularly true of the ironworking trades. In 1943 the demand for the finishing trades was in any case not large. There was even a certain amount of redundancy among them, which resulted partly from the decline in work when the fitting out of corvettes was completed, partly from the extension of payment by results.³ In later months, however, the conversion of ships for service in Far Eastern waters made heavy demands on fitting-out labour, particularly on electricians; by October 1944 there was an estimated deficiency of 1,400 electricians on the North-East coast alone. A certain number of electricians could, however, be found for the shipyards from other industries, although the difficulties in transferring them were considerable. The demand for ironworkers, on the other hand, could only be met by dilution. Thus the 'designation' of ship repair work in 1944—the accordance to it of the very highest priority—had very little effect because the Ministry of Labour had no source outside the industry from which ironworkers could be found. Unfortunately the many difficulties in the way of dilution and upgrading in the shipyards were greatest in these very ironworking trades. Indeed, extensive dilution on the constructional side of shipbuilding work was only made possible by the wide adoption of welding.

(ii)

Dilution

(a) THE SHORTAGE OF RIVETING APPRENTICES: THE JORDANVALE TRAINING SCHEME

Before the history of dilution is considered in detail the development of apprenticeship schemes may be noted. Apprenticeship was also a problem of training, and, like dilution, gave rise to particular difficulties as far as ironworkers were concerned. In peace-time with rare exceptions the only way of entry to the skilled shipbuilding trades was through a five years' apprenticeship. Practically no

¹ M. M. Postan, *op. cit.*, p. 302.

² See p. 141 below.

³ See p. 332 below.

apprentices entered the industry in 1931-33, when there was no work for them to do, and only small numbers throughout the years of depression, with the result that in 1939 the age structure of the industry was high. From 1936 onwards, however, as prosperity returned, the number of apprentices entering the industry increased; and in April 1940 the proportion of apprentices to the total skilled labour force over the whole industry was nearly 20 per cent., though it was higher on new construction than on repair work.

Though the number of apprentices was fairly well maintained during the war over the industry as a whole, the position varied from district to district and from trade to trade. On Merseyside, for example, there was a large juvenile population and Cammell Laird's of Birkenhead always obtained all the boy labour they needed. On the North-East coast also the supply of boys was relatively plentiful; but on the South coast and on the Clyde, where there was more competition from engineering and aircraft factories, it was not so easy to find enough boys. There was nowhere, however, any great difficulty in getting apprentices for welding or electrical work, or as joiners, shipwrights or mechanics. On the Clyde in 1943 the proportion of electrician apprentices to journeymen was as high as forty per cent. Nor was it difficult to find engineer apprentices for the marine engineering shops, although some thirty per cent. of these intended to go to sea and were lost to the industry when they had been trained.

The great problem was to get boys to take up riveting, and the difficulties were well illustrated by the history of the Jordanvale training scheme on the Clyde. Few shipbuilding firms had any separate training shop to provide initial training divorced from production. The establishment of a training school was first proposed by an employer in February 1941 but there were long preparatory negotiations, partly because the Boilermakers' Society wanted a promise, which the employers refused to give, that the ratio of apprentices to journeymen would not exceed 1 : 5. Since this ratio had been in dispute since the nineteenth century the failure to agree was not surprising and the Minister of Labour eventually decided to proceed with the scheme without waiting for an agreement. Training in the school, which was established in a disused yard, was finally begun in April 1942. The costs were borne jointly by the industry and by the Ministry of Labour and the running of the school was supervised by an Advisory Committee representative of the Ministry of Labour, the Admiralty and the industry under an independent chairman (Sir Hector Hetherington, the Principal of Glasgow University). There were 60 riveting places for boys between 15½ and 18, who after some 9 weeks' training were sent into the yards as apprentice riveters; there were also 30 places for training youths up to 20 as heaters, and early in 1943 the school began to train welders, mostly women. The

Boilermakers' Society objected to the training of adults as riveters, though it is in any case doubtful if recruits would have been forthcoming.

In the first two years of the school's life, some 460 riveters and heaters were placed from it in the yards; of these only 245 remained in March 1944, a wastage of nearly 50 per cent. There were many causes of wastage; employers complained that many of the boys were slackers and dismissed a considerable number; there was inadequate supervision by some employers of their work and progress in the yards, partly, no doubt, because of the acute shortage of supervisory staff, and there were billeting and travelling difficulties. In December 1942, on the recommendation of the Advisory Committee, the Ministry of Labour appointed a training officer to follow up the progress of the trainees in the yards, to ensure that their conditions of work were satisfactory and to advise on billeting and similar problems. This officer did useful work, and even got some boys back to the yards; his work, together with more careful medical examination, probably accounted for a slight drop in wastage towards the end of the school's existence.

The causes of wastage, however, went deeper than this. They were to be found in the nature of the occupation itself, which not only increased wastage but also seriously limited the number of boys coming forward for training. The number of riveting places in the school was constantly being reduced because of the difficulty of getting recruits, and by December 1944 there were only four youths left in training. The wages of apprentice riveters were, it is true, low compared with those for many blind alley jobs or semi-skilled engineering work; but apprentice riveters were put on piece work after a short time in the yards, and before many months earned considerably more than the time working joiner or electrician apprentice, who was not particularly difficult to recruit. Low wages, therefore, were clearly not the chief deterrent. This was the unpleasant nature of the work itself compared, for example, with the light and clean work in a joiner's shop. Moreover a joiner could follow his trade outside the shipyards if shipbuilding was depressed. Not only was riveting largely confined to shipbuilding but in 1943 it was popularly expected to be replaced by welding and to have no future even there. The Minister of Labour refused to direct juveniles, but the Juvenile Advisory Bureaux on the Clyde were asked to try and get boys to take up riveting. Some of the Bureaux did, without much success, but it was clear their heart was not in the job. The Boilermakers' Society's representative on the Jordanvale Advisory Committee thought himself that the Committee was putting boys in a blind-alley job. Early in 1945 the Ministry of Labour, as a condition of keeping Jordanvale open, tried to persuade the shipbuilding employers to broaden the basis of the riveters'

apprenticeship training to include other trades. The employers were reluctant to see Jordanvale closed because they were largely dependent on it for their supply of riveting apprentices, but they would not accept the Ministry's condition. They did not want to raise such a contentious subject with the unions in war-time, they hoped the labour supply position would improve with the return of peace, and they argued, with some force, that apprentices trained also as welders would be unwilling to do riveting work. Early in 1945 the school was closed.

It proved equally impossible to get recruits for a special shipbuilding training school which was opened in the spring of 1943 at Walker-on-Tyne and which was intended to train riveting apprentices on the same lines as Jordanvale. But there was not in any case at that time an acute shortage of riveters on the North-East coast because of the expansion of welding, and the school therefore concentrated on training welders, mostly women. Indeed the many dilutees who entered the industry as welders helped substantially to make up for the shortage of riveting apprentices. The supply of apprentices in other trades was more plentiful. But the demand for labour in most shipbuilding trades was too great to be met by increasing the proportion of apprentices employed. It could only be met by dilution.

(b) TECHNICAL AND PSYCHOLOGICAL PROBLEMS

In some ways there was considerable scope for dilution in the shipbuilding industry both by 'de-skilling' the work and by upgrading semi-skilled workers to skilled work. For the industry was well provided with skilled men and extravagant in their use. This was partly because the long years of unemployment had caused the men to press for retaining in the industry the highest numbers of skilled workers, while managements, for their part, were reluctant to dismiss their skilled workers, and used them more widely than they might otherwise have done. The industry was given to wasteful practices, hallowed by time. These varied from district to district and from yard to yard; extreme examples were the continued employment of the two skilled men necessary to a hand process on a machine which only required one, such as the practice on the Bristol Channel and in certain districts on the South Coast of using two riveters and a holder-up to a squad in pneumatic riveting,¹ or the custom of fitters working in pairs which prevailed in Newport and in some Merseyside yards, or of two shipwrights working together in the royal dockyards, when elsewhere the skilled shipwright worked with a mate. Some work rated as skilled in British yards, such as riveting, caulking and burning, was only rated as semi-skilled in many other countries and in the

¹ The second riveter in the squad was often an elderly man who was no longer capable of riveting; his job was to relieve the holder-up.

royal dockyards was done by a special grade of labour below the skilled mechanics. Less skilled men could also be brought in to assist skilled workers, for example on electrical work. In the dockyards there was already a grade of wiremen who assisted the electricians. Though conditions were by no means comparable, it was yet significant that during the war in the vast new merchant yards on the West coast of the United States nearly half a million workers with no previous experience of shipyard work were trained each in a matter of months for shipbuilding operations.

Proposals for diluting the labour force by increasing the proportion of unskilled and semi-skilled workers employed were not lacking. In discussions of the Essential Work Order the Minister of Labour told the unions he thought it should be possible to appeal to the skill of the men by using them in a supervisory category over unskilled workers; and the Controller of Merchant Shipbuilding and Repairs argued that the unskilled labour provided for the industry should be put into firms accustomed to using it as such rather than pressed unwillingly as dilutee skilled labour on other firms. The men were, however, resolutely opposed to proposals from any quarter for increasing the proportion of unskilled men in the industry.

There was also scope for dilution in the shipbuilding industry in that in many trades there were alternative workers available as dilutees. For example, there was a surplus of joiners in the shipyards on the outbreak of war when passenger liner work ceased, as well as a surplus in the building industry, and not only could joiners do the wooden side of shipwrights' work with very little further training but they were also adaptable for many other trades. Plumbers' work was little different from coppersmiths'. Moreover, the association of helpers with skilled men provided a fruitful field for upgrading. There was little that a plater's helper of ten years' or more experience, who by some chance had never been apprenticed, did not know about a plater's work.

Nevertheless, however great the scope for dilution in shipbuilding might seem, there were in practice greater technical and psychological obstacles to it there than in the engineering industry. For example, there was little scope for de-skilling of work with machines, for there was little repetition work. New machinery, like hydraulic riveting machines or one man punches, reduced the quantity of labour required rather than altered its type. The unions in the engineering industry had always resisted the employers' contention that the manning of machines was a managerial question, but the introduction of semi-skilled workers on single process machines was in the long run irresistible; the absence of any similar technical development in the shipbuilding industry undoubtedly strengthened the workers in their opposition to dilution.

In addition a great deal of shipbuilding work was heavy and unpleasant—strength and physical fitness were as much at a premium in the industry as skill—and the field of recruitment of dilutees was consequently narrowed. Another difficulty was caused by the practice of working in squads on piece rates, for the men claimed, often with little justification, that the introduction of dilutees would reduce their piece-work earnings. The Boilermakers' Society's dilution agreement with the employers solved this difficulty by providing that its members' original earnings should be maintained, but this does not always seem to have been done; the platers' squads were therefore reluctant to release experienced helpers for upgrading and to have them replaced by inexperienced ones. Again, the employment of dilutees, especially women, often meant that the skilled man was sent to unpleasant work on board ship while a dilutee took his place in the comparatively cleaner and warmer shop.¹

Other difficulties applied particularly to the employment of women. Supervision was far more difficult on board ship than in an engineering shop. Moreover women had not usually been employed in the shipyards before the war, except for a handful of French polishers, with the result that there were fewer facilities for women in the shipyards; cloakrooms and rest-rooms had to be provided, and only, it was assumed, for the temporary emergency. Such difficulties were not, however, the main obstacle to the extended employment of women; the fact that women had never in peace-time been employed in the shipyards on any scale was in itself sufficient argument for both managements and men against the possibility of their ever being employed there at all.²

Indeed, the basic obstacles to dilution in the shipyards were psychological, and the technical obstacles too often provided not a challenge but an excuse. Both sides of the industry were conservative, and memories of the past—the empty slips outside the office windows, the years of unemployment and poverty—made both managements and men apprehensive for the future and cautious in their approach to dilution. The skilled workers were strongly organised in some seventeen craft unions, and entry to the shipbuilding trades was

¹ The objections of the skilled men sometimes made upgrading unattractive to the dilutees. For example, dilutee platers who were not allowed in squads were put on jobbing work and earned so little more than as helpers that they refused to be upgraded. Moreover dilutees were the first to go if there was redundancy, and in ship repairing in particular employment fluctuated. Fitters' mates in the Bristol Channel were said to be unwilling to work as fitters since they might, as such, have less regular employment.

² In September 1939 the shipbuilders put on record the view, which was said to represent the consensus of opinion at the end of the First World War, that women could only be employed usefully in the yards in so far as they could be segregated within four walls and provided with a separate entrance. It would serve no useful purpose to employ them in open shops or in the ships for, apart from their unsuitability for the work, any increased output obtained by their introduction would be more than offset by loss of output from the men already employed.

normally only by apprenticeship. The fear common to all skilled workers that dilution would depress wages and create unemployment was intensified among shipbuilding workers because the industry, which was particularly vulnerable to fluctuations in trade, had always been subject to unemployment that had culminated in the depression of the thirties. For this reason if there had to be dilution shipbuilding workers much preferred as dilutees skilled workers from their own or other industries—who would probably return after the war to their own trades or industries—or women who would return to their homes to upgraded unskilled workers or government trainees.¹ The men did not believe that the Restoration of Pre-war Trade Practices Act would in fact ensure that customs were restored;² and though the Minister of Labour gave pledges about full employment and pleaded with the men 'to put the twenty years of bad times out of their minds', he well knew that all promises were received with a cynicism which nothing could dispel. By contrast the position was easier in the royal dockyards. There was more continuity of employment in the dockyards before the war than in private industry, and they were situated in relatively prosperous districts, so that when men had been stood off alternative employment had been easier to find. Moreover in the dockyards industrial relations were good.

It was the Government's policy to leave the actual negotiation of dilution agreements to the two parties, but both the trade union leaders and the employers agreed that it would be an advantage to take discussion of dilution 'out of the field of conflict' between them and put it on a new plane. This could best be done if representatives of the Admiralty and the Ministry of Labour, concerned only with securing higher production to meet war requirements, could be associated in some way with discussions on dilution. Unfortunately this third party influence was in the main only brought to bear at the highest levels; it was least felt where it was most needed, that is in individual yards.

No formal national dilution agreements were made on the outbreak of war but the unions were left to reach agreement locally; the shipwrights in particular, who had very few members unemployed, made many agreements with individual employers early in the war.³ It was not until May and June 1940 that national dilution agreements were made between the Shipbuilding Employers' Federation and the A.E.U., the Boilermakers' Society and the Electrical Trades

¹ At one point in February 1941 only seventeen men were undergoing training in electrical work at the Glasgow Technical College, which had room for thirty-five, because the Electrical Trades Union insisted that trainees should be skilled men.

² This Act was dated 26th February 1942, but already in May 1940 the Government had undertaken to take steps to ensure the restoration of pre-war practices.

³ Lord Westwood, the Admiralty Labour Adviser, had been General Secretary of the Shipwrights' Association and his influence with its members was considerable.

Union; agreements with most of the other unions concerned were made in the course of the war as shortages developed in other trades. These developments did not, however, settle the problem of dilution. National agreement was not difficult to reach. But the national dilution agreements only provided for agreement to be made locally in individual yards or districts if the unions were satisfied of the need for it, so that discretion remained with the local officials.¹ And although all agreed that the national executives of the trade unions were in general very willing to co-operate it was sometimes suggested that if the local union officials or men refused to agree to dilution unreasonably, the executives were not always as eager as they might have been to go themselves into the districts and press for dilution.

At district, as at national, level co-operation between trade union officials, employers and government departments was relatively effective. Contacts were made easier by the fact that the majority of shipyard labour supply officers were ex-trade union officials. But this had its adverse side in that many of the trade union officials who replaced them were inexperienced and were often not strong enough to put over dilution to the men. The district officials were between the upper and the nether millstone, pressure from the Government, the employers and the national executives on the one hand, and the opposition of their members on the other.

The shipyard labour supply officers did their best at yard, as well as at district, level. They played a considerable part in the negotiation of dilution agreements in the yards and were usually prepared to go and put the Government's case to a trade union branch or a yard meeting. In some districts, indeed, agreement for dilution seems in practice to have been reached in the yards between the shipyard labour supply officers and the union representatives, though the formal recording of it was done by the employers and the unions. Nevertheless third party intervention was inevitably least felt at shop level. This was the more unfortunate since, as a report prepared for the Clyde District Consultative Committee by an employer and a Ministry of Labour official pointed out, certain employers and workmen seemed to have no desire for dilution; this was not deliberate sabotage of the war effort but a subconscious attitude created by the peace-time struggle for wages and profits. It prevailed in yards where there was lack of a corporate sense of responsibility for production

¹ It may be noted that different agreements prescribed different procedures. Those of the A.E.U. (for new work) and of the Electrical Trades Union allowed for agreement at district level for a given percentage of dilution in all yards in the district, though agreement to allow dilution at all had first to be reached in the individual yards. Those of the Boilermakers' Society and the Shipwrights' Association provided for entirely separate negotiations in each yard, so that there might be 25 per cent. dilution agreed to in one yard and 50 per cent. in the yard next door. The former procedure was obviously the better and unsuccessful efforts were made to persuade the Shipwrights' Association and the Boilermakers' Society to adopt it.

and could only be overcome by a reasoning conscious majority. The establishment of Yard Committees and other measures taken to create such a sense of responsibility are discussed below,¹ but if the need for dilution could have been put to all trades in the shipyards at a Yard Committee or other joint meeting, if attention could have been drawn to the effect upon other trades of shortages in any one trade, and if a stronger sense of joint responsibility for production could have been developed in the yards, the progress of dilution might have been faster and smoother.

The worst difficulties in securing dilution in the yards arose with the Boilermakers' Society. There were a number of reasons for this. In the first place, the constitution of the Society gave the local delegates considerable independence of the national executive. Moreover the members of the Society in the yards had suffered more from unemployment than the fitters or electricians who could more easily get work in other industries. Again the riveters and platers, as piece workers, were particularly concerned to see the existing labour force properly utilised before they allowed dilution. Finally, the nature of their work was not inclined to make them, nor anyone, particularly co-operative.

In time, as the shortage of skilled labour became perfectly clear it became progressively easier to secure agreement to dilution—that is until the approach of peace made men more concerned for the future again. Indeed at all times objections from the men did not so much prevent dilution completely as lead to delays. Nevertheless these delays were most vexatious. Requests for dilution frequently met with all kinds of objections; there might be a demand for more overtime, even if men were already working sixty hours a week or more, or complaints that the transfer system was not working properly, that more output could be got by payment by results, or that the piece work list was unsatisfactory, that an occasional shipyard worker had been called up to the Forces out of his Service trade because he was not pulling his weight in the yard, that there were still workers in the shipyards not employed at their trade or that there were elderly men who had been shipwrights employed as bar tenders. 'Whenever dilution is raised,' complained a Ministry of Labour official, 'we seem to be brought up short against this ghostly squad of unemployed boilermakers.'

Justifiable or not, and the squad was by no means always ghostly, all these complaints took time to investigate. If an employer wanted dilution, it was primarily to meet an immediate shortage. Objections from one or two shop stewards could cause a number of meetings in the yards; and if there was ultimately a refusal to agree, the question had to be referred to Local and Central Conference through a pro-

¹ See pp. 376-92 below.

cedure which was very slow. In many cases, however, an employer who met with a refusal from the shop stewards was only too glad of the excuse to let the matter drop. There were rarely strikes against dilution because it was rarely pressed to that point. Only a handful of disputed dilution cases were ever brought to Local and Central Conference. It was arguable that men who had refused the advice of their local union officials to agree to dilution in the first place were unlikely to accept a decision at Local or Central Conference which went against them. It was, however, difficult for the Ministry of Labour to appeal to the national executive of a union to use what influence it had until the procedure had been followed, and on occasions when the Admiralty did so it was met with a rebuff.

Certain proposals for speeding up the existing procedure for negotiating dilution were made when the Essential Work Order was under discussion. At a meeting in February 1941 the Minister of Labour suggested that the parties should appoint dilution officers in the yards who were to speed up dilution. Neither the unions nor the employers favoured this proposal. At a later meeting, however, the employers and the unions agreed that questions of interchangeability in particular, which could not be settled by consultation in the yards, should be referred to the District Consultative Committees. This procedure seems also to have been intended to cover dilution. As the President of the Confederation pointed out, consultation would then have a new significance because of the presence of a representative of the Admiralty.

In practice the procedure was never used for settling disagreements between managements and men about dilution, nor to any extent for disagreements about interchangeability.¹ If the procedure had been used it is difficult to see what steps could have been taken to enforce the Committee's decisions if they were not accepted by the men. It had been intended that the shipbuilding workers should agree to dilution in return for the guaranteed week given under the Essential Work Order, but it was obviously impossible in negotiating the Order to get more than the general agreement of the national executives of the unions, and this was not enough. Moreover, a guaranteed week could not in any case have been withheld as a sanction to obtain agreement as the Ministry of Labour wanted to schedule the shipyards under the Order for other reasons. The Essential Work Order did, however, contain disciplinary clauses, primarily intended to deal with absenteeism and other misconduct, under which a person who refused to comply with any lawful and reasonable orders given to him could be directed to do so.² So far as is known, such

¹ See pp. 151-2 below.

² Essential Work (Shipbuilding and Shiprepairing) Order (revised), S.R. & O. 1942, No. 266, 10th February 1942, p. 8.

directions were only once issued on a question of dilution; this was in an attempt to break down the 'two-fitter' custom in Newport, where skilled fitters worked in pairs instead of one skilled fitter working with a mate which was the usual practice.

The Newport problem was first raised in October 1940. Eventually an independent commission of inquiry considered it and found no justification for the practice of fitters working in pairs. The national executive of the A.E.U. was, however, unsuccessful in its efforts to persuade A.E.U. members in South Wales (over whom the executive had very little control) to give up the custom. Finally in June 1942 the Ministry of Labour issued directions; but the men refused to obey them and there was some fear of a strike. Since the A.E.U. national executive objected that it had not been given sufficient opportunity to discipline its members it was decided not to prosecute. Although the question was under negotiation sporadically for the duration of the war, the custom was never abolished. It was the general opinion locally that if the directions had been enforced the men's bluff would have been called; indeed it is arguable that a more coercive policy towards blatant obstructors even at the risk of strikes would have been an advantage in the long run. As a general rule, however, coercion was no substitute for the co-operation which, as has been seen, was lacking in some yards.

(c) THE ADMINISTRATIVE MACHINERY

It was necessary to convince the employers as well as the unions of the need for dilution and it remains to consider the policies adopted and the organisation devised to secure this end. As has been seen, the Ministry of Labour approached the supply departments in December 1940 to secure their co-operation in pressing dilution on the firms, and in February 1941 the Admiralty issued instructions to its area officers on the subject. In the Control machinery set up under the Shipbuilding Essential Work Order early in 1941,¹ the Admiralty was even more closely associated with the Ministry of Labour in its attempts to secure dilution than were the Ministry of Supply and the Ministry of Aircraft Production. The Admiralty, as the contracting department, was in a stronger position than the Ministry of Labour to bring pressure to bear on employers to dilute their labour force. But the Admiralty, though eager to ease the problem of skilled labour, could not perhaps be expected to press for dilution in the shipbuilding industry as strongly as the Ministry of Labour would have wished. The Ministry was after all faced with an acute shortage of skilled labour throughout the war industries and was therefore more anxious than any other department to see that all industries

¹ See pp. 104-6 above.

carried their fair share of dilution. A strong difference of opinion did in fact develop between the Admiralty and the Ministry of Labour in the early part of 1942 about the amount of dilution that was possible in the shipyards.¹

To some extent the Admiralty's views reflected those of the industry. For example the Director of Merchant Building (Sir Amos Ayre), consulted as a shipbuilder before the war, thought that little help could be obtained from dilution. The Controller of Merchant Shipbuilding and Repairs (Sir James Lithgow) was not in theory opposed to it; but his views on dilution were such that in practice they sometimes discouraged its extension. He believed that dilution must be carried out on a large scale to overcome its initial interference with efficiency, and on the same line of reasoning argued that dilution up to the hilt for a few firms would be more profitable than the introduction of a limited amount of dilution in all firms. Partly for this reason, partly no doubt to protect merchant firms, the Controller sometimes objected to spreading dilution evenly among all the firms on the Clyde. There was indeed a sense in which it could be argued that by the end of the war dilution in some yards had gone too far for efficiency. For in the later years of the war labour was so scarce that some of the workers directed into the shipyards were not really suited to the work. Moreover men sent into the industry against their will were not eager to give of their best, while the difficulties of supervising labour, which in the shipyards were in any case great, were increased by the acute shortage of foremen and other supervisory staff.

Although the Admiralty and the Ministry of Labour differed about the precise degree of dilution that was desirable, both were agreed from the outset that a good deal was necessary. In the early years of the war, however, neither the Admiralty nor the Ministry of Labour organisation was strong enough to see that dilution proceeded at a reasonable pace. At the outset a small section of the Admiralty Priority Branch looked after shipyard labour interests but it was chiefly concerned with deferment problems. In 1940 Mr., later Lord, Westwood was appointed Principal Labour Adviser to the Board of Admiralty. In 1941 the Principal Labour Adviser was given some staff and a Contract Labour Department was set up under his direction, but until mid-1942, when a Contract Labour Branch was established within the Secretariat, the Admiralty labour organisation was not strong. Nor, until the district shipyard controllers were appointed at the beginning of March 1941, were there any local Admiralty officials responsible for shipbuilding labour except the area officers. Like the divisional controllers of the Ministry of Labour these

¹ See p. 137 below.

officers were stationed at regional headquarters; and officials of both departments stationed, for example, in Edinburgh or Manchester tended to be out of touch with the shipbuilding industry on the Clyde or on Merseyside.

Even when the new local organisation was set up to deal with shipbuilding labour in 1941, some difficulties in dealing with dilution remained. There is no doubt that many district shipyard controllers and their deputies had great prestige in the industry both for their own sakes and as representatives of the Navy. But district shipyard controllers and Ministry of Labour officials without technical knowledge found it difficult to counter the arguments of a shipyard manager that dilution of such and such a job was impossible. Director of Electrical Engineering and his local officials took a considerable interest in, and gave much help to Contract Labour Branch in the solution of, electrical labour problems throughout the war; but on the whole Admiralty production departments, whose officers had the technical knowledge, argued that they could not interfere in questions like dilution lest the firms should blame them for any shortfalls in production that might follow.

On their part the Ministry of Labour's shipyard labour supply officers could not always do much to press forward dilution. Both employers and unions had been invited to suggest suitable candidates for appointment as shipyard labour supply officers but shipyard managerial staff could rarely be spared. Most of the officers were therefore ex-trade union officials.¹ In many ways this earlier experience of the shipyard labour supply officers was a help in their work. On the other hand, in May 1942 a Ministry of Labour headquarters official (himself a trade unionist) reported that the conservatism of the labour supply officers on the North-East coast had tended to leave trade practices as they were so that there was little dilution. Such evidence was not confined to this region; but other Ministry of Labour headquarters officials thought that this tendency was not very pronounced. There were other difficulties. For example, at least one district shipyard controller believed that the labour supply officers had not the necessary standing to press shipyard managers to dilute their labour force; and until 1942 the officers lacked the supervision and backing of higher Ministry of Labour officials.

Even if officials had extensive knowledge they could be defied. The Admiralty felt the same difficulty in compelling firms to dilute their labour force as the Ministry of Labour felt in compelling the men to accept dilution. Though it did intervene in various ways in the control of certain firms it normally took the view that attempts to coerce managements might result in putting back completion dates. Ship-

¹ Some of the labour supply officers were ex-dockyard tradesmen or foremen; one was a naval architect, and another an executive of the local employers' association.

yard managers were not so plentiful that they could be easily replaced. Moreover it was sometimes the highly efficient firms which resisted dilution or, as they saw it, the transfer of skilled labour to their competitor firms.

The Director of Merchant Building (Sir Amos Ayre) thought, however, that the Government's wishes on dilution should have been more firmly enforced on both sides of industry. From his experience of the work of the Admiralty labour control in the war of 1914-18, he argued that the Contract Labour Branch should have a small committee on each of the main rivers, particularly on the Tyne and the Clyde, to go into the yards and press forward dilution and carry authority to ensure that its decisions were put into effect. In 1942, the officials in charge of the newly-formed Contract Labour Branch did study very thoroughly the 1914-18 organisation, but gained from it no useful proposals for the improvement of the existing organisation either in the Admiralty or in the districts. They pointed out that between the two wars the situation had changed completely—in particular there had been a great increase in the power and bargaining strength of the trade unions. There was therefore no longer any room for dictatorial control in the shipyard districts by technical staffs drawn from the ranks of the shipbuilding firms.

As it was, the Admiralty and the Ministry of Labour had only indirect methods of coercion. One method of spreading dilution evenly over all firms was to insist that those firms whose labour force was little diluted should provide labour for high priority work under the local transfer schemes. Another important sanction was to call on the recalcitrant firms for a high quota of skilled men for the Fleet Repair Bases. Other sanctions were to cancel deferments and to transfer men elsewhere instead of calling them to the Services, or to withhold new skilled or male labour. If, however, a shipyard labour supply officer refused to supply men when a firm refused to take women, and the pressure of the district shipyard controller were ignored, the firm could cancel its demands and nothing more could be done. It remained underdiluted and its output limited for lack of labour.

Apart from certain weaknesses and difficulties on both the Admiralty and the Ministry of Labour side, there were certain disadvantages inherent in the division of responsibility between the two departments. For example, one department could to some extent throw responsibility on the other. As has been seen, the Ministry of Labour proposed in 1941 and again in 1942 to hand over full control to the Admiralty. This was chiefly with the object of securing greater mobility of labour but the proposal was also intended to stimulate the Admiralty to secure full dilution in the shipyards. When the proposal was being discussed, the Admiralty planned to appoint labour officers

with technical qualifications and managerial experience in the shipyards; one of their duties would be to press firms to take on unskilled labour for training, for the shipyard labour supply officers, as Ministry of Labour officials, could not really be expected to press scarce labour on reluctant firms. The whole Ministry of Labour proposal was, it will be remembered, abandoned and though the Admiralty continued with its scheme to appoint labour advisers to the district shipyard controllers these were limited in number and quality by the difficulty of obtaining suitable men.

As time went on, however, the Control scheme improved considerably in its working. Several district shipyard controllers, while agreeing that Admiralty control might have been desirable from the first, deprecated any change in 1943. In many districts there was good co-operation between the departments and the Controls had by then a better knowledge of the industry. Moreover, in 1942 the Ministry of Labour had transferred the London Shipyard Labour Supply Officer to headquarters and he was able to visit the various districts and pass on the experience and achievements of one district for the benefit of another. In 1942 a woman headquarters inspector also visited the yards to collect information and advise on the employment of women.¹ In addition detailed surveys of yards by shipyard labour supply officers helped to spread experience within the districts. Finally, employers, faced with the corvette programme, were at last convinced that they would have to rely on unskilled labour for expansion. All these facts together resulted in considerable progress in dilution in 1942-43.

(d) THE SHORTAGE OF UNSKILLED WORKERS

We come now to the last, and ultimately the greatest, obstacle to the dilution of the shipbuilding labour force, the shortage of unskilled workers. A serious shortage of unskilled male labour existed in some areas, notably in the Midlands, from as early as 1940 onwards. The shipbuilding districts were not, however, affected by such shortages until somewhat later; and there remained throughout the war a marked difference in supply as between one shipbuilding district and another. Similarly, while shortages of women workers were acute in the Midlands in 1942 there were then no serious shortages in the shipbuilding districts, although in some of these acute shortages developed later in the war. Thus it happened that on the North-East coast for example, the supply of unskilled workers was always relatively plentiful, while in Southampton, Barrow or on the Clyde serious shortages arose as the war progressed.

It was reported in the spring of 1941 that, except for Barrow and

¹ The Ministry of Labour pamphlet *Women in Shipbuilding* was prepared and circulated to firms in 1942 as a result of her work.

Merseyside, where the Ministry of Labour took special measures, there were substantially no unskilled shipbuilding vacancies unfilled, and in the summer of that year only the Southern and North-Western regions had to use preference to meet demands for unskilled men for the shipyards, though there were substantial outstanding vacancies on the Clyde. Early in 1942, however, the Admiralty put forward demands for 12,000 unskilled workers for 1942 and most regions reported that these demands could not be met without preference. In February preference was given for a first instalment of 3,000 unskilled male workers (700 for marine engineering). In this instance the Preference Committee departed from its principle of giving preference only to individual firms and not to an industry as a whole, because the local transfer scheme made it difficult to identify in advance the needs of individual firms for fresh labour from outside the industry.¹

The preference for 2,300 for the shipyards was divided into quotas for each region needing preference in proportion to its current demands. In most regions the first quota was rapidly exceeded and was then raised to a new level in the light of existing demands. In fact only two months after the preference was given, the First Lord, following representations from the industry, wrote to the Minister of Production that the efforts of the Ministry of Labour had provided a flow of unskilled labour into the shipyards, which was approaching, and in some cases had exceeded, the limit of their capacity to absorb unskilled labour without a balancing quota of skilled men. Training and dilution were, of course, proceeding, but they could not be precisely regulated to a plan for absorbing so much unskilled labour.

The Minister of Labour was concerned that the industry should require more skilled labour and the Minister of Production subsequently appointed a Committee to enquire into the use of labour and the possibilities of dilution in the shipyards.² The Committee consisted of representatives of the two sides of the industry under the chairmanship of Mr. Robert Barlow. Its recommendations were not, however, in general very emphatic although one of them led to the Bentham enquiry and the establishment of the important Shipyard Development Committee.

In the event a small balancing quota of skilled labour was provided and there was a steady demand from the shipyards for unskilled labour. Preference allocations were agreed at quarterly intervals and on the whole in most regions, and particularly in the North-East and

¹ Towards the end of the war it became a fairly regular practice to grant preference 'to the District Shipyard Controller' for so much labour to be used as he might decide by any firm within the shipbuilding 'ring fence' engaged on the type of work for which preference had been accorded.

² See p. 119 fn. 1 above. The Committee also studied the question of the extension of systems of payment by results; see p. 330 below.

the North-West, supply kept pace with demand until the second half of 1943. On the Clyde, however, intake lagged well behind requirements, particularly in 1942, chiefly because sufficient help was not sought from other regions. The difference between the supply position on the Clyde and the other two main regions is shown in the following table (the quotas and quantities supplied are cumulative).

| | <i>North-West</i> | <i>North-East</i> | <i>Scotland</i> |
|-------------------------------|-------------------|-------------------|-----------------|
| February 1942 quota | 610 | 440 | 900 |
| Supplied to 13th May 1942 | 874 | 733 | 339 |
| June quota | 1,410 | 1,390 | 900 |
| Supplied to 22nd July 1942 | 1,619 | 1,331 | 594 |
| September quota | 2,500 | 2,350 | 1,500 |
| Supplied to 14th October 1942 | 2,418 | 1,952 | 1,118 |
| Supplied to 9th December 1942 | 2,804 | 2,434 | 1,426 |

In mid-October there were no vacancies outstanding on the North-West coast, 62 on the North-East and 220 on the Clyde.

Some of the unskilled male labour supplied to the industry in 1942-43—civil defence workers and building labourers, for example—was of good quality, but much of it was very poor. The major difficulty was to find robust able-bodied men. Not surprisingly the wastage of unfit labour was sometimes high. Between November 1942 and April 1943 Vickers at Barrow took on 229 male workers, of whom 191 were unskilled. In the same period they lost 235, 27 of whom they discharged and 208 of whom obtained permission to go, many on medical grounds and with the agreement of the independent medical referee. Wastage was not of course always due to medical reasons. Barrow was a district isolated from any large reservoir of labour so that numbers of workers had to be imported and wastage was therefore exceptionally high. Many unskilled workers were sent to the shipyards against their will; 95 per cent. of the unskilled labour supplied to Barrow was under directions, with what the Ministry of Labour's regional office described as 'the obvious results'. These varied from discontent to disappearance or the production of doctor's lines which not only certified that a man was unfit for work in the shipyards but that he was 'suitable' for whatever his previous employment happened to have been. It was always arguable that to have workers discontented was to waste manpower. Nevertheless, Ministry of Labour control was not always as strong as it might have been, and workers could too easily make the most of their physical disabilities if they 'wanted away'. These difficulties applied particularly, of course, to the recruitment of riveters, whose work was the most strenuous and the most unpleasant, and to the recruitment of such workers as heaters and catchers, caulkers or red-leaders. When late in 1942 a Clyde firm got the agreement of the Boilermakers' Society to the

training of adult riveters they could persuade no one either from their own yard or outside it to do the work.

By the second half of 1943, when the shortage of labour for shipbuilding was in some areas made more acute by the granting of overriding priority to aircraft production, the Ministry of Labour saw no hope of providing the yards with fit unskilled labour except from Eire. It was therefore agreed to persuade the firms to accept as much Eire labour as possible as part of the preference quota. Already in October 1942 arrangements had been made on the Clyde to recruit labour from Eire. Recruitment was undertaken by the Shipbuilding Employers' Federation and financed by the Admiralty. The Admiralty was late in the field for such labour and it was, of course, even more difficult for shipbuilding, with its low unskilled rate, to compete in an open market than in the partially controlled market at home. In all, the Admiralty recruited less than 2,000 workers (all men) in Eire compared with a total recruitment to munitions work of about 50,000 men and women.¹ Some of the men recruited did not stay long. Nevertheless a number of young fit men remained and must have been a useful addition to the labour force. The industry never had as many as it could have had because of its reluctance to accept them, a reluctance shared in some districts by employers, men and Admiralty officials. The North-East coast refused to have Irish workers at any price, while there were security objections to their employment on the South coast.

In March 1942 the Admiralty had instructed district shipyard controllers that none of the men supplied under the preference were to be used on work which could be done by women, but the yards were obviously reluctant to employ women while they could get men. In January 1943, therefore, women were included in the preference for unskilled labour or, in districts where preference was not needed to supply women, it was agreed that a certain proportion of the unskilled requirements should be met with women. In the Northern region as late as June 1943, the shipyards had been supplied with all the women they needed without even regional preference (a lower priority than headquarters preference), and the priority for aircraft work later in the year made little difference to meeting shipbuilding requirements on the North-East coast. In the Southern region, on the other hand, the Ministry of Labour doubted in September 1943 if any women could be produced for shipbuilding work even if it was designated, that is if it had the highest possible priority.

Some problems also arose in the supply of women workers to the shipyards on the Clyde, although there was no actual shortage of women workers on Clydeside until late in the war. In 1942 requirements could on the whole be met with women whose domestic

¹ See Table 11 below.

responsibilities kept them at home; the younger mobile workers were sent South, though some were supplied to local firms for electrical and welding work. The shipbuilding industry complained that it was getting only the second best. In fact, however, many of the older women were, physically, more able than the younger ones to stand up to much of the work in the shipyards. On the other hand, since women were only kept in the district because they had domestic responsibilities, absenteeism among them was inclined to be high. Later in the war, when the supply of such labour was insufficient to meet local demands, some of the younger women without domestic responsibilities were kept in the region and sent to the shipyards and to other local firms.

It was no doubt partly because the supply of full-time women workers was relatively abundant that only a very small number of part-time workers were employed in the shipyards. In December 1943 there were only 409 part-time women workers compared with 10,875 full-time, and the great majority of these were in London and Southampton. There was also, however, some weight in the employers' argument that it was impracticable to arrange part-time work on most jobs in the shipyards. It was far more difficult to hand over a partially completed electrical or welding job than to exchange one operator for another in repetition machine work. Nevertheless a considerable number of part-time women workers were employed in Rosyth Dockyard on shipbuilding as well as on engineering work. Moreover more part-time workers could easily have been employed on sweeping and cleaning.

In general, however, there was an acute shortage of all types of labour by 1943. The difficulty of expanding the shipyard labour force was made plain when in that year an attempt was made to provide 10,000 additional workers in certain merchant yards.¹ In August 1943, after discussions with the shipbuilding trade unions, the Admiralty asked the Ministry of Labour to provide a first instalment of 5,000 additional workers by the end of the year. The Ministry agreed to do its best to find this labour. It was clear, however, that neither the Merchant Shipbuilding Department nor the firms concerned were prepared to accept the poor quality labour which was often all that was available. The Controller of Merchant Shipbuilding and Repairs himself held qualified views on the value of dilution, even with suitable labour.² As for the firms, the Clyde Shipbuilders' Association thought that so great an influx of unskilled labour would upset the balance of trades. They also feared trouble with some of the unions if they asked for dilution on an extensive scale—for as the end of the war drew in sight the men's attitude to dilution hardened. It

¹ See pp. 121-2 above.

² See p. 133 above.

was probably equally true, however, that with the prospect of a return to peace-time conditions certain employers were reluctant to employ the poorer type of worker and even dismissed some of those they already employed.¹ It could thus be argued that by war-time standards firms were over selective; yet it is difficult to see how 10,000 suitable workers could have been found for the shipyards in 1943-44. In February 1944 the Admiralty had to report that shortage of labour had compelled it to abandon the proposed expansion of production in merchant yards.

(c) THE RESULTS ACHIEVED

There was virtually no change in the course of the war in the proportion of labour in the shipbuilding industry rated as skilled. After a slight drop from 50 per cent. in 1940 to 47 per cent. in 1942-43 the proportion of skilled to other labour employed in the main shipbuilding and engineering firms rose again to 48 per cent. at the end of the war. Though the practice of using one man and a mate in place of two skilled men was extended during the war, some customs wasteful of skilled labour were never eradicated. In spite of efforts on the part of the Ministry of Labour and the Admiralty, in certain districts three men were still employed in pneumatic riveting squads to the end of the war.

The Admiralty collected dilution returns from the main shipbuilding and repairing firms. These were not regarded as very reliable but they do nevertheless show some interesting results. They illustrate, for example, the widely varying amount of dilution achieved in the different trades. The average number of dilutees, men and women, in all trades in the 52 main building firms was about 7 per cent. of the total skilled labour force at peak in 1943-44. A very large proportion of these dilutees were already skilled in other trades—for example, joiners might be acting as dilutee shipwrights; on the Clyde the Shipyard Labour Supply Officer thought that as many as 90 per cent. of the dilutees were alternative skilled workers. The dilution percentage was much higher in the fitting out than in the ironworking trades. Over 15 per cent. of the electricians were dilutees, 8 per cent. of the shipwrights and 10 per cent. of the fitters and turners. Among other fitting out trades such as plumbing and joining, dilution was less than 2 per cent., but this was because there was little shortage in these trades until the end of the war. In the ironworking trades, on the other hand, there were acute shortages in the second half of 1941, but the delay in introducing dilutees was particularly great. In July 1942, for example, fifteen firms on the Clyde had no dilution in the

¹ This was the view of Admiralty and Ministry of Labour officials responsible for labour supply. According to the Merchant Shipbuilding Department men were only dismissed when their employment was retarding current output.

ironworking trades. And in 1943-44 in the industry as a whole the number of dilutees in all the boilermaking trades, save welding, amounted to less than 5 per cent. of the total skilled tradesmen. The only considerable dilution achieved on this side of ship construction arose from the substitution of riveting by welding on which women could be extensively employed.

Welding was not particularly economic of labour as such, except on certain jobs. Hand riveting, it is true, required more labour than welding but hydraulic riveting required less; that welding was more extravagant of labour was partly due to the union ruling in some districts that at least two men must be used per arc. The value of welding as compared with riveting lay, from the labour supply point of view, in the fact that women could be extensively employed as welders and that the training required for welding work was comparatively short. In the United States thousands of men, youths and women were turned out every week, fully trained and fit to undertake important structural welding work.

Measures were taken by the Admiralty during the war to increase the use of welding in the shipyards. One obstacle to its extended use, however, was the insistence of the shipyard tradesmen that welders should be remunerated not, as many employers would have wished, as semi-skilled but as skilled craftsmen.¹ This fact was a serious obstacle to the extension of welding even though in war-time costs could be passed on to the Admiralty.

Between September 1942 and June 1944, when the number of hand riveters employed in the fifty-two main shipbuilding firms fell from some 5,000 to barely 4,200, the number of welders employed increased from 3,750 to 5,650. Even so, from a comparison of the number of welding points in use in merchant yards between 1942 and 1944 with the number of welders employed, it appeared that the supply of welders did not keep pace with the extension of plant, though account had to be taken of increasing use of higher amperages.²

The employment of women in the shipyards spread most rapidly in the second half of the war. Agreement was made with the unions for the employment of women in the shipbuilding industry in June 1941. The number employed in private yards in the United Kingdom, however, increased from about 900 in June 1941 to only 1,900 in December, or from .5 to .9 per cent. of the total operative labour force. In some regions this was because unskilled men were still available; partly it was due to the scepticism of employers, which has

¹ Cf. Sir James Lithgow's address to Scottish branch of the Institute of Welding, reported in *Journal of Commerce, Shipbuilding and Engineering* edition, 23rd February 1939; *Lloyd's List and Shipping Gazette*, 28th December 1945.

² Sir Amos Ayre, 'Merchant Shipbuilding during the War' in *Proceedings of the Institution of Naval Architects*, 1945, p. 16.

already been referred to, about the usefulness of women in the shipyards.¹ In 1942, however, the shortage of male labour increased; and as soon as the shipbuilders started to employ women they found them much more useful than they had expected. There was some slight delay because of the lack of proper accommodation, but in 1942 the number employed increased rapidly. In the private firms it rose from about 1,900, or .9 per cent. of the labour force, in December 1941, to over 9,000, or 3.8 per cent., in December 1942 and to over 13,000, or 5.7 per cent., in December 1943. This was a fair achievement, though it may be noted that the Clyde Consultative Committee had set 10 per cent. with variations according to circumstances, as a first target.

The view commonly held in 1941 that women were entirely unsuited to work outside in the yards was soon abandoned, and women were used on many types of work at all stages in production, though more frequently, of course, in the shops and in the finishing stages on board than in the actual hull construction, where a lot of the work was heavy and had to be done at heights. Less than a quarter of the women employed in December 1943 were engaged on skilled work. From an early date in the war women had been used as dilutee electricians, and most of the semi-skilled and skilled women were employed on electrical work or on welding, at both of which they excelled. In the main firms on the Clyde in June 1944 the proportion of women employed as skilled workers or assisting skilled men to male tradesmen was 16 per cent. in the electrical department and 35 per cent. on welding work; on sheet iron work it was 4 per cent. and in drilling, ship mechanic's work and painting about 2 per cent. But in the joiners', platers', plumbers', shipwrights' and riveting departments it was under 1 per cent. Women could have been used much more freely on skilled work in the joiners', sheet iron and fitting shops particularly, and as painters; but there was no great demand for them in the joiners' shop because there was no dilution there until towards the end of the war. Women were widely employed as cleaners, labourers and unskilled assistants and as crane drivers, but less often than they might have been as plater's helpers, markers off and rivet heaters.² A comprehensive picture of the scope for the employment of women in shipbuilding, based on the experience of individual firms, was given by a Ministry of Labour pamphlet prepared for the guidance of the industry in 1942.³ If many of the examples given here had been at all generally adopted the employment of women would have been very much greater.

¹ See above p. 127 fn. 2.

² There was a good deal of controversy about the practicability of using women as heaters, though they were so used in a number of yards, particularly on work at ground level. Much depended on the way in which they were received and helped by the squads. Some could not stand the fumes.

³ *Women in Shipbuilding*, 1942.

The Admiralty dilution returns gave some indication of the considerable variation between firms in the proportion of dilutees, of skilled to unskilled labour and of women employed. Even where the average figure of dilution of all skilled trades was approximately the same for two firms it would often be found that one had achieved substantial dilution among platers and little among shipwrights while in another the position was reversed. In some cases these differences resulted from the type of labour available in the yards and outside. There was, for example, no point in displacing elderly men in the shipyards with young women workers who were badly needed elsewhere. Sometimes elderly skilled men were employed on labouring work but paid the skilled rate. Thus at one time one firm had 83 riveters and only 9 riveting squads. More frequently the differences resulted from different types of plant. To take an extreme example, there were bound to be few women employed in some of the small repairing firms on the Humber, which had grown out of workshops established by fishing firms to mend their own boats, and where all the material had to be manhandled for lack of crantage.

Dilution on repair work was indeed almost always more difficult than on new work, but the repair districts were also the most conservative. The employers did not get the agreement of the A.E.U. to the employment of women on ship repairing until 1943. According to the Admiralty dilution returns only about 4 per cent. of the skilled labour force in the main repair firms in 1944 were dilutees, compared with 7 per cent. in the shipbuilding firms, and women were only 4 per cent., compared with over 5 per cent., of the total labour force. Moreover, these figures exaggerated the amount of dilution on repair work, because some repair firms also did new work.

In some boatbuilding firms on the other hand there was a considerable amount of dilution. On the whole there was little objection from the unions, whether in mixed or union yards. Many of the 'dilutees' were other woodworkers—carpenters, cabinet makers and coachbuilders—who were already skilled in most of the work involved, apart from laying off, and could easily be used under the supervision of shipwrights and boatbuilders. Nevertheless some of the boatbuilding firms employed a considerable proportion of other workers, such as masons, fishermen and labourers, as well as boys and women, and on the whole they did a very good job of work. One firm built light motor boats by mass-production methods and employed a large number of women. It was also possible to use a high proportion of men and women dilutees on the building of tank landing craft. An outstanding achievement in this field was that of a fabricating shop and erecting yard at Alloa which in June 1943 employed 350 women and only 300 men. Nearly all its 150 platers and 150 welders were women.

The differences in dilution between firms also reflected the fact that the degree of dilution in each yard was ultimately the responsibility of individual firms. A few—Vickers at Barrow was a notable example—proved that what the majority of shipbuilders said was impossible, could in fact be done. Nevertheless the industry's achievement in dilution both with men and women in 1942-43 was substantial, and together with the development schemes and prefabrication it made possible the increased production in these years.

(f) DILUTION IN THE ROYAL DOCKYARDS

There were so many differences between the problems of the dockyards and those of private industry in introducing dilution that it is hardly practicable to compare the achievement of the two sections of the industry. It was perhaps easier to introduce alternative skilled and semi-skilled labour to work with the skilled labour force engaged on shipbuilding and repairing work in the dockyards than it was to dilute the skilled labour force in private industry. This was true partly for technical reasons, partly because the trade unions were more co-operative.

Some practices which were introduced in the private yards as war-time dilution measures had been normal practice in the dockyards. Work there was already broken up to a greater extent and the gradations in the labour force between unskilled labourer and highly skilled mechanic were more finely drawn. Apart from the mechanics (shipwrights, engineering and electrical fitters, etc.) who formed about 35 per cent. of the total labour force, the 'titular grades' (drillers, caulkers, riveters, wiremen and welders who were paid a skilled rate but no merit bonus), and the ordinary labourers, the dockyards employed grades of workers known as 'skilled labourers'. Private industry, it is true, sometimes used semi-skilled labour where the dockyards used shipwrights. But some of the other work done by skilled men in private yards was normally done in the dockyards by the skilled labourers.¹ This system was not only an advantage in itself but compared with private industry it also provided a larger number of men with some experience of skilled work who could be upgraded to dilutee mechanics. Certain difficulties did, however, arise when it came to finding dilutee shipwrights.²

Moreover, upgrading was normal peace-time practice in the dockyards, where men were recruited without apprenticeship to do work which in private industry was only done by tradesmen who had

¹ For example, skilled labourers as well as riveters were employed on riveting work, and skilled labourers and assistant painters as well as fully skilled painters in the mechanics' grade were employed on painting work. Electrical work was similarly broken up among mechanics, wiremen and several grades of skilled labourer.

² See p. 147 below.

served their time. Mechanics were of course always apprenticed and many 'titular grade' workers were recruited by way of junior apprenticeship. But it was possible for a workman starting as a yard boy, or entering the yard as an ordinary labourer, to be promoted from 'ordinary' to 'skilled' labourer and thence to the 'titular grade'.

The trade unions, too, were used to the idea of subdivision of work and upgrading in the dockyards and were more likely to agree to its extension. But their co-operation was more easily obtained for other, stronger reasons. In the first place, the dockyards had offered greater continuity of employment than private yards before the war, while alternative employment had been more readily available in the dockyard areas than on the Clyde or on the North-East coast. There was consequently less fear of the future. In the second place, Admiralty relations with the trade unions were considerably better than some employers' relations with them.

Dilution agreements were made with the representatives on the Admiralty Industrial Council¹ of the trade unions concerned. Individual dilutees were then accepted by the trade union officials locally, but any difficulties would be referred back to these same headquarters officials. Their co-operation over dilution was the more readily secured since they were in regular consultation with the Admiralty on its Industrial Council. The Admiralty's way was also smoother because the dockyard shipwright, who was, as has been seen, both shipwright and plater, was a member of the Shipwrights' Association, while a good deal of riveting work was done by members of the two general workers' unions. Therefore, although there were difficulties with the trade unions—the Shipwrights' Association, for example, obstructed the more economical use of shipwright labour²—the expansion of the ironworking trades in the dockyards was not hampered by the particularly strong opposition to dilution shown by the Boilermakers' Society in private industry.

A more serious obstacle to dilution in the dockyards was the shortage of unskilled labour, both male and female, particularly for the Southern yards. This largely explained why there was no increase in the total male labour force of the dockyards after early in 1941, though expansion was also limited because of air raid damage. The shortage of all types of labour for the Southern yards was shown by the decline in their labour force after December 1942, while the labour force of the private firms in the North and in Scotland did not reach its peak until a year later. Some dockyard work, like all shipbuilding work, was not particularly attractive at any time, and in the later years of the war the dockyards had to compete with many other demands—often, like aircraft work in the second half of 1943, of a

¹ See p. 409 below.

² See pp. 147-8 below.

higher priority—for the very small pool of labour. In 1943 dilution of ship fitters at Devonport was held up through shortage of labourers; and at Portsmouth shipwrights who had been taken off welding had to be temporarily returned to it because of the shortage of women.

The dockyards had particular difficulty in maintaining their labour force of fully skilled shipwrights because the dockyard shipwright had no equivalent in outside industry. Moreover, many of the shipwrights were appointed to serve abroad or were sent from the Southern dockyards to Rosyth and bases in Scotland. The dockyards also had difficulty during the war in recruiting apprentices up to the number authorised, although the examination standard was substantially lowered. At Chatham by January 1945 there were only 700 shipwrights (including 100 dilutees), half of whom were over 50, compared with 1,000 in 1939. Between September 1939 and February 1945 the number of shipwrights, excluding dilutees, at Portsmouth, Devonport and Chatham fell from 4,200 to 2,500, compared with a drop in the number of electrical fitters from 2,100 to 1,550 and of engine fitters from 3,000 to 2,500.

The shortage of shipwrights did not become acute until 1943. Before then the shortage of electricians and of engineers was more serious and limited the number of shipwrights who could be employed if the dockyards were to maintain a balanced labour force.¹ Moreover, as the Ministry of Labour inspectors continually pointed out, shipwrights were in some ways wastefully used in the dockyards, particularly in the early years. There was some opposition by the shipwrights to dilution; but the dockyard officials themselves, irrespective of the attitude of the men, were slow to dilute shipwrights' work, if only because in the early years of the war the shortage was not acute.

The use of shipwrights in the dockyards was open to three main criticisms. In the first place more shipwrights' work could have been done by less skilled men working as assistants. On certain work in the dockyards, particularly on board ship, it was established practice for shipwrights to work in pairs, or with apprentices. On a good deal of shipwrights' work it was essential for two fully skilled shipwrights to work together; but there were some jobs on which a labourer would have been used if the union could have been persuaded to agree to it. The issue was raised in 1940 at the time of the Shaw report² when the Admiralty decided, in view of the union's agreement to allow shipwrights to work with a labourer in exceptional cases, not to press it further. In fact the practice was never broken down. How strongly the shipwrights felt about it was shown when they agreed to hand over to plumbers a considerable amount of their pipe work for the

¹ See p. 86 above.

² See p. 112 above.

duration of the war; they then insisted that the plumbers, who on their own work would use a mate, should work in pairs on shipwrights' work.

The second criticism was that there was some misuse of dilutee shipwrights. Many of these were skilled men and, though rated as dilutee dockyard shipwrights, were in fact employed on their original work, for example as caulkers or joiners. On the other hand some joiners were put to work with iron shipwrights and were not always fully used by them.

The third criticism was that shipwrights were used in the dockyards on work done by sheet iron workers in private industry, such as the manufacture of ventilation trunking and lockers. Much of this work was similar to that done in the engineering industry by sheet metal worker trainees, many of them women, after ten weeks in a Government Training Centre. A number of shipwrights were still employed on such work in 1941 and 1942. At Chatham the Ministry of Labour inspector assigned to the dockyards observed many instances where these highly skilled and versatile craftsmen were performing relatively simple jobs which less skilled men and in some cases women could undertake. Here again some of the shipwrights were too old for heavier work and the Admiralty argued that the use of women would release only a few men. At Devonport, in December 1942, however, women were well used on such work and were manufacturing kit lockers with no assistance except in hinging the doors. The constructive department at Devonport also made excellent use of women in machining structural steel work.

On the whole, once the natural conservatism of foremen was overcome, the dockyards encouraged dilution and the dilution achieved compared favourably with that in private industry, although no statistical comparisons are possible. Dilution in the constructive departments (over 50 per cent. of whose employees were shipwrights in 1939) lagged behind that in the electrical and engineering departments. From statistics based on the number of dilutees registered under the agreements, the percentage of dilutees in the constructive departments actually fell in 1941 and was less than 5 per cent. of the total labour force in those departments in 1944 compared with 6 per cent. in the engineering and over 13 per cent. in the electrical departments. Nearly 40 per cent. of the mechanic electricians at Devonport in December 1942 were dilutees. The rapid increase from 1940 onwards in the number of dilutee electricians and the high total reached was a result not only of the greater scope for dilution in the electrical departments but of necessity and of the enterprise of superintending electrical engineers.

At the outbreak of war only 430 women were employed in the dockyards, the majority on the manufacture of flags in the captain's

department. By December 1940 the number had increased by over 800 to 1,250. After that date the increase in the dockyard labour force was achieved almost entirely by the employment of additional women. The number employed rose by some 2,250 in 1941, 2,875 in 1942 and 1,550 in 1943, and reached a peak of 7,650 in June 1944. Women employed were only 1 per cent. of the total labour force in September 1939 and 15 per cent. in June 1944.¹ Twice as many women entered the dockyards in 1941 as entered the private shipbuilding and repairing industry which had a labour force four times their size. But it must be remembered that only 55-60 per cent. of the dockyard labour force was employed on ship construction and repair;² at Chatham in June 1942, for example, only 25 per cent. of the women, compared with 55 per cent. of the men, employed were engaged on such work. The inspection reports of 1942-43 revealed that the dockyards made good use of women workers. Many were employed in the electrical departments from an early date. Devonport employed a number of women heaters and catchers and of its boilershop labour force in December 1942 only 15 per cent. were skilled boilermakers and over 50 per cent. were women. Dilution in the engineering departments at Sheerness and Rosyth early in 1943 was well above the average for outside industry on equivalent work; Rosyth also made good use of part-time women. In fact in December 1944 nearly 25 per cent. of the labour force at Rosyth consisted of women workers compared with only about 12-16 per cent. in the four Southern yards; but this difference was partly explained by the acute shortage of women workers in the South.

In 1944 the Dockyard Department decided that dilution had reached a point where any further replacement of skilled men by dilutees was impracticable and in November of that year it issued instructions to the dockyards that in future they were to engage no new labour except fully skilled men until the number of fully skilled men, excluding dilutees, was made up to the number of such men borne in January 1943.

(iii)

Interchangeability

Allied to the problem of dilution was that of interchangeability. The subdivision of work in shipbuilding had been carried beyond the

¹ The average percentage of women employed in each department in the five main dockyards in July 1943, when dilution was nearing its peak, was:

| | |
|-------------------------------|------|
| Captain's department . . . | 24.4 |
| Constructive department . . . | 11.9 |
| Engineering department . . . | 17.6 |
| Electrical department . . . | 17.1 |

² See p. 84 fn. 1 above.

point at which it was economically defensible, and the lines of demarcation which had grown up were rigidly insisted on by the individual crafts. Even within trades, undesirable specialisation resulted from too narrow training. The first type of interchangeability needed was to allow one tradesman to do all the work on a job of which he was capable, so far as this was desirable. For example, there was no need for three tradesmen to disconnect a bilge pipe; and electricians should not have to wait about for a driller to drill a hole which they could quite well drill themselves.¹ Interchangeability of this type was most needed on repair work and was most easily accomplished there, for repair workers were highly skilled and versatile.

In new construction, work was planned from keel to finish and trades came into operation in a regular, planned sequence. Nevertheless, here too there were bound to be fluctuations in the work of the various trades, such as redundancy in the finishing trades when fitting out was completed or a small unbalancing of work as a result of bad weather or temporary shortages in one trade. This disequilibrium could often have been corrected by a second type of interchangeability, the employment for a time of one type of craftsman on another's work. Sheet iron workers could have done platers' work and joiners could have given valuable assistance in the work of many trades. Had it been possible temporarily to transfer men from their own trade to another where there was a shortage of labour, or where work was temporarily more urgent, the lack of balance between trades and consequent redundancy could often have been prevented. When men did become redundant in their own trades, temporary transfers to another trade would have prevented them from being kept idle or from being transferred for short periods to strange yards.

The men objected to interchangeability on much the same grounds as they objected to dilution, only more strongly. They were not convinced by the Minister of Labour's argument that interchangeability would save a great deal of dilution; and they feared that, though changes of practice under the heading of interchangeability were to be recorded and were to be regarded as temporary, in practice the clock would not be put back after the war. Moreover, the question of interchangeability touched the vested interests of the trade unions more closely than that of dilution. The national executives of the unions were very reluctant, if they did not openly refuse, to agree to interchangeability. As will be seen they resisted a move towards interchangeability initiated on the Clyde in 1942. Whether they wholeheartedly accepted its usefulness in principle was not clear; but they argued that an attempt to introduce it in the yards would result

¹ There is no reliable information about the extent to which men did of their own accord step over the limits of demarcation.

in so much opposition and risk of strike action that it would do more harm than good. Similar fears no doubt accounted for the hesitation of the employers in pressing for interchangeability which, in contrast to dilution, they in principle desired.

The story of negotiations on interchangeability is a confused one. During the war three separate approaches were made to the unions. In June 1940 the First Lord told the Minister of Labour that the Admiralty believed a thirty per cent. increase of output was possible if demarcation and other restrictions on the employment of labour were removed, and asked him to bring pressure on the unions. A meeting was therefore held between the two departments and both sides of the industry. At this meeting the President of the Confederation of Shipbuilding and Engineering Unions doubted the figure of thirty per cent., but, in view of the grave turn of the war, he gave an assurance that the Confederation would urge upon its members the necessity of disposing of all demarcation problems; he said that the unions could not defend in any circumstances any restriction on the employment of labour. As events proved the Confederation had little influence in this question *vis-à-vis* the individual unions; but no attempt seems to have been made at national level to follow up this offer with specific proposals, although the shipbuilding labour supply officers who were appointed immediately afterwards were to do so locally and one at least of them did.¹

Early in 1941 when the Essential Work Order was under discussion the Admiralty pressed that the guaranteed wage should be made conditional on agreement to complete interchangeability, and the Ministry of Labour was equally anxious to see interchangeability introduced into the industry. 'All men were to be regarded as shipyard workers and to assist each other, irrespective of trade, to expedite production'—so ran a draft sent by the Ministry to the unions for their consideration. The President of the Confederation and the Secretary of the Boilermakers' Society, however, at first strongly opposed interchangeability, which they said would lead to all sorts of difficulties and create chaos in the industry. There was no time for lengthy consultation if interchangeability were to be effective, for by the time the argument was over the need for it would have passed. The unions seem, rightly or wrongly, to have formed the impression that the employers wanted to abolish consultation before introducing interchangeability in the yards. To meet this difficulty the Minister of Labour suggested that if agreement could not be reached in the yard, the dispute should be referred quickly to the proposed District Consultative Committees and that their decision should be accepted. This proposal was accepted by the unions and

¹ See p. 152.

included in the Order, which deliberately avoided the use of the word interchangeability with its unhappy associations but provided that the guaranteed wage should be paid to any person:

- (i) capable of, and available for, work; and
- (ii) willing to perform any services outside his usual occupation which in the circumstances he can reasonably be asked to perform during any period when work is not available for him in his usual occupation in the undertaking.¹

There is, however, no evidence that employers asked for interchangeability on any scale as a result of this arrangement. In 1941 and 1942 some attempts were made to smooth the way by obtaining agreement with the unions locally. The most important of these agreements was made on the initiative of the Shipyard Labour Supply Officer in London in February 1941 (before the Essential Work Order was made) and a similar agreement was reached in Falmouth in June. These agreements were only used to a limited extent. They were modelled on an agreement reached in Southampton as early as June 1940, which had not, however, been put into practice.² Attempts in the summer of 1942 to put the Southampton agreement into practice and to introduce interchangeability in Bristol were particularly strongly resisted by the Boilermakers' Society.

The issue came to a head on the Clyde. At a time when there was considerable redundancy in the finishing trades, John Brown's Yard Committee put forward a proposal for interchangeability which was unanimously supported in the Clyde Consultative Committee by both sides of the industry and the government departments concerned.

¹ Essential Work (Shipbuilding and Shiprepairing) Order, S.R. & O. 1941, No. 300.

² The London Agreement was made between the District Committee of the Confederation of Shipbuilding and Engineering Unions and the River Thames Dry Dock Proprietors' and Ship Repairers' Association. It laid down that 'there shall be interchangeability of work as between craftsmen and whenever practicable assistants drawn from the semi-skilled and unskilled members of the Confederation shall work with the craftsmen to the capacity they are capable of'. Any man affected by the agreement was to remain a member of his own union and was to be paid his own rates or the new, whichever were the higher. The Falmouth agreement of 5th June 1941 was in the same terms as the Southampton agreement of 10th June 1940:

'IT IS HEREBY AGREED between the South Coast Engineering and Shipbuilding Employers' Association and the Southampton Craft Unions' Committee to suspend all Demarcation Agreements, Rules and Practices for the Period of the War subject to the following provisions:

1. That all craftsmen belonging to the Union who are asked to depart from Trade Practices shall be employed.
2. That the Rates and Conditions applicable to the work shall be paid to the Trade doing the work.
3. That a Full and Complete record of any departure from Trade Practices shall be recorded.
4. That a Small Sub-Committee of Employers and Trade Union Officials be established for the purpose of operating Clause 3.
5. The Employers and Unions undertake that they will not use in any way in the future this proposed suspension of Trade Union Practices which is to be definitely understood as a War Measure only.'

The meeting was, however, certain that the only way of getting 'early decisive agreement' was for the Minister of Labour to take it up with the national executives of the unions. The Clyde District Committee of the Confederation had already begun negotiations with the Clyde Shipbuilders' Association, but soon afterwards received instructions from the General Secretary of the Confederation to discontinue them, because the proposal cut across existing dilution agreements between employers and unions. In September a sub-committee of the Clyde District Consultative Committee, the Confederation representatives this time dissenting, made a further recommendation for interchangeability which was forwarded to London. The question was discussed with the trade union executives by the Financial Secretary of the Admiralty in July and at a meeting between the Minister of Labour, the First Lord and the industry in September. Each time the unions insisted that their present dilution agreements permitted complete interchangeability, and the Boilermakers' Society made it quite clear that the only interchangeability it would accept was between the various crafts inside its own union. The employers put a memorandum to the unions explaining that they wanted more than the existing agreements allowed for, but they seem to have reconciled themselves to the unions' opposition, and reported at the Central Consultative Committee early in 1943 that the present position was regarded as reasonably satisfactory. There the matter rested for the remainder of the war.

On the negative side there were few demarcation disputes during the war. The most important was that between the shipwrights and the boilermakers over who was to erect prefabricated material for corvettes.¹ On the positive side, however, little progress was made. If employers asked for interchangeability as provided for under the Essential Work Order, and it was refused, the dispute was rarely brought to a Consultative Committee. The Clyde Consultative Committee was only once or twice asked to decide whether alternative work was suitable, once when tradesmen had been asked to sweep up snow which prevented them from doing their own work. The alternative services to which redundant skilled workers were put were in fact usually unskilled: rivet sorting, cleaning machinery or sheds, or collecting and loading scrap. Even interchangeability between the various trades covered by the Boilermakers' Society, which was provided for in its dilution agreement, was not practised fully. The London interchangeability agreement appears to have lapsed after

¹ It included material they had both erected before, for the shipwright dealt with the frames and the plater with the plates. This dispute led to serious stoppages in 1943, though the shipwrights' discontent with delay in settling piece work prices was a contributory cause of the stoppages. In some yards agreement was reached for erection to be on a 50-50 basis, but in others there was still disagreement when the corvette programme was cancelled.

the Shipyard Labour Supply Officer concerned was transferred to headquarters. In some firms and districts there were no doubt concessions without formal agreement; and in firms which were not federated to the Shipbuilding Employers' Federation there was always a good deal of laxity. From the North-East coast came such examples as caulkers fitting portlights normally fitted by plumbers and shipwrights doing joiners' work. But it was indeed unfortunate that it was not possible to introduce under the stress of war a measure which would have been so valuable to the industry not only in war but in peace.

On the whole there was more interchangeability in the dockyards than in private industry, though this was peace-time practice rather than a concession for the emergency. There was, of course, demarcation of work on particular jobs, and gun fitters could be found waiting about for shipwrights to remove the bolts through the deck or for electricians to disconnect cables. But the shipwright did by right a very wide range of work; and skilled labourers were also occupationally mobile. A riveter could be sent to help a fitter if there was not enough riveting work available, though some such transfers were difficult because they involved loss of wages. In March 1944 the trade union side of the Shipbuilding Trades Joint Council gave an assurance 'that in a certain emergency the trade unions would give the Admiralty every assistance in their power so that there should be no hold up of work due to difficulties of demarcation'. Under this agreement shipwrights' work, for example, was sometimes transferred to the engineering department, but the agreement was not extensively used.¹

¹ For obstacles to the transfer of labour between dockyard departments see p. 116 above.

CHAPTER VI

UNSKILLED LABOUR FOR HEAVY WORK

(i)

Introductory

ALTHOUGH the munitions industries had encountered shortages of skilled labour even before the war, there was no serious shortage of unskilled men until the winter of 1940-41. Even then the shortage was not general; it was most serious in the Midlands, but there were considerable obstacles in the way of transferring labour to Midland firms from areas like the North-East coast and Scotland where supplies of unskilled male workers were still plentiful. During 1941 the shortage became more general, and robust, able-bodied men in particular were increasingly hard to find. The supply of such men remained, however, somewhat easier in certain districts than in others; and in all parts of the country the difficulty in meeting the requirements of the munitions industries for heavy workers varied according to the extent and priority of demands from other industries, notably building.

In the munitions industries there were considerable demands for heavy labour from the engineering and explosives factories and from the shipyards. There were also large demands from many of the raw materials industries for which the Ministry of Supply was responsible, such as iron and steel and non-ferrous metals production, timber production and the refractories¹ and fertiliser industries. Labouring work was often in itself unattractive. But earnings and conditions of work in some of these raw materials industries which had large demands for unskilled men for heavy work compared unfavourably with those in the engineering and explosives factories. The difficulties of these industries in recruiting labour were

¹ The refractories industry consisted of the mines and quarries producing the materials and the adjacent plants manufacturing the refractory goods; these were used in furnaces of all kinds and were of great importance to munitions production. The labour problems of this industry and of the timber and light metals industries are discussed in J. Hurstfield, *The Control of Raw Materials*, in this series (H.M.S.O., 1953), pp. 315-21. It was estimated that in mid-1942 the numbers employed in the production of raw materials for which Controls in the Ministry of Supply were responsible amounted to some 1 million; but many of these were employed on the production of materials like cotton, wool, leather and paper which were comparatively little used in munitions production.

correspondingly the greater and it is with them that this chapter will be chiefly concerned.

The shortage of unskilled heavy labour proved at least as intractable as that of skilled workers. For physique, unlike skill, could not be created. The gap between requirements and supply could only be met on the one hand by increased mechanisation and on the other by bringing in labour from outside the normal sources of supply. Of such labour Irish workers formed an important part; many men from Eire who came to Great Britain undertook heavy labouring work and the recruitment of Irish labour is therefore considered in some detail later in this chapter. But there were other special sources of supply for the heavier industries such as prisoners of war, service men and 'optants'—men who preferred employment in certain particularly arduous or unpleasant civilian occupations to military service.

It was partly because labour from such sources was made available that labour shortages in some of the raw materials industries were less serious from mid-1942 onwards than they had been before, when the Ministry of Labour had attempted, without success, to provide ordinary civilian workers. In spite of the difficulties in supplying labour to many of these industries, it was, however, only in a few of them—notably the iron ore mines and quarries and the small but important refractories industry—that labour shortages at any time seriously restricted output.

(ii)

The Metal Industries

(a) INTRODUCTORY

We can now turn to consider in more detail the labour supply problems of the metal industries, the most important of the raw materials industries from the point of view of munitions production. Of these industries the chief were light alloys, non-ferrous metals and iron and steel.

The capacity of the light alloy industry increased four-fold during the war and in November 1943 the labour force employed reached its peak figure of 96,000. In the non-ferrous metals industry employment doubled during the war; it rose from 56,000 in June 1939 to some 114,000 in mid-1943. Nevertheless, in spite of the expansion in these two sections the iron and steel industry remained by far the biggest employer of labour among the metal industries.

The labour force employed in the main sections of the industry—excluding iron ore mining, iron founding and the manufacture of

bolts, nuts and screws, which together employed some 159,000 workers in mid-1942—was 316,000 in 1940 compared with 348,000 in 1943.¹ The increase in the total labour force employed in iron and steel production during the war was not, therefore, very large. As Table 9 shows, however, the total labour force employed in some sections of the industry, like drop forging and steel founding, expanded considerably during the war, while in others, notably steel sheet and tin plate, it contracted; the labour force in a third group, including the basic blast furnace production, remained stationary.

The labour force of the iron and steel industry as a whole was protected by a Ring Fence scheme and the contracting sections were expected to provide some of the labour required for the expanding ones.² There were a number of reasons for treating the labour force of the iron and steel industry—like that of the shipbuilding and chemical industries—in this way: most of the men working in iron and steel production had some common experience, for example of working in heat; and the industry was also controlled by one production authority, the Iron and Steel Control.

The Iron and Steel Ring Fence Scheme was introduced in 1941.³ Under it, workers already employed in the industry could not, with rare exceptions,⁴ be transferred to other industries, and central and regional committees, representative of the Ministry of Labour, the Iron and Steel Control, the Ministry of Supply Labour Supply Division and both sides of the industry, had discretion to move labour between the various sections of the industry and between firms. A special staff of iron and steel labour supply inspectors was

¹ These figures include all classes of workers.

² The iron and steel industry was thus to some extent independent of the national manpower budget and—a few sections of the industry apart—its requirements were not included in the regular manpower surveys made during the war. *Ad hoc* statements of the requirements of the various sections of the industry were, however, prepared and submitted to the Ministry of Labour in connection with new production programmes or when labour shortages were particularly acute. These estimates, which were usually prepared by the firms, were certainly no more reliable than those put forward for the manufacture of munitions (see pp. 201–8 below) and need not detain us here.

³ The scheme was first proposed in February 1941. It was not, however, possible to control the labour in the industry as a whole unless it could be controlled in individual firms, and the scheme had to be linked with the application of the Essential Work Order to the industry. Before this could be done the Ministry of Labour had to be satisfied that wages and conditions reached a certain standard. A minimum wage had to be agreed in unorganised sections of the industry where there was no agreed minimum or raised in sections where the Ministry of Labour considered it too low (cf. below pp. 162–3). In other sections of the industry, such as steel smelting and rolling, where piece work earnings were high, it took some time to agree on fall back time rates to be paid when men were stood off, for example during repairs to furnaces and machinery. It was August 1941 before the majority of firms in the industry had been scheduled or were ready for scheduling and the Ring Fence scheme could come into force.

⁴ Some coal miners, recruited when unemployed in 1940–41, were returned to the mines; and some surplus labour went into non-ferrous metals and light alloy production. In the later years of the war, when production programmes were falling, redundant labour was placed more freely outside the Ring Fence.

Table 9: Average Numbers Employed in the Iron and Steel Industry

| Section of Industry | 1940 | | | 1941 | | | 1942 | | | 1943 | | | 1944 | | |
|---|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Males | Females | Total | Males | Females | Total | Males | Females | Total | Males | Females | Total | Males | Females | Total |
| | Iron ore mining and quarrying | 9,211 | — | 9,211 | 9,257 | 3 | 9,260 | 9,076 | 15 | 9,091 | 8,624 | 20 | 8,644 | 7,170 | 14 |
| Blast furnace | 12,714 | — | 12,714 | 12,591 | 49 | 12,640 | 12,345 | 295 | 12,640 | 11,984 | 459 | 11,843 | 10,430 | 372 | 10,802 |
| Iron puddling | 3,359 | 3 | 3,362 | 3,296 | 13 | 3,409 | 3,261 | 116 | 3,377 | 2,943 | 96 | 3,039 | 2,655 | 97 | 2,752 |
| Steel smelting | 22,705 | 31 | 22,736 | 23,068 | 232 | 23,100 | 23,951 | 1,156 | 25,107 | 23,997 | 1,721 | 25,718 | 21,886 | 1,567 | 22,953 |
| Iron and steel rolling | 46,006 | 168 | 46,174 | 45,097 | 1,488 | 46,585 | 43,486 | 5,754 | 49,250 | 42,315 | 7,799 | 50,114 | 40,171 | 6,804 | 46,975 |
| Iron and steel forging— other than drop forging | 10,349 | 164 | 10,513 | 10,174 | 328 | 10,502 | 11,205 | 1,681 | 12,886 | 10,905 | 1,678 | 12,583 | 10,342 | 1,233 | 11,575 |
| Drop forging | 10,777 | 260 | 11,037 | 12,780 | 1,070 | 13,850 | 13,336 | 1,555 | 14,891 | 13,705 | 1,960 | 15,665 | 12,905 | 1,618 | 14,523 |
| Iron founding | † | † | † | † | † | † | 99,715 | 14,655 | 114,370 | 99,057 | 14,723 | 113,780 | 93,907 | 12,792 | 106,699 |
| Steel founding | 21,049 | 230 | 21,279 | 22,071 | 1,135 | 23,206 | 23,522 | 3,481 | 27,003 | 24,124 | 4,641 | 28,765 | 22,627 | 3,964 | 26,591 |
| Iron and steel tubes, pipes and fittings | 20,297 | 533 | 20,830 | 19,691 | 1,917 | 21,608 | 19,341 | 4,438 | 23,779 | 19,494 | 5,765 | 25,259 | 18,599 | 5,349 | 23,948 |
| Iron and steel wire and wire products manu- facture | 15,116 | 4,034 | 19,150 | 15,047 | 5,394 | 20,441 | 14,394 | 6,627 | 21,021 | 13,760 | 7,486 | 21,246 | 12,998 | 6,710 | 19,708 |
| Steel sheet | 19,195 | 178 | 19,373 | 17,829 | 486 | 18,315 | 15,625 | 2,103 | 17,728 | 15,432 | 2,821 | 18,253 | 40,171 | 6,804 | 46,975 |
| Tinplate | 18,987 | 2,295 | 21,282 | 13,418 | 1,954 | 15,372 | 10,138 | 2,103 | 12,241 | 7,989 | 1,800 | 9,789 | 14,732 | 2,596 | 17,328 |
| Manufacture of nuts, bolts, rivets, screws, and nails | † | † | † | † | † | † | 17,171 | 19,934 | 37,105 | 16,870 | 20,453 | 37,323 | 16,578 | 19,975 | 36,453 |
| Scrap metal | † | † | † | † | † | † | 11,882 | 1,631 | 13,513 | 11,318 | 1,633 | 12,951 | 9,963 | 1,456 | 11,419 |
| Total process workers* | 212,865 | 7,896 | 220,761 | 207,325 | 14,069 | 221,394 | 334,753 | 66,651 | 401,404 | 327,967 | 74,190 | 402,157 | 340,689 | 72,465 | 413,154 |
| Total general and main- tenance workers | 83,090 | 1,076 | 84,176 | 84,796 | 2,349 | 87,145 | 87,778 | 7,322 | 95,100 | 90,837 | 9,978 | 100,815 | 84,011 | 9,368 | 93,379 |
| Total clerical workers | 14,482 | 5,597 | 20,079 | 14,383 | 7,060 | 21,443 | 12,725 | 9,007 | 21,732 | 11,024 | 10,462 | 21,486 | 13,296 | 11,619 | 24,915 |
| Grand Total | 310,437 | 14,569 | 325,016 | 306,504 | 23,478 | 329,982 | 435,256 | 82,980 | 518,236 | 429,828 | 94,630 | 524,458 | 437,006 | 93,452 | 531,448 |

† = not available.

* This includes numbers employed in two small sections (production of ferro-alloy and coke ovens attached to iron and steel works) not separately listed. The figures for iron founding and the manufacture of nuts, bolts and screws shows the total labour force, all classes of workers.

Source: Iron and Steel Control

set up to see that the necessary transfers were carried out and to secure the best use of the labour in the industry.

The main demand of the iron and steel and other metal industries was for male workers, for the nature of the work set limits to the employment of women. After a slow start, however, dilution with women in the iron and steel industry increased rapidly during 1942 and was halted by shortage of women workers rather than by the inability or unwillingness of the industry to absorb more. In August 1943 eighteen per cent. of the industry's workers were women as compared with ten per cent. in August 1941. An even higher proportion of women were employed on non-ferrous metals production; during the peak years of employment over twenty-five per cent. of the labour force were women. In general the possibilities of dilution with women in the metal industries depended on the nature of the plant and the extent of mechanical handling. Thus, a comparatively high proportion of women could be employed in some of the new light alloy fabricating plants; indeed an official compared some of them, with their many women workers, to a modern dairy. Similarly while few women could be employed in the old-fashioned parent works of a drop forging firm in Sheffield, in a new plant for which the same firm was responsible mechanical handling made it possible to use women even on the heavier hammers.

The recruitment of labour to the metal industries was, of course, to some extent restricted by the difficulties of training and absorption. Thus labour was sometimes released from a contracting section of the industry faster than the expanding section could absorb it.¹ The metal industries needed, of course, their key skilled workers; and the training of certain of these workers, for example the die sinkers in the drop forging plants, was a troublesome problem analogous to the training of skilled engineers. But on the whole the nature of the work and the organisation of the labour force in the metal industries simplified their training problems compared with those of shipbuilding and engineering. The process workers in the metal industries frequently worked in gangs—the stamper, driver and clipper on the drop forge, or the first, second, third and fourth hand on the steel furnace. In the normal course of events the youth or adult entering the industry as fourth hand trained automatically to become first hand (a highly skilled job) in the years which it took

¹ In 1941 tinplate workers intended for the drop forging industry had to be diverted to light alloy and other production because the firms had already swallowed a considerable number 'and were finding them a little indigestible; too many novices were a handicap rather than a help'. Similar difficulties arose with labour released from the light castings industry in 1942. As early as the summer of 1940 the Drop Forgings Sub-Control had appointed a Labour Officer, one of whose tasks was to press the firms to take on more labour for training; the industry and the Sub-Control co-operated in establishing a preliminary training scheme for process workers in a plant set aside for the purpose, through which many of the recruits to the industry in 1941-42 passed.

to reach that position. In war-time this upgrading process was simply speeded up. Indeed the industry's great problem was not so much to train its new recruits as to offer them satisfactory prospects of promotion.¹

(b) THE OBSTACLES TO RECRUITMENT

It was, from an early date in the war, not chiefly the difficulties of absorption but of recruitment that restricted the expansion of the labour force in the metal industries. These difficulties were formidable. In the first place the geographical situation of many of the industries was unfortunate as far as the supply of labour was concerned. One group was situated in remote and sparsely populated or in mainly agricultural districts; this group included the Cornish tin mines, the aluminium producing plants in Wales and Scotland or the iron ore quarries in Northamptonshire and Lincolnshire. Another group was concentrated in Midland industrial towns; thus practically all the drop forging, brass producing and aluminium fabricating plants were situated in and around Coventry and Birmingham where, in contrast to such areas as the North-East coast and Wales, there was no unemployed labour even in 1940. Efforts in 1941 by the Ministry of Labour and the Labour Supply Division of the Ministry of Supply to persuade the Drop Forgings Sub-Control to build the new plants that were being planned in Scotland or in Wales were not very successful. Many of the plants were in any case already under construction and the parent firms in the Midlands naturally wanted them near at hand to facilitate technical control. One extension was, however, placed in Ayr and another in South Wales.

Both the industries in isolated districts and those in the Midlands had often to draw their labour from other districts, and this involved all the usual difficulties of transferring labour away from home. One problem was housing. For example it was very difficult to find housing for drop forging workers in the Midlands, especially in Coventry, in 1940-41. In the spring of 1942, however, special hostels for drop forging workers were opened in Birmingham, Coventry and Kidderminster in time to house workers from Eire. Shortage of billets, increased by the unwillingness of landladies to house Irish labour, hindered the recruitment of Irishmen in the iron ore mines and quarries. Though housing difficulties caused a lot of work and trouble, however, they were usually solved in the end; the really serious problem was to find the labour itself.

The second main obstacle to recruitment to these industries was the heavy and unpleasant nature of the work. Most men would

¹ Promotion in the industry was complicated by the fact that it had strict seniority rules, sometimes on the basis not even of a whole shop but of a small section of the plant. Cf. P. Zweig, *Productivity and the Trade Unions* (1951), pp. 176-7.

prefer labouring work in a modern engineering factory to the heat and noise of the drop forging plants; many of the plants, moreover, were old, with no provision for the mechanical handling of the heavy billets between furnace and hammer. The iron ore mines in Cumberland and the Cleveland district of Yorkshire offered heavy underground work with danger from falling stone. In the hematite mines in Cumberland there was also slight risk of silicosis. Working conditions in the iron ore quarries were not always better than in the mines. They varied with the depth of the ore, the nature of the overburden and the extent of mechanisation, but in wet weather, when water drained into the workings, life in them could be very unpleasant. In the North Midlands where there were a few iron ore mines as well as quarries it was even said that once men got accustomed to working underground they preferred it to open quarry work. Zinc smelting was another industry where conditions were bad. Indeed it was so difficult to get men to work in the industry, small though it was, that in the later years of the war zinc smelting was included with underground mining work as an alternative to service in the Armed Forces. The problems of these less-favoured industries were summed up despairingly by a senior official of the Non-Ferrous Metals Control when he said that 'as soon as there is work for all there are no furnacemen for zinc smelting'.

Not only working conditions but welfare and amenities sometimes compared unfavourably in these industries with those in engineering and even on building construction sites. The brass smelters in I.C.I. Metals had, no doubt, all the welfare facilities they needed. Sometimes, too, lack of amenities was counterbalanced by other advantages; many of the drop forging plants, for example, were small family concerns where at least the workers were known individually to the owners. It is also true that the difficulties of providing welfare services were far greater in some of the raw material industries than in other sections of the munitions industries. For example, it was no doubt very difficult to provide facilities like canteens in the iron ore mines and quarries, which were comparatively small and scattered. Nevertheless the difficulties of making innovations provided a good excuse for inaction and it is doubtful whether everything possible was done to improve welfare conditions in some of these industries.

The unpleasant work in these industries was not compensated for by higher wages. Indeed, probably the greatest obstacle of all to recruitment was the low wages offered. In light alloy production, a newer industry, not only conditions but also wages were, it is true, relatively good.¹ But in the Cornish tin mines, for example, or in

¹The rapid expansion in production did, however, bring difficulties of its own; cf. J. Hurstfield, *op. cit.*, pp. 319-21.

the iron ore mines and quarries wages were low; and the drop forgings and non-ferrous metals industries in Coventry and Birmingham, with their comparatively low earnings, had to compete with engineering and aircraft firms which were paying higher wages than those offered anywhere else in the country.

One particular wages problem in the metal industries may be mentioned. Unfortunately the earnings of process workers in the contracting sections of the iron and steel industry were on the whole higher than those in the expanding ones. This difference was all the more serious because owing to the seniority rules in the industry skilled workers in the contracting sections were expected to start in the lower grades in the expanding ones and prospects of rapid advancement were small. An extreme example occurred in 1941 when the tinplate industry was concentrated and was expected to release men for drop forgings and non-ferrous metals production. Tinplate workers on short time could earn more in a three day week in their own industry than in a full week as trainees in the brass industry, where they would be away from home and in a district where lodgings were expensive and difficult to find.

The Ministry of Labour, together with the Labour Supply Division of the Ministry of Supply, took the initiative during the war in pressing the lower paid sections of the metal industries to improve earnings and conditions. Without such an improvement indeed, the Ministry of Labour would not direct labour into them. The Ministries' chief attention was directed to the earnings of trainees and labourers, which were the grades in which most new recruits began.

In theory of course the Ministry of Labour did not interfere in wage negotiations¹ and nor was such interference necessary in many well organised and relatively well paid industries. Here the Ministry merely satisfied itself that individual firms paid the agreed rate for the job before scheduling them under the Essential Work Order and directing labour into them. But in some of the metal industries employers and workers were little organised and there was no agreed rate for the job, while in others the rate was so low that it was impossible and unfair to compel men to accept it. The industries concerned, usually supported by the Control responsible for them, tended to urge the Ministry of Labour to use its powers and direct labour regardless of the conditions. The Ministry of Labour, however, supported by the Labour Supply Division of the Ministry of Supply, was firm in its refusal to direct labour to the firms until it regarded wages and conditions in them as reasonable. In some of these industries the Ministry of Labour came very near in practice

¹ See pp. 315-18 below.

to settling wages, although the actual agreements were of course made between employers and workers.¹ The Labour Division of the Ministry of Supply also took a prominent part in the preliminary negotiations of these new wage agreements. The aim was simply to improve earnings, not to raise them to heights where they would compete with those in the engineering and aircraft factories. This would have involved making them higher than earnings in these factories, where work was often lighter and working conditions better.

The Ministry was not, however, always successful in securing very substantial increases. For example, in January 1941 labourers in the drop forging industry in the Midlands were being offered a weekly rate of about £3² and trainees were given, in addition, an allowance of 5s. a week agreed to in December 1940. In spite of overtime, earnings were low and wastage of men recruited from the North of England and Scotland was abnormally high because of their dissatisfaction with them. The Minister of Labour thought the rate was 'ridiculously low for arduous and unpleasant work of this nature'. He was not going, he wrote, to compel men to take work of this type unless the wages were radically improved and if they were he did not believe that any compulsion would be necessary. Nevertheless, the drop forging agreement reached early in 1941 in fact provided for a starting rate of only £3 4s. a week for labourers, although their prospects were somewhat improved;³ and the Minister of Labour did at last agree that he would if necessary direct labour to the industry on these conditions.

This drop forging agreement was followed by the application of the Essential Work Order to the industry, which had some effect in reducing wastage. It could not be said, however, that the revised minimum rates agreed in this and other sections of the metal industries were attractive to new recruits. Many of the tinsplate workers referred to above, for example, refused to transfer voluntarily to the drop forging plants and the brass foundries in the Midlands. In August 1941 400 men at one South Wales employment exchange were earmarked by the manager for transfer to drop forging and all of them refused to go because they knew there were better paid jobs available in local R.O.Fs. The officer of the Drop Forgings Sub-Control who visited the exchanges believed he could have got many more recruits had he been able to offer a starting rate of £3 10s. for a 47-hour week. The drop forgings industry was not anxious to

¹ Even when agreement was reached nationally it sometimes took time before all the small, unorganised firms, for example in the drop forgings or brass industry, could be brought into line.

² It varied, however, between Birmingham and Coventry.

³ They might after a period be offered jobs as trainee hammer drivers at £3 5s. in the first month, rising to £3 10s. in the second; eventually they would be on piece work.

obtain men against their will; but the Non-Ferrous Metals Control wanted the men to be directed into the brass foundries and argued that 'wages had no bearing on the situation' and that 'the Essential Work Order was law'. Ministry of Labour officials for their part were bound at all times to consider what would be the magistrates' view if a man who refused to obey directions that involved a halving of his weekly earning was prosecuted.

The recruitment of labour to these industries was made somewhat easier when in mid-1942 all sections of the iron and steel industry agreed to arrange for minimum *earnings* of £4 10s. a week. The Ministry of Labour would not transfer men from other districts, including Ireland, to firms offering less than this. As Table 10 shows there were substantial increases in earnings in the iron and steel industry in the course of the war. The proportionate increases were greatest in the sections where earnings were lowest in 1939, but even so earnings in some sections remained relatively low. The difficulties of filling vacancies remained correspondingly great.

When labour shortages became serious firms in the iron and steel industry were granted priority for labour becoming available in the national pool—iron ore mining and quarrying and drop forgings production frequently enjoyed such priority—and there was also a system of priorities operating within the Ring Fence scheme. But priority was not fully effective when wages were not competitive.

(c) THE IRON ORE MINES AND QUARRIES

The difficulties of attracting labour to many of the heavy industries can be illustrated by looking more closely at the labour supply problems of the iron ore mines and quarries, which suffered chronic labour shortages between 1940 and 1942. The main difficulty was that of wages. As early as August 1940 the Ministry of Labour suggested that the industry should pay a guaranteed minimum wage, but nothing definite was done about this until the spring of 1941 when an agreement was signed providing for a minimum wage of 64s. This rate was also to be applied to other sections of the iron and steel industry where it was expected to provide, with overtime, earnings of over £4 a week. Long hours were, however, impracticable in iron ore mines and quarries, some of which were working on a three shift system, and earnings were, therefore, correspondingly low.

Earnings in the mines and quarries compared very unfavourably with those on building contracts, in R.O.Fs and in private engineering factories. When it was proposed to transfer men from R.O.F. Drigg, an explosives factory, to the West coast hematite mines in October 1942, it was pointed out that the average earnings of underground labourers were 83s. 5d. compared with 106s. 3d. for unskilled labourers and up to 110s. 6d. for process workers at Drigg. Boot and

Table 10: Average Weekly Earnings of Adult Male Workers in Certain Sections of the Iron and Steel Industry showing the Percentage Increase over October 1938

| | October 1938 | | July 1940 | | July 1941 | | January 1942 | | July 1942 | | January 1943 | |
|--|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|
| | Average Weekly Earnings | % Increase over 1938 | Average Weekly Earnings | % Increase over 1938 | Average Weekly Earnings | % Increase over 1938 | Average Weekly Earnings | % Increase over 1938 | Average Weekly Earnings | % Increase over 1938 | Average Weekly Earnings | % Increase over 1938 |
| Iron ore and ironstone mining | s. d. 64 6 | 30·7 | s. d. 84 4 | 46·1 | s. d. 94 3 | 46·1 | s. d. 92 8 | 43·7 | s. d. 100 2 | 55·3 | s. d. 108 11 | 68·9 |
| Coke ovens and by-product works | 70 10 | 18·6 | 84 0 | 35·9 | 96 3 | 35·9 | 96 9 | 36·6 | 106 3 | 50·0 | 112 2 | 58·4 |
| Pig iron manufacture (blast furnace) | 82 6 | 18·9 | 98 1 | 30·0 | 107 3 | 30·0 | 107 7 | 30·4 | 111 3 | 34·8 | 118 2 | 43·2 |
| Iron puddling, steel smelting, rolling | 79 11 | 32·8 | 106 2 | 39·4 | 111 5 | 39·4 | 118 4 | 48·1 | 123 3 | 54·2 | 130 7 | 63·4 |
| Tinplate and steel sheet | 83 11 | 9·9 | 92 3 | 22·5 | 102 10 | 22·5 | 118 1 | 40·7 | 117 10 | 40·4 | 117 1 | 39·5 |
| Iron and steel tubes | 71 1 | 36·8 | 97 3 | 49·1 | 106 0 | 49·1 | 112 7 | 58·4 | 115 11 | 63·1 | 125 7 | 76·7 |
| Wire, wire netting, etc. | 68 5 | 38·7 | 94 11 | 44·3 | 98 9 | 44·3 | 103 8 | 51·5 | 114 9 | 67·7 | 114 2 | 66·9 |
| Bolts, nuts, screws, rivets, nails, etc. | 64 6 | 38·9 | 89 7 | 46·9 | 94 9 | 46·9 | 102 2 | 58·4 | 110 7 | 71·4 | 112 0 | 73·6 |
| General engineering and engineers' iron founding | 73 8 | 32·9 | 97 11 | 44·8 | 106 8 | 44·8 | 114 4 | 55·2 | 121 7 | 65·0 | 125 7 | 70·5 |

Source: Ministry of Labour and National Service

shoe operatives transferred in 1941-42 to quarries in Northamptonshire were earning at first only some 67s. 8d. a week.¹ As they became experienced their earnings were said to be much in excess of this. Nevertheless dissatisfaction remained and young men and women employed at the R.O.Fs or on aerodrome construction were earning more than their parents in the iron ore firms; at one such firm in 1942 men were receiving on an average only £4 10s. for a 7-day week, which was being worked because of the labour shortage. In the late summer of 1942 the iron ore firms agreed after a meeting with the Ministries of Labour and Supply to come into line with the other sections of the iron and steel industry and to offer a minimum earning of £4 10s. a week. Still, however, earnings remained relatively low and conditions unpleasant so that the industry had little success in recruiting labour from Eire.

Emphasis during the war was on raising earnings in the lower grades of the industry in order to attract the recruits who had usually to start in them. Prospects were, however, also relevant for this purpose; and though the earnings of skilled stone getters were, of course, forced up during the war they too remained relatively low. At the end of the war miners in the Cleveland district of Yorkshire were earning on an average 20s. a shift, or £6 a week, which was considerably less than the process workers in neighbouring iron and steel works owned by the same firms. In Cumberland, where industrial relations were bad, dissatisfaction with rates led to stoppages, and a Committee of Enquiry discovered a very wide variation between the wages of miners both from week to week and in different mines; they varied from a daily earning of 24s. 10d. in one company to 16s. 3d. in another. The concentration on raising the earnings of the lower rated workers also tended to bring their earnings so near to those of the skilled men that there was little incentive to the men to seek promotion. Horse drivers in the Cleveland mines, for example, were unwilling to give up their relatively easy work to become face-workers for only an extra 4s. a shift.

Wages were not, of course, the only deterrent to recruitment in the iron ore mines. The mines in the Cleveland district, for example, were nearing exhaustion, and uncertainty about the future, allied with memories of unemployment, was strong in the neighbourhood. As in the coalmining areas, parents would not let their sons go down the iron ore mines, even had they wanted to. School-leavers only worked on the surface until they could find employment in some other industry.

¹ There was considerable delay in recruiting the boot and shoe operatives to the quarries because of a dispute as to who should be responsible for their daily travelling expenses. Eventually it was decided that certain excess travel costs should be borne centrally by the industry as a whole.

The shortage of labour in the iron ore mines and quarries developed rather later than might have been expected; in 1940 recruits came to the industry from the coal mines and from road stone and slate quarries, so that labour shortages were not serious. But from the spring of 1941 to the late summer of 1942 there was a severe shortage of labour which grew steadily worse and which impeded the expansion of output. The Ministry of Supply repeatedly pressed the urgency of the demands on the Ministry of Labour. This Ministry did not question the validity or importance of the demands, but continually reported its inability to meet them, owing to the shortage of suitable labour, the unattractive nature of the work and the low earnings. In the first six months of 1942 the labour force actually declined through failure to replace normal wastage. Urgent preference demands for 200-300 men—the number was steadily mounting—were met to the extent of 39 in April, 33 in May and only 11 in June.

As the war went on the need for maximum home output of iron ore became somewhat less urgent. Moreover valuable economies in labour were made possible by mechanisation schemes, carried out with government assistance, chiefly in quarries suitable for large scale production. Considerable labour demands remained, but the supply of labour to the mines and quarries also improved in the second half of 1942. The difficulties in recruiting labour were never solved by improving wages or the inevitably arduous conditions, but by the direction to the mines and quarries of men who had little choice in the matter. In the autumn of 1942 and throughout 1943 the requirements of the mines were largely met with so-called 'optants'—men called up under the National Service Act who took advantage of the option of working in underground mining as an alternative to military service. Prisoners of war were also drafted to the quarries, and servicemen in the Royal Engineers were employed on platelaying. After a trial period in the mines, however, optants were allowed to go into the Services, and wastage among them was high. Moreover, in the later years of the war not many were made available to the iron ore mines. The basic problem of attracting labour, particularly to the mines, under conditions of full employment remained unsolved.

(iii)

Labour from Eire

The iron ore mines never succeeded in attracting any considerable number of workers from Eire; but many industries with demands

for unskilled male labour found in Eire a valuable source of supply. The search for labour there was at first confined to men, but as the general shortage of labour developed in Great Britain it was extended to include women; since the problems of obtaining workers from Eire were much the same whether these were men or women, skilled or unskilled, this section will consider the recruitment of Irish labour as a whole to a wide variety of munitions work.

Recruitment of Irish labour for munitions production did not begin on any scale until about the spring of 1941 and during most of 1941 it was undertaken by representatives of a few large firms mainly working for the Ministry of Supply, like I.C.I. and Ford's who already had offices in Eire; there was as yet no formality either on the English or on the Irish side.

It was only natural that British firms and British government departments should look to Eire for supplies of labour in 1941. For it was becoming increasingly difficult to meet the demands for heavy labour in Great Britain while in Eire there was considerable unemployment. In July 1941, representatives of the Ministry of Labour and of the two Departments of Agriculture visited Dublin to work out with the Eire Government an improved system of recruiting Irish labour for work in Great Britain. There were many problems: British security requirements had to be satisfied; the Irish authorities wished to be in touch with the movement of labour so that they could, for example, put a stop to the emigration of workers suddenly needed for harvesting or turf cutting in Eire. Above all the Irish Government was concerned to preserve its neutrality. In the light of these and other considerations, and of existing arrangements, a complicated procedure was worked out in which British and Irish officials and representatives of firms and trade organisations were all concerned.

The Ministry of Supply was very quick to realise how valuable a source of labour Eire was and it set about inducing its contractors to employ Irish workers—a task that was by no means always easy. Throughout the war the Ministry retained a vigorous initiative in the field of Irish labour supply and was as ready, if not readier, than the Ministry of Labour with new devices to attract Irish labour to munitions work. The Ministry of Supply would have preferred one central organisation, such as existed already for the building industry, to recruit labour for its work. But in 1941 this proved impossible. It was obviously uneconomic for a multiplicity of firms and industries to send separate recruiting agents. It was, however, essential in view of the trouble and expense of recruitment¹—the expense was until September 1944 largely borne by the employers

¹ Excluding travel in Eire, which after 1942 was paid for by the United Kingdom Government, the cost of recruitment averaged £3 10s. to £4 a head.

—that there should be careful selection by men who knew the needs of the industries concerned.

The organisation for recruitment developed in 1941-44 was a compromise, with a growing tendency towards centralisation. From the end of 1941 onwards recruitment was undertaken partly by individual firms' representatives but to an increasing extent by officials of the Controls and of the Labour Supply Division of the Ministry of Supply; these officials, though paid by the Ministry, were generally known in Eire as agents for an industry or industries, and sometimes worked in co-operation with a member of the industry. So far as male labour was concerned there were several Ministry of Supply organisations in Eire. For example, the Labour Officer of the Drop Forgings Sub-Control and a member of the Labour Supply Division recruited initially for tank track link foundries, then for drop forgings and the iron and steel industry in general; these men were known in Eire as agents of 'British Foundries'. Another member of the Labour Supply Division recruited as an agent of 'British Products' for ball bearing and other firms, and other agents recruited for tank production, non-ferrous metals, timber, etc. At first British Foundries and British Products operated independently from an hotel in Dublin, but towards the end of 1942 they set up a common office to deal with their clerical work and the interviewing of candidates available in Dublin. By 1944 the greater part of Ministry of Supply recruitment was centred in these two organisations and there were very few independent representatives of firms left.

Recruitment of women was always more centralised. It began on a large scale early in 1942 for the R.O.Fs and the work was done by a member of the Labour Management Department at Bridgend R.O.F. There were a few representatives of individual Ministry of Supply firms who recruited women in Eire, but in general this work remained centralised under the control of the R.O.F. agent. She later extended her activities to cover the needs of other production, such as the agency filling factories and ball bearings under the collective title of 'British Factories'. Irish women, unlike Irish men, who were needed for a greater variety of work, were in fact recruited into a common pool and allocated as necessary to individual industries. The organisation had a headquarters office in Dublin and several agents housed in the principal towns. These agents were mainly Irish women and included the daughters of a local doctor and of an employment exchange manager.

Early in 1942 it was said that three months often passed between the arrival of an agent in Eire and the arrival of his first recruit in England; this was about the usual interval between the first interview with a potential recruit and his embarkation. The procedure of

recruitment was complicated and can only be briefly described.¹ In the first place firms in Great Britain, either on their own initiative or, more usually, at the suggestion of the Ministry of Supply, notified the employment exchanges of certain requirements for Irish labour. When these were approved by the Ministry of Labour locally they were passed through Ministry of Supply headquarters, which was thus able to classify them on a priority basis, to the Ministry of Labour headquarters; from there they went to the Liaison Officer whom the Ministry of Labour had posted in August 1941 to the United Kingdom Permit Office in Dublin.

One of the Liaison Officer's duties was to allocate to each agent a particular area in which to work and in this way the Officer was able to some extent—though not by any means precisely—to match demands with supply and to regulate the flow of labour to England in accordance with priorities. He also allotted to each agent a weekly quota of acceptances which was not to be exceeded. The agent then set to work. The majority of recruits had to be sought out by the agents through social service agencies and in other ways, with the minimum of open publicity.² The agent would invite them to register at an employment exchange for work in Great Britain, stating a preference for the work offered by the agent concerned. The registration then passed to the Department of Industry and Commerce and to the United Kingdom Permit Office, where the Liaison Officer had his headquarters, for scrutiny. If approved, it was returned to the exchange and arrangements for the transfer of the worker concerned—the issue of travel permits and visas, etc.—were set in train. In the course of this procedure the agent had to interview the applicant on two separate occasions in the applicant's home district. The agent, particularly if he worked a country area, had a great deal of travelling to do, and travelling in Eire during the war was a major obstacle in itself. It was quite possible to be six hours late on a 50-mile journey or to wait for a train which did not arrive until the following day.

It was not only the firms waiting for labour in Great Britain who were impatient of these delays—inevitable though they were on diplomatic grounds. A number of the agents had no experience of Civil Service methods and it seemed to them that in Eire bureaucracy was out-Heroding Herod. The Liaison Officer for his part had no easy task in supervising his large and diverse team. In the result

¹ See further H. M. D. Parker, *op. cit.*, Ch. XX.

² Agents felt that they had to entertain to make contacts and to give large tips to hotel staffs so that they could use hotel rooms as recruiting centres for the local unemployed. The cost of living in Eire was high and agents found that subsistence rates on normal Civil Service scales did not meet their needs. On the other hand the Ministry of Supply had its own difficulties in controlling the expenditure of less responsible agents. These difficulties were on the whole overcome in the course of the war.

patience on both sides was sometimes heavily strained, although in general co-operation between the Liaison Officer and the agents was satisfactory.

Only about fifty per cent. of the workers with whom representatives made preliminary contacts sailed; others changed their minds or were dissuaded by parents or priests, failed the medical examination or were turned down by the Irish or British authorities. This wastage increased as the quality of the labour available fell, while various restrictions were imposed from time to time by the Irish and British governments on the type of labour allowed to go to Great Britain.

Since Irish labour was entirely free to choose between alternative offers of employment, wages and conditions of work influenced the success of recruitment even more than in Great Britain. For example, when it was known in a district that Ford's were needing labour it was extremely difficult to recruit for any other work until their needs were met. It was at all times extremely difficult to get recruits for such work as iron ore mining or for the fertiliser industry.¹ Competition between industries for labour was greater for men than for women chiefly because there were many more agents recruiting men and the offers were more diverse. After September 1942 the Ministry of Supply would not attempt to recruit male labour in Eire unless the average weekly earning offered was £4 10s. or more, involving a minimum rate of some 64s. with overtime,² and for a women a rate of 50s. with an earning of at least £3.

In 1944 the organisation of recruitment was radically changed and one cause of the change was the Ministry of Labour's difficulty in getting enough Irish labour for important vacancies which carried relatively low wages. The original claimants on Irish labour, the Ministry of Works, the two Departments of Agriculture and the Ministry of Supply were in time joined with varying enthusiasm by many others—the M.A.P., the Admiralty, the Ministry of War Transport, hospitals, etc. At the end of 1942 the Ministry of Supply had agreed to reduce the number of its representatives for the benefit of aircraft production and other work; but the reduction on the Ministry of Supply side was not as great as the expansion in the

¹ There was sometimes dissatisfaction when recruits arrived in England because agents in conversation had held out hopes of higher earnings than men actually got. All they had in writing was a contract specifying a minimum rate. Of course many such complaints were invented by recruits in a bid for higher rates. But the agents were sometimes to blame for disappointments which arose. One agent recruiting for engineering firms and for the fertiliser industry, who could not get any men for the latter, caused a great deal of trouble by sending men, including skilled workers, who had signed up to work on tank production to a fertiliser firm to do unpleasant, dusty and heavy work at low rates. Occasionally agents were paid on a *per capita* basis, a practice particularly likely to lead to misrepresentation of conditions of work to secure recruits.

² After February 1942 married Irish men were paid the lodging allowance of 24s. 6d. given to transferred British workers living away from, and maintaining, their own home.

activity of other departments. For example, early in 1944 the Ministry of War Transport urgently needed labour for transport for impending operations, but it seemed most unlikely that the required number would be found in Eire, for the work was relatively badly paid. Altogether the current methods of allocating Irish labour seemed inadequate and the competition among agents increasingly wasteful of effort as labour supplies fell.

The Ministry of Labour therefore proposed in January 1944 to take over all Irish recruitment itself; to recruit on a standard contract at a minimum rate into a common pool, though with due regard in placing to applicants' preferences and abilities; and to allocate the labour available to departments in proportions to be fixed by an interdepartmental allocation committee on the lines of that already operating for prisoner of war labour. The Treasury agreed under this procedure to bear the whole cost of recruitment and travelling to the destination in Britain.

The Ministry of Supply at first resisted this change, partly because the Ministry of Labour proposed to fix its allocation at less than fifty per cent. of its current recruitment, on the incontestable grounds that a good deal of it was for the iron and steel industry which was releasing labour in Great Britain, and partly because, for reasons given below, the Ministry of Supply particularly valued its supply of Irish labour. The Ministry felt that its existing organisation was a going concern with much goodwill among Irishmen and women, who often applied for work with a particular Irish firm on the recommendation of earlier recruits. But the Ministry of Supply could not seriously contest the greater urgency of operational requirements. Moreover early in 1944, following a decision by the British Government strictly to limit travel from Great Britain to Ireland during the invasion period, the Eire Government banned travel to Great Britain and this looked like restricting recruitment in any case. The transfer to the Ministry of Labour was agreed on in principle by the departments concerned in the early summer. The ban on travel was revoked in June and the new centralised system of recruitment under the Ministry of Labour was finally introduced in September. By this time the Ministry of Supply's interest in Irish labour for war production had declined.

The arrangements for the reception of Irish workers in Great Britain were chiefly the concern of the Ministry of Labour and the employers. Of the manifold problems housing was the greatest. As far as possible Irish workers were billeted in hostels. One of the advantages of the central control which the Ministry of Supply exercised over the recruitment of Irish labour was that it could encourage recruitment in districts where accommodation was available or could be provided.

In spite of the difficulties and delays, Ministry of Supply agents in Eire were remarkably successful in recruiting labour for munitions work. From London the Ministry kept general supervision over their work, and working through its regional organisation it stimulated the demands for Irish labour and co-ordinated requirements and supply. 1942-43 were the peak years for recruitment. Between April and December 1941 only about 1,000 visas were granted to Ministry of Supply recruits; and over half of these went to the Ford Motor Company. Statistics are not absolutely reliable¹ but the approximate number sailing each year to take up work on Ministry of Supply production is shown in Table 11. Between 1942 and 1945 nearly 30,000 men and women were recruited.² Already in 1942 about one-third of those arriving were women and by 1944 they amounted to over 40 per cent. The number of skilled workers included in the total is not known, but it was not large.

Table 11: Workers Travelling from Eire to work for Ministry of Supply, M.A.P. and Admiralty Contractors

| | Ministry of Supply | | | M.A.P. | | | Admiralty |
|-------|--------------------|--------|--------|--------|-------|-------|-----------|
| | Total | Men | Women | Total | Men | Women | Men |
| Total | 28,593 | 17,296 | 11,297 | 8,858 | 6,410 | 2,448 | 1,753 |
| 1942 | 11,391 | 7,785 | 3,606 | 466 | 413 | 53 | 29 |
| 1943 | 11,633 | 6,328 | 5,305 | 5,355 | 3,914 | 1,441 | 884 |
| 1944 | 3,397 | 1,947 | 1,450 | 2,833 | 1,970 | 863 | 557 |
| 1945 | 2,172 | 1,236 | 936 | 204 | 113 | 91 | 283 |

Source: Ministry of Labour and National Service

The Ministry of Supply was active in recruiting labour not only in Eire but also in Northern Ireland. Northern Irish workers were

¹ The figures may include a certain number already employed in Great Britain and returning there after a temporary visit to their own country.

² The allocation of recruits up to the end of 1943 was roughly as follows:

| | |
|---|-----------------|
| British factories (women for R.O.Fs, etc.) | 4,400 |
| British products (ball bearings, miscellaneous engineering, etc.) | 2,700 |
| Iron and Steel Control | 2,335 |
| I.C.I. metals | 2,594 |
| Non-ferrous metals firms | 1,455 |
| Bolts, nuts and screws | 765 |
| Fertilisers | 669 |
| British vehicles (tanks, etc.) | 1,000 (approx.) |
| Timber | 894 |
| Independent firms (Ford's, Austin, G.E.C., Standard Telephones, etc.) | 6,128 |
| | <hr/> 22,940 |

This total figure of 23,000 is some 1,000 less than the total recruited in 1942 and 1943 according to Table 11 plus recruits in 1941.

reputed to be more difficult to handle than those from the South. For this reason the Ministry of Supply had few competitors in the North in spite of the abundance of labour available. Up to the end of 1943 some 4,000 Northern Irish workers were recruited for Ministry of Supply work.

The Irish labour naturally varied in quality. The R.O.Fs were very satisfied with the women they employed; it must, however, be borne in mind that they were in the market early and had the pick of it. The average age of women workers recruited from Eire was lower than that of the men. This may explain why a large I.C.I. Metals factory, which in September 1942 already employed 560 Irish workers, found the women better workers and fitter physically than the men. But many of the men from Eire did good work and adapted themselves to strange conditions. Among those who settled down in the heat and racket of the drop forging shops in the murk of the Black Country there were some who had rarely if ever seen a motor car until their journey to Dublin *en route* for England.

The contribution of Irish labour to war production should not be underestimated. It is true that less than 30,000 workers was a small contribution to the Ministry of Supply's munitions labour force, which at its peak amounted to some two millions.¹ But Irish labour was valuable to Ministry of Supply production out of all proportion to its numbers. This was firstly because Eire was a source of heavy male labour when British supplies had almost run dry; and secondly because Irish labour, apart from the minority of men and women who applied to work in particular firms and districts, was mobile and was not subject to the preference rulings under which British labour was allocated. Recruitment in Ireland therefore gave the Ministry of Supply a margin of labour to use at its own discretion for urgent and difficult demands.

In 1942 and 1943 the largest proportion of workers travelling from Eire were employed on building and other work for which the Ministry of Works was the sponsoring department. In 1943 the Ministry of Supply ran the Ministry of Works close and in 1944 23 per cent. travelled to Ministry of Supply work compared with 9 per cent. to Ministry of Works. Taking the supply departments alone the Ministry of Supply was far and away the largest customer, as Table 12 shows.

It will be seen that the Admiralty's share was very small; such recruitment of Irishmen as there was to the shipyards is referred to in Chapter V.² In February 1942 the Ministry of Labour suggested to the M.A.P. that it might set up a recruiting organisation in Eire

¹ i.e. including those employed in the timber and metal industries but not in the production of other raw materials.

² See p. 139 above.

Table 12: Percentage of Eire labour (actually travelled) taken by each Supply Department

| | 1942 | 1943 | 1944 | 1945 |
|-----------------------------------|------|------|------|------|
| Ministry of Supply | 37 | 31 | 23 | 16 |
| Ministry of Aircraft Production . | 1 | 14 | 19 | 2 |
| Admiralty | — | 2 | 4 | 2 |
| Others | 62 | 53 | 54 | 80 |
| Total | 100 | 100 | 100 | 100 |

to help meet the urgent labour demands of the light alloy industry. The M.A.P., like the Ministry of Supply before it, would have preferred to see a common recruiting organisation for all production needs, but in June 1942 it began recruiting on its own account for light alloy production. In the course of 1942, stimulated partly it seems by the Ford Motor Company who held aircraft as well as Ministry of Supply contracts, the M.A.P. extended its activities to cover the needs of its aircraft contractors proper. For these the Society of British Aircraft Constructors acted as the recruiting body in Eire.

The numbers travelling to M.A.P. work are shown in Table 11 and totalled some 9,000. The M.A.P. had more agents recruiting in Eire in 1943 than the Ministry of Supply but obtained in that year only some 5,350 workers compared with the Ministry of Supply's 11,630.¹ It is difficult to account for this difference because the wages offered by the aircraft industry must have been at least as good as those offered by Ministry of Supply contractors. Ministry of Supply recruiters were, of course, first in the field; they knew the ropes well and were already well known in the districts where they recruited. But it also seems that they had a better departmental organisation behind them. Demands from the aircraft industry in Great Britain were not always co-ordinated with supplies from Eire, so that there would be over-recruitment at one point and under-recruitment at another. M.A.P. dropped out of the Irish recruitment scheme in September 1944. Nevertheless, like the Ministry of Supply, the M.A.P. during 1942-44 found its Irish labour a very useful supplement to meet urgent and difficult demands.

¹ This included workers employed on common service items like ball bearings.

CHAPTER VII

UNSKILLED AND WOMEN WORKERS

(i)

Introductory

IN THE EARLY YEARS of the war the Government and the firms engaged in war industry were chiefly preoccupied with the problems of finding enough skilled engineering labour and enough unskilled men for the heavy work. By 1942 exceptional sources of supply had been discovered to alleviate the difficulties of the heavy industries. As for skilled labour, the munitions industries had accepted the need for dilution, and government policies to secure a fair distribution of the limited supplies of skilled labour and to assist industry with its training problems had been worked out. In the second half of the war, however, the possibility of expanding the skilled labour force depended increasingly on the availability of green labour to put in at the bottom. By then the problem was not only to find this or that type of labour but to find any labour at all; and since women workers formed the largest remaining reserve of manpower this largely resolved itself into the problem of redistributing the women workers already in employment and of drawing into employment women previously unoccupied or working only in the home.

Isolated shortages of women workers had occurred in the munitions industries as early as 1940. They chiefly affected those industries which employed women workers as a normal practice. In many engineering factories, in iron and steel production and in ship-building the demand for women workers increased only gradually as dilution was introduced, but in some sections of the engineering industry, such as in ball bearing manufacture or some electrical engineering work, large numbers of women workers were employed in peace-time. A number of industries in fact preferred to employ women rather than men on jobs which required particularly deft fingers; women were preferred, for example, for assembly and other work in the ball bearings industry and for much of the work in the filling R.O.Fs, such as work in the initiator section or the assembly of mechanical fuses. The filling R.O.Fs had heavy demands for

women workers in 1940-41 and from time to time there were shortages of women workers for these and other factories. This happened chiefly because women were not being transferred quickly enough from less essential to munitions work; when this was realised the necessary measures were taken and the shortages were therefore rapidly overcome.

In the second half of 1942, however, it was no longer a question of isolated and relatively short-lived difficulties in the supply of unskilled labour. The first signs of an absolute shortage appeared. There were heavy demands for labour at this time, for while Ministry of Supply demands were nearing their peak, the requirements of the M.A.P. were growing fast. Moreover, those sections of the munitions industries which did not normally employ large numbers of women now had heavy demands for women dilutees. Serious shortages of light unskilled labour arose, particularly in the Midlands and in the North-West regions. Firms in these areas could not hope to get labour unless they had a high priority and even high priority demands were not being met. It was beginning to appear that the existing munitions programmes were pitched too high in relation to the labour available; and when in November 1942 labour requirements for the programmes proposed for 1943 were examined in the light of estimates of the labour which might become available to meet them, the examination revealed a deficit of some million workers. For the first time munitions programmes had to be adjusted to the supply of unskilled labour.

Even so the reserves of unskilled labour were by no means completely exhausted. Throughout 1943 many additional women workers were drawn into full-time employment; and others whose domestic responsibilities precluded their full-time employment took up part-time work. In the engineering, explosives and chemicals and ship-building industries alone there were some 200,000 part-time women employed at the end of 1943 compared with only 20,000 at the beginning of 1942. By the end of 1943, however, there were very few unoccupied workers left. Moreover there was little possibility of further transfers of labour into the munitions industries from other industries and services. The unskilled labour shortage was now absolute. Not only was it impossible to build up the labour force of the munitions industries any further; natural wastage and the need to meet the urgent demands of the Services meant that this labour force must decline. From its peak of over 4 millions in the first half of 1943 the labour force in the munitions industries began to fall—to under 3 millions by June 1945.

In many sections of the munitions industries, of course, this growing shortage of unskilled labour coincided with a reduction in demands for labour on strategic grounds. Many of the cuts in

Ministry of Supply production which were made in 1942 owing to labour shortages could, as it turned out, be made without serious risk. Nevertheless it was true to say that in the last years of the war, when shortages of raw materials and machine tools had been largely overcome, the shortage of labour became the chief limiting factor in programme planning and in the actual output of munitions.

In these later years, broad programme plans were largely governed by the manpower budgets. The process of budgeting, in which estimates of labour requirements were set against estimated supplies of labour, had a long history dating back even from the rearmament period, through the Humbert Wolfe Committee of 1939, the Manpower Requirements Committee of 1940 and the Manpower Survey of 1941. But all these earlier investigations, made while unskilled labour was relatively plentiful, were of more importance in planning labour supply policies than in planning production programmes. It was only from 1942 onwards that the manpower budget became the key instrument in planning war production.

It may seem that the labour shortage which arose in 1942 should have been more clearly foreseen by the programme planners in earlier years. Indeed it could be argued that the chief limitation of manpower planning throughout the war was that it was not done on a sufficiently long term basis, so that capacity was overprovided.¹ Whether longer term planning was possible, however, is open to doubt. No one knew in 1939 or 1940 how long the war would last nor how far Britain would be able to draw on American production. Moreover, there were statistical difficulties; though the material available to the planners increased in detail and in accuracy as the war progressed, it was impossible to provide accurate estimates of labour requirements or of labour supply even for six months ahead. The budgets, which never covered a period longer than eighteen months, had to be constantly reviewed.

(ii)

Shortages of Women for the Filling R.O.Fs, 1940-41

The shortages of unskilled labour that occurred in 1940-41 chiefly affected Ministry of Supply production and particularly the R.O.Fs; the worst difficulties occurred in the filling factories. Between December 1940 and December 1942, when it was near its peak, the Ministry of Supply labour force in the munitions industries (that is

¹ Compare E. A. G. Robinson, 'The Overall Allocation of Resources' in D. N. Chester, ed., *Lessons of the British War Economy* (1951), pp. 54-6, and Ely Devons, *Planning in Practice* (1950), p. 131.

excluding raw materials) increased from 937,000 to 1,686,000. It increased most rapidly during 1941 when the R.O.Fs and private contractors were together recruiting, on an average, some 9,500 workers a week. It was a considerable achievement on the part of the Ministry of Supply (in particular of its Labour Supply Division), and of the Ministry of Labour, to have built up the labour force on Ministry of Supply work so rapidly in the face of many difficulties.

Shortages of unskilled women first affected Ministry of Supply work in the winter of 1940-41. The shortages were most felt in the Midlands where demand was greatest and air raids were serious, in London, also on account of air raids, and in factories in isolated areas, such as the large new filling R.O.Fs, where long journeys were involved and where conditions of work were at first unattractive. Women who had been content to travel from Liverpool to an isolated cable factory in Cheshire were not likely to go there when new aircraft factories offered them work in their own neighbourhood, so that the number of women employed in the factory fell from 1,900 to 1,450 in six months. Nor was it surprising that a factory in Woolwich making batteries, a dirty and unpleasant job in any case, lost labour during the air raids of 1940.

In the great majority of factories, however, these early shortages of labour were short-lived. For there was no absolute shortage of women for munitions work provided this work was given adequate priority and provided labour was compulsorily directed to it; in the winter of 1940-41 many women still preferred to work in civilian industries, where hours of work were shorter and wages sometimes higher, or not to work at all. In Luton, for example, there were nearly 400 women unemployed in January 1941 but they could not be persuaded to go to a shell factory which had vacancies for 250. A ball bearing firm in Luton was actually losing workers to hat and cigarette firms who, unlike engineering firms, were still allowed to advertise for labour. During 1941 the necessary policies were developed to mobilise labour for war work; and the shortages of unskilled women for this work were on the whole overcome in the spring and summer of 1941 by the application of the Essential Work Order, the concentration of non-essential industries and the registration and transfer into war industry of women workers, as well as by the improvement of welfare facilities in the factories and outside them.

Of the workers recruited to Ministry of Supply munitions work in 1941, about one third went to the R.O.Fs. In several branches of production, particularly explosives, filling and small arms manufacture the R.O.Fs were the chief sources of supply. This is one justification for treating the labour supply problems of the R.O.Fs in some detail. To some extent the problems of the R.O.Fs were the

same as those of private firms and may be taken as typical. On the other hand—and this is a further justification—since the great majority of the R.O.Fs were new factories they had particularly difficult labour supply problems of their own.

The filling factories had the heaviest demands, which were chiefly for unskilled workers. For reasons described elsewhere, the demands of the filling and explosive R.O.Fs reached their peak early, in

*Table 13: Employment in R.O.Fs***Thousands*

| | Total all Factories | Filling Factories | Explosive Factories | Engineering Factories | | | | | Total | Woolwich |
|-------------|---------------------|-------------------|---------------------|-----------------------|------------|-----------------|-----------|------|-------|----------|
| | | | | Gun and Carriage | Small Arms | Amn. Components | S.A.A.C.† | | | |
| 1939 | | | | | | | | | | |
| December . | 54.2 | 9.9 | 5.3 | 5.5 | 5.1 | 3.0 | — | 13.6 | 25.4 | |
| 1940 | | | | | | | | | | |
| March . | 60.9 | 13.7 | 5.9 | 5.8 | 4.9 | 3.4 | — | 14.1 | 27.2 | |
| June . | 79.5 | 22.8 | 8.0 | 6.8 | 5.6 | 5.1 | .5 | 18.0 | 30.7 | |
| September . | 103.2 | 34.5 | 11.5 | 8.8 | 5.9 | 8.1 | 1.8 | 24.6 | 32.6 | |
| December . | 112.9 | 49.3 | 13.1 | 11.0 | 6.2 | 10.1 | 3.7 | 30.9 | 18.9 | |
| 1941 | | | | | | | | | | |
| March . | 145.4 | 69.7 | 16.4 | 14.1 | 7.5 | 12.6 | 6.6 | 40.7 | 18.5 | |
| June . | 197.7 | 103.1 | 25.5 | 17.7 | 9.1 | 14.0 | 10.0 | 50.8 | 18.1 | |
| September . | 239.2 | 127.0 | 32.1 | 19.1 | 12.1 | 15.9 | 13.8 | 60.9 | 19.0 | |
| December . | 276.9 | 144.2 | 40.0 | 21.0 | 16.7 | 17.0 | 17.5 | 72.2 | 20.3 | |
| 1942 | | | | | | | | | | |
| March‡ . | 296.2 | 153.1 | 41.3 | 22.6 | 18.5 | 17.9 | 21.2 | 80.1 | 21.5 | |
| June . | 302.1 | 151.4 | 40.6 | 23.6 | 20.8 | 18.7 | 24.9 | 88.1 | 22.0 | |
| September . | 293.5 | 140.7 | 38.1 | 24.1 | 21.4 | 18.7 | 28.0 | 92.2 | 22.3 | |
| December . | 289.6 | 133.4 | 37.7 | 24.7 | 21.7 | 18.8 | 30.3 | 95.6 | 22.8 | |
| 1943 | | | | | | | | | | |
| March . | 279.5 | 123.0 | 36.5 | 25.2 | 21.7 | 16.9 | 33.5 | 97.3 | 22.7 | |
| June . | 268.1 | 113.3 | 36.3 | 25.4 | 21.3 | 16.0 | 33.5 | 96.3 | 22.3 | |
| September . | 255.5 | 110.8 | 29.6 | 24.8 | 20.1 | 15.4 | 32.6 | 92.9 | 22.2 | |
| December . | 241.9 | 105.7 | 26.2 | 23.6 | 18.6 | 14.4 | 31.8 | 88.4 | 21.6 | |
| 1944 | | | | | | | | | | |
| March . | 231.3 | 101.0 | 25.0 | 22.3 | 17.5 | 13.6 | 31.4 | 84.9 | 20.5 | |
| June . | 223.8 | 98.1 | 24.9 | 21.9 | 16.4 | 13.3 | 29.9 | 81.4 | 19.9 | |
| September . | 216.5 | 95.9 | 23.2 | 21.5 | 15.4 | 13.5 | 27.8 | 78.3 | 19.1 | |
| December . | 208.0 | 92.8 | 22.6 | 22.4 | 14.6 | 13.2 | 24.7 | 74.9 | 17.7 | |
| 1945 | | | | | | | | | | |
| March . | 203.1 | 92.5 | 23.9 | 20.9 | 13.7 | 13.9 | 21.1 | 69.6 | 17.2 | |
| June . | 172.1 | 77.1 | 20.4 | 18.9 | 13.0 | 13.2 | 13.3 | 58.3 | 16.3 | |
| September . | 94.6 | 40.7 | 6.8 | 13.1 | 9.1 | 6.7 | 6.2 | 35.1 | 12.0 | |

Source: Ministry of Supply

* All classes of workers except inspection staff.

† Small arms ammunition components.

‡ Figures prior to 1942 represent 'gross strength'. Those for 1942 and onwards 'net strength', i.e. excluding those absent for 2 weeks or more without known cause.

March 1942, compared with the engineering factories, where the peak demand was in the winter of 1942-43 and coincided with that of Ministry of Supply production as a whole (see Table 13). There were only three R.O.Fs in production in the period between the wars. In the rearmament period, Chorley filling R.O.F. was partially completed and opened in 1939, Hereford was reconditioned and in September 1939 a nucleus staff was transferred to filling factories under construction at Bridgend (Glamorgan) and Glascoed (Monmouth); by that date the labour force employed on filling stood at some 8,000 workers. To meet the 55 division programme agreed on in the summer of 1940 it was planned to provide 36 filling factories (including those already built) employing nearly 290,000 workers. In the spring of 1941, when the three shift system was introduced, it was estimated that the R.O.Fs would eventually require 380,000 workers.

For reasons described below these requirements were gradually scaled down until in May 1942 peak requirements, which were to be reached by the end of that year, were put at 159,000. In July the figure was further reduced to 150,000 to be reached by September. The peak labour force in the various factories was reached at various dates between March and August 1942 and in fact amounted to about 160,000 workers; of these nearly 70 per cent. were women.¹ Only 3 per cent. of the labour force in the filling factories in 1942 were skilled men.

The curve of requirements in the explosive R.O.Fs followed a similar line to that in the filling factories.² In September 1939 they employed some 5,000 workers. Employment rose to 13,000 in December 1940 and thereafter, very steeply, to nearly 42,000 at peak in March 1942. About 10 per cent. of these workers were skilled and just over half of the total were women. The higher proportion of men is partly explained by the fact that the factories were situated in relatively easy labour supply areas and some had recruited a higher proportion of fit male labour than they needed; it proved difficult to transfer the men elsewhere, partly because earnings in the explosives factories were comparatively high. Some factories, like Pembrey in South Wales, did very good work in rehabilitating coal-miners and tinplate workers who had been long unemployed.

From the figures above it is clear that the labour requirements of the filling factories were overestimated. The chief reason for this was that production was cut.³ The methods of estimating labour requirements were also unsatisfactory in the early years of the war, though

¹ This compared with a figure of some 80 per cent. in the 1914-18 war but it was not lower by choice. The R.O.Fs, as has been said, preferred to employ women workers in many occupations. The filling factories in Wales employed an increasing number of elderly and disabled miners in place of women workers (cf. p. 186 fn. 1 below).

² The engineering R.O.Fs are discussed on pp. 66-7 and 80 above.

³ See M. M. Postan, *op. cit.*, pp. 134-5.

the filling factories later developed a good technique of estimating requirements. Finally, the overestimate was in part due to increased output per head. The Select Committee on National Expenditure had in 1942 criticised the Ministry of Supply for flooding the new R.O.Fs with labour, and alleged that the use of the labour was deemed a secondary and relatively long term consideration.¹ The Ministry of Supply denied that any other course was at the time open to them. From 1941 onwards, however, productivity improved rapidly.

One reason for this increased productivity was greater mechanisation, which had hitherto been deemed unsafe; another was that production in these vast new factories was now getting into its stride. In the early stages production and construction proceeded side by side; only a minority of the managerial staff had previous experience of explosives production and vast numbers of new workers, many unused to factory conditions, had to be trained. As managements grew more experienced, workers were trained and conditions improved, a considerable increase in output per head was bound to come. Moreover as this became technically possible it was doubly insured by the gradual introduction into the factories from mid-1942 onwards of an efficient system of payment by results.² The Select Committee on National Expenditure had noticed that already in the last six months of 1941 output in one factory increased by 100 per cent. with an increase in the labour force of only 40 per cent.³ Between mid-1942 and mid-1943 output per head in the filling R.O.Fs rose by some 60 per cent.; but how far this was due to the introduction of bonus schemes and how far to other causes cannot be determined. In any case it is probably true to say that owing to particularly difficult conditions and to the large numbers of new workers employed, as well as to delays in the supply of components, output in the filling factories was at an earlier date below average.

The demands of the filling factories were not therefore as high as was expected; but they remained high and, in the winter of 1940-41 particularly, they were difficult to meet. One of the most difficult factories to man was Chorley, but there were also labour shortages at Hereford, Risley (Lancs.) and Kirkby (Cheshire) R.O.Fs. Labour was not, it is true, the only scarce item in the filling factories in the winter of 1940-41. The supply of components was also very uncertain, so that a factory might press for labour and not be able to absorb it when the Ministry of Labour provided it because of a

¹ *Eleventh Report from the Select Committee on National Expenditure, Session 1941-42, 16th July 1942, para. 3.*

² See pp. 339-51 below.

³ *Report, op. cit., para. 2.*

failure in component supply. Nevertheless, in February 1941 the Ministry of Supply wrote to the Ministry of Labour that the Prime Minister was pressing for the fullest possible output from the factories,¹ and that the forecast given him depended for fulfilment entirely upon the recruitment of the necessary labour.

The difficulties of recruitment were partly due to conditions in the factories. Welfare officers were not appointed to the R.O.Fs as soon as they might have been.² The Superintendent at Chorley asked headquarters' approval for the appointment of a woman welfare officer in September 1939 but none was appointed until March 1940 when the factory employed nearly 4,000 women. Another factory, Risley, had no woman welfare officer in November 1940 when over 1,200 women worked there.

When the Welfare Officer came to Chorley she found that the factory had for a number of reasons attracted women of a very poor type and had such a bad reputation on account of this and the wretched conditions that few women in the neighbourhood were prepared to take work there. One trouble with the filling factories was that wage rates compared unfavourably with those in many private engineering firms, though the location of some filling factories spared them from the competition of such firms. But many of the difficulties of recruitment were inherent in the circumstances under which the factories were working. Much construction work was still going on. Some of the filling factories were very large. Chorley employed 28,000 and Bridgend 29,000 workers on three shifts in 1942. The problems of labour management and training inherent in building up these vast new factories were bound to be very great. In the winter of 1940 Chorley was engaging some 500 workers a week (in some weeks considerably more), after interviewing twice that number, and, for reasons explained below, losing about 500 as well. These conditions would have tried the most experienced clerks and foremen and the best-established routine. To instance a difficulty which rose in one department of the factory, there were many complaints at Chorley of mistakes in wages paid out and delays in rectifying them; but this was not surprising when clerks were often inexperienced and there were at one time said to be 40 women on the books of the factory with the name of Anne Clark.

Foresight in planning welfare and other facilities was not perhaps to be expected in the difficult circumstances of 1940; the supply of these facilities certainly lagged behind requirements. Curiously enough—possibly because pre-war policy laid it down that the R.O.Fs were to give preference in employment to men—Chorley was not originally

¹ Chorley R.O.F., for example, was by far the most important source of gun ammunition, particularly after the bombing of Woolwich.

² See pp. 268-9 below.

planned to employ large numbers of women workers; and though the factory began to employ them soon after the outbreak of war the lavatory and cloakroom accommodation provided for them was to begin with inadequate. The factory canteens were unsatisfactory and other necessary facilities outside the factories were lacking. The absence of day nurseries was felt very acutely, since the majority of potential recruits were married women with families.

Work in the filling factories had other disadvantages. On top of long working hours there were transport difficulties. The factories were working two shifts from 8 a.m. to 7 p.m. and from 7 p.m. to 8 a.m. involving an attendance of 66 hours a week and an effective working week of 60 hours. To this many workers had to add 2, 3 and even 4 hours travelling time. Workers were coming to Chorley, for example, in their thousands, from Preston, Wigan, Bolton, Blackpool and Liverpool. Even a worker from Burnley, which was comparatively near, left Burnley at 6.30 in the morning and got back to Burnley station at 8.50 at night. Moreover the winter of 1940-41 was particularly severe. There were heavy air raids; trains were usually late, and 'there was no protection on Chorley station against the habitual Lancashire rain'. Similar travelling difficulties existed at Bridgend and Thorp Arch. Even within the factory gates there were travelling problems. The R.O.Fs all covered a wide area because for safety's sake production was scattered in small units. Swynnerton, for example, had 1,650 buildings, spread over 1,000 acres of land with 13 miles of road and 20 miles of railway track. But there was no internal transport system in the factories in the early days and at Chorley a worker might have to walk for up to three-quarters of an hour from the gate to his shop.

The risk of explosions and of dermatitis or skin discoloration from the handling of materials used in the manufacture of explosives must also have deterred some people from applying for work in the R.O.Fs, particularly in the early days when the terrors, being unknown, were much exaggerated. The incidence of dermatitis was also higher early in the war than it later became.¹

In the winter of 1940-41 the filling factories had not, then, many attractions to offer. This increased the difficulties of the Ministry of Labour who had as yet no effective control over the drafting of women into war work nor any way of compelling them to stay in it. Ministry of Labour officials realised that many of the workers submitted for vacancies in the R.O.Fs were unsuitable and were not surprised that they were rejected by the management. Essential medical standards ruled out the employment of many categories of people. Most of the women available were married and without

¹ Sir Arthur MacNalty, ed., *The Civilian Health and Medical Services*, in the series *Medical History of the Second World War* (H.M.S.O., 1953), Vol. I, pp. 381-2, 386.

factory experience; and even though many might be trained to be excellent workers it was an added difficulty for new factories to have to draw so heavily on completely untrained labour. On many operations in the filling factories recruits could it is true be trained in a day; on others up to a fortnight was needed. But as all the work was dangerous and some of it intricate, reasonably intelligent and conscientious workers were needed, and these were not over-abundant. It was not surprising that the wastage rate was high; the Ministry of Labour found itself 'expending great energy in trying to fill a leaking tub'. At Chorley the labour force actually fell from 17,800 to 16,800 between the beginning of December 1940 and mid-January 1941.

Fortunately the crisis was short-lived. In the spring and summer of 1941 conditions in the R.O.Fs were improved, canteens were re-organised, and internal transport and hostel accommodation provided.¹ Most important, hours of work were substantially reduced by the introduction of the three shift system to an average of fifty-one a week, with no loss of earnings. At the same time the Committee appointed to consider payment by results in the filling factories reported favourably and opened the way to its introduction in 1942.²

So far as the supply of labour was concerned, women were compelled to register for war work and the concentration of industry scheme was introduced. The cotton industry released labour for Chorley, though not without considerable delays and difficulties, and the concentration of the pottery industry helped Swynnerton. The Ministry of Supply also began to recruit women for the R.O.Fs from Eire.³ Moreover, from February 1941 the filling factories had a high priority for all types of labour. Not only did recruitment improve; at the end of March 1941 the Essential Work Order was applied to the filling factories and employees were prevented from leaving work without the permission of the national service officer. This helped to reduce wastage. An analysis of weekly losses as a percentage of current strength showed these to be 1.43 per cent. in January/February 1941, 1.18 in February/March (following the introduction of the three shift system) and .53 in April/May (following the introduction of the Essential Work Order).⁴

In the middle of May 1941 the Ministry of Supply reported that, in the last three months, six of the seven filling factories had received all the labour they could conveniently digest, though the position remained temporarily difficult at Chorley. Steps to find labour for

¹ See pp. 234-9 and 246-57 below.

² See pp. 339-51 below.

³ See pp. 169 and 173 above.

⁴ This was a much greater reduction than could be explained on seasonal grounds. It was not, of course, only in the R.O.Fs that the introduction of the Essential Work Order reduced wastage; cf. Industrial Health Research Board, *Hours of Work, Lost Time and Labour Wastage* (H.M.S.O., 1942), p. 23.

these factories had on the whole met with marked success. There was a second short crisis in the supply of labour to the R.O.Fs in the early winter of 1941, chiefly because women were not being drafted into war work fast enough under the Registration for Employment Order. The introduction of conscription for women towards the end of 1941, however, strengthened the Ministry of Labour's powers, and the filling R.O.Fs were given first claim on those women called up under the National Service Act who opted for industry. In the first months of 1942 these factories got more or less all the labour they needed and, as has been said, reached their peak labour force in the middle of that year.

After this date the existence of considerable surplus capacity made it possible to divert a good deal of work from factories in the difficult labour supply areas to those in easier ones. The Ordnance Factory Department made many such diversions on the advice of the Labour Division in the Ministry of Supply; for example, work was transferred from Risleigh, which was continually falling below its required labour strength, to Chorley and Glascoed. The Ministry of Supply was also allowed by the Ministry of Labour to transfer mobile workers from one R.O.F. to another, replacing them if necessary with immobile labour recruited locally. Irish women in particular were transferred in this way, for example from Bridgend to the new agency factories.¹

The later history of the filling factories is discussed below.² As will be seen it was even more difficult to persuade workers to leave the R.O.Fs than it had been to recruit them, for conditions of work, canteen and medical services were in the later years of the war at least as good in the R.O.Fs as the best to be found in private industry. This was a measure of the great progress made since the black days of 1940.

(iii)

The Emergence of a General Labour Shortage: The Manpower Budget of 1942

By 1942, then, the demands of the filling factories were being met. Over the rest of the Ministry of Supply's munitions work there were still few serious shortages of light unskilled labour. Individual shortages did indeed exist in congested spots, but as late as June 1942

¹ In mid-1942, when Bridgend already employed over 3,000 ex-coalminers, nearly all of them only fit for light work, the Ministry of Labour continued to receive many letters from ex-miners who could not get work while their daughters were being taken on at Bridgend. In 1943-44 the factory recruited many more of these men and transferred hundreds of its women workers to the Midlands and elsewhere.

² See pp. 200-1 below.

the Ministry of Supply thought that it was getting almost all the labour it required. The Ministry had estimated its additional munitions labour requirements¹ for the first six months of 1942 at 180,000–190,000, of which 160,000 had been provided, and it was even suggested that the Ministry's total requirements had been more nearly met in this than in any previous period.

Towards the end of 1941 it had seemed probable that the Ministry of Supply's labour force would reach its peak in June 1942; after that date increased demands for some armaments were expected to be offset by reductions in the demand for others. The revision of War Office requirements after Pearl Harbour was to belie these hopes, but all the same Ministry of Supply labour requirements were moderating. In the second half of 1942 some labour was even released from the filling R.O.Fs and the requirements of the trade firms fell off considerably. Between June and December 1942 the Ministry's labour force² increased by only 54,000 to 1,438,000. Nevertheless this increase fell some way short of requirements which, though smaller, were increasingly difficult to meet. For labour was by now seriously scarce.

It was in 1942 that aircraft production was first markedly affected by the shortage of unskilled labour. In 1941 the aircraft factories had not been troubled like the filling factories by the shortage of women workers. This was not because the industry as a whole still enjoyed a high priority. It was due rather to other circumstances: vacancies in aircraft factories were relatively attractive, the demand for women workers in them was limited by the gradual progress of dilution and, finally, the Ministry of Aircraft Production's total demand for labour was in any case less than the Ministry of Supply's, because production was developing more slowly.

In 1941, however, it was clear that the future labour demands of aircraft production would be great. The aircraft programme of March 1941, revised in July, had provided for a greater output of heavy bombers than the emergency programmes of 1940. Then in September 1941 the Prime Minister intervened with a demand for still more heavy bombers—14,500 were to be made between July 1941 and July 1943 instead of the 11,000 that seemed likely to be forthcoming under the existing programme.³ M.A.P. accepted this figure but prolonged delivery; only 1,074 additional bombers would be produced by July 1943; it would take nearly a year longer to complete the remainder of the programme put forward by the Prime Minister.⁴

¹ Operatives only.

² Operatives only.

³ See M. M. Postan, *op. cit.*, p. 125.

⁴ For the fate of this programme see *ibid.*, p. 126.

Modified though the bomber programme was, it still presented a formidable claim for labour. The M.A.P., in consultation with the Lord President, agreed that its labour force of 1,250,000 in August 1941 should rise to 2,100,000 by the end of 1942 in order that peak output might be achieved in September 1943;¹ this increase of 850,000 was later reduced to 780,000 to correspond with a reduction in the programme. Of these additional requirements, half were needed in four of the most difficult labour regions—the Midlands, North-West, North Midlands and South-West. The Ministry of Labour, for its part, challenged these demands. It believed neither that so much labour was needed to achieve the programme nor that it could be absorbed by the industry; the Minister himself pointed out that in the fifteen months ended September 1941 women were absorbed into the industry at an average rate of just over 10,000 a month compared with a proposed rate of 50,000. Such a rapid increase in the proportion of women employed would, he believed, be neither practical nor in the best interests of production.

As a result of this disagreement the Ministry of Labour and M.A.P. agreed to obtain quarterly returns from the majority of firms engaged on aircraft production giving a statement of their requirements for the ensuing year. On the basis of these returns for March 1942,² labour requirements were put at 380,900 for the year from March 1942 to February 1943. Allowing for the increase already achieved, this gave a figure for the total additional requirements of some 570,000 to be reached by February 1943, compared with the original figure of 780,000 to be reached by December 1942. The reduction was to be felt chiefly in the later months, intake for the first quarter being 45,000 a month, falling to 37,000, 29,000 and 22,000 a month in the succeeding ones.

The Ministry of Labour, however, did not accept even this revised estimate as an accurate statement of real demands that would become effective at the estimated times; to measure the increases actually achieved against these estimates would not, in its view, give a true picture of the labour supply position in the industry. Moreover, the Ministry thought the industry was unjustified in making such heavy demands for labour when, as it believed, firms were using inefficiently the labour they already had.³

As it was, intake of labour into the aircraft factories in 1942 continually fell behind stated requirements: it averaged 27,000 a month

¹ This figure covered all types of labour in Great Britain and Northern Ireland. The figures used in the manpower surveys did not always coincide exactly with those quoted in Table 1.

² The returns were vetted by M.A.P. and Ministry of Labour regional officials and then grossed up to cover the whole industry.

³ The Ministry of Labour was in any case unwilling to be bound to labour allocations; see pp. 190-1.

in March, April and May compared with the 45,000 a month estimated to be required. While the Ministry of Labour continued to insist that these large requirements did not exist, M.A.P. argued that the labour shortages which the figures showed would make it impossible to fulfil the aircraft programmes. It might be argued that the Ministry was preparing an alibi for itself in the event of failure to achieve the programme;¹ certainly the new Minister of Aircraft Production (Sir Stafford Cripps) gently hinted in December 1942 that his department had perhaps protested too much, and he urged the merits of a co-operative as compared with a fighting approach. Even within the M.A.P. there was widespread scepticism about the accuracy of the estimates, for accurate estimates of labour requirements were wellnigh impossible to make.²

Nevertheless M.A.P. was in a very real difficulty in having no firm figures of labour requirements to measure against the supply. Unlike the Ministry of Supply, whose production was nearing its peak in 1942, M.A.P. was called upon for a vast expansion at a time of increasing labour shortage. Moreover, planning the aircraft programme was a most intricate task; labour had to be supplied to a multitude of small contractors, as well as to the larger factories, months ahead of the output of completed aircraft. When M.A.P. complained of current labour shortages the Ministry of Labour could point to the fact that in accounting for the failure of output of various types of aircraft to keep pace with programmes, M.A.P. gave a number of reasons which did not include the shortage of labour. This rejoinder did not however entirely meet the M.A.P.'s point. As an official pointed out, to identify labour deficiencies by deficiencies in output was to lock the stable door after the horse had fled.

It is difficult to disentangle the truth about labour shortages in the aircraft factories. But in general it can be said that in the first half of 1942 the shortages were not serious, though there were some difficulties in the aluminium producing plants. Later in 1942, however, the general shortage of labour grew and it was bound to affect aircraft more severely than most other branches of production. For aircraft production was by then expanding very rapidly. The labour

¹ Cf. E. Devons, *op. cit.*, p. 125: 'There was always a school which was prepared to lay the whole blame for any fall down on the programme on the deficiency in labour supply. Others, either more cautious or honest, pointed out that this was a dangerous line to take. It would antagonize the Ministry of Labour and the M.A.P.'s bluff might be called and the full labour requirements allocated and supplied in the succeeding period, an unlikely but not impossible eventuality. Then if the programme was not achieved the whole of M.A.P.'s earlier case would be discredited and any similar arguments put forward in the future would be treated with scepticism.' But by maintaining that the aircraft programme was strictly related to the manpower allocation the M.A.P. was in a stronger position to resist requests from the Air Ministry for constant small additions without compensatory reductions; and it was essential to do this after the introduction of realistic programmes in 1943 (*ibid.*, p. 123).

² See pp. 201-8 below.

force¹ on M.A.P. work increased from 998,000 in December 1940 to 1,287,000 in December 1941 and 1,555,000 in December 1942. But by the end of the year the failure to provide enough labour even to firms whose demands carried high priority was restricting the growth of the industry's labour force.² Total employment on M.A.P. work in the munitions industry, which had increased by some 20,000–30,000 a month in the first ten months of 1942, increased by only 13,000 in November and 5,000 in December, a drop which could not be accounted for purely on seasonal grounds. The size of M.A.P.'s labour force in the Midlands was virtually stationary.

The extent to which current requirements were being met might be the subject of dispute, but it was already plain by the autumn of 1942 that the future demands of the Services and supply departments, based on their current programmes, could not all be met. The Ministry of Labour then prepared the most comprehensive manpower budget that had yet been made, comparing estimates of total labour requirements and of labour supplies. The Ministry's survey was considered by the Lord President's Committee³ and at the end of the year the Lord President reported to the War Cabinet. His report showed total labour requirements from midsummer 1942 to the end of 1943 at 2,689,000 of which the Forces required 1,604,000 (gross intake) and industry 1,085,000 (net increment). Available supplies were estimated at 1,600,000, so that there remained a gap of about one million which no allowance for exaggerated estimates could possibly close.

The moment when production programmes would have to be planned according to unskilled labour supplies—which hitherto had been seen only on the horizon—had now arrived. Already in October 1941 the Lord President had called attention to the unfairness of the situation in which, while the Services could count on receiving all the recruits they wanted, the munitions and other essential industries had to be satisfied with the labour that remained. The Lord President's Committee had therefore proposed that the total requirements of the supply departments should be worked out and agreed upon so that each would have a firm basis on which to plan. This proposal was accepted by the War Cabinet but for a variety of reasons did not in practice become effective until the manpower budget drawn up at the end of 1942.⁴ The Ministry of Labour had naturally been reluctant to be bound to a firm allocation of labour to any department, for on the one hand an allocation which might prove to have been generous would discourage the best use of the

¹ See notes to Table 1 on p. 5 for definition of workers included.

² See p. 212 below.

³ This Committee had become increasingly concerned with manpower budgeting.

⁴ Cf. H. M. D. Parker, *op. cit.*, Ch. X.

labour already employed, and on the other it was difficult to forecast available supplies; human beings could not be allocated with the precision of raw materials or machine tools.

But now allocations could not be avoided. All the supply departments, like the Services, were allocated less labour than they had asked for. The Ministry of Supply, which had suggested increasing its labour force by 148,000 in the period midsummer 1942 to December 1943, had to be content with an actual reduction of 78,000. The Ministry's labour force had already increased in the second half of 1942 so that the cut to be suffered was in fact about 120,000. M.A.P., which had asked for 603,000, was given only 503,000, and the Admiralty, requiring 186,000, only 111,100. The cuts in Ministry of Supply production were to be planned to coincide with the needs of M.A.P.

The reductions in the programmes of the supply departments which followed the manpower budget were not solely due to labour shortages. For example, production of some Army requirements could in any case be allowed to fall for strategic reasons, even though demands for others, such as tanks, continued to rise. And when M.A.P. produced its new programme in January 1943 it was lower than previous ones partly because it was realistic; expectations were now based on previous achievements whereas earlier programmes had been based on the principle of setting a target. Quite apart from unrealistic programmes it was undeniably true that many causes—shortages of materials, tools, components, frequent modifications in design, and managerial failings in some firms—had contributed to the serious shortfalls in production. Such difficulties continued, but it became increasingly true in 1943 that the earlier limitations on a properly balanced programme—shortages successively of raw materials, engines, propellers and undercarriages—had given way to a more general shortage of labour.

This shortage of labour led the Government and industry to give greater attention to problems of labour utilisation.¹ Output was clearly in the last resort limited by the extent to which available labour was efficiently used. This fact was recognised when the January 1943 aircraft programme was drawn up, and an additional allowance of 10 per cent. was made in provisioning raw materials, to allow for increasing productivity.

In the first few months of 1943 it did not seem that the allocations of labour made in the 1942 manpower budget were in fact being fulfilled. It had been recognised that the Ministry of Supply labour force would fall most rapidly in the second half of 1943; it was bound to be some time before discussions with the War Office, alterations

¹ See Part II, *passim*.

in programmes and cancellations of contracts were reflected in releases of labour and capacity from Ministry of Supply contractors. All the same it was somewhat disquieting that in April 1943 the Ministry of Supply's labour force, though it was by now falling at the proper rate, was still slightly higher than in June 1942. Much more disquieting was the fact that M.A.P.'s labour force, at the end of nine months of the eighteen-month period covered by the estimates, had increased by little more than one quarter of the department's allocation. Intake of labour to the aircraft industry, which was some 18,000 and 11,500 respectively in January and February 1943, fell to an average of little over 5,000 a month between March and July. The Ministry of Aircraft Production, which had understood its allocation of December 1942 to be a firm one to which it was absolutely entitled, had just cause for complaint. The Ministry of Labour did indeed still argue that the aircraft industry did not need and could not absorb all the workers it had been allocated. But the gap between allocation and entitlement was very wide and it could not be denied that the aircraft industry needed many more workers than it was actually receiving.

In the summer of 1943 there were other reasons for reviewing the manpower allocations for the eighteen months from July 1942 to the end of December 1943. In a period when offensive preparations were mounting, the Service departments were demanding more manpower than they had been allotted while, in addition, allocations had to be provided for the first time for essential industries and services outside the munitions group. Accordingly all the manpower allocations were reviewed.

Of the supply department's allocations only the Admiralty's emerged untouched.¹ The Ministry of Supply, which had originally been expected to give up 78,000 workers and which now volunteered to give up 85,000, was to give up 165,000 by the end of 1943.² M.A.P. was also ready to give up some of its allocation because productivity in the aircraft industry was increasing faster than had been expected. It was willing to reduce its original allocation of 503,000 to 356,000; all it was given, however, was 259,000. In the light of earlier disagreements about the accuracy of the estimates of requirements for the aircraft industry it was decided on this occasion that the M.A.P.'s allocation should be used as the needs of the industry demanded and any balance held over for use in the early months of 1944.

Having made these allocations the War Cabinet issued an emphatic decision on priorities; it affirmed the overriding importance

¹ The Admiralty did not however receive the extra 6,000 it had asked for.

² Some reduction in the Ministry of Supply programme, though not nearly such a large one, would have been necessary in any case owing to a shortage of steel.

of aircraft production. If the supply of labour up to the end of 1943 were to prove insufficient to meet all the allocations the deficit was not to fall on M.A.P.

Administrative machinery was devised to put this recommendation on priority into effect.¹ Measures were also taken to ensure that labour was as far as possible released from Ministry of Supply work in areas where it was most needed by the aircraft factories;² and arrangements were made to protect aircraft workers from being called up to the Services and in other ways to adjust the allocation of labour between the Services and industry to the benefit of the latter.

The deficiency in M.A.P.'s labour force in 1942 would have been greater than it was but for some 17,000 R.A.F. men who had been lent by the Air Ministry to the industry at the end of 1941 and early in 1942. By the end of 1942 many of these men had acquired considerable skill and they set a high standard of discipline. In October 1942, however, arrangements had been made for their return to the R.A.F. and by the end of April 1943, 3,500 had been returned. Over half the remaining men were in the Midlands, and their replacement appeared impossible. The plain fact was, as the M.A.P. told the Air Ministry, that if it had these men back it would lose on aircraft. Finally, in July 1943, the War Cabinet agreed that these men should be retained in the industry.

An even more important step for the aircraft industry was the suspension of call-up of all its men save a few certified marine engineers. For months the M.A.P. had pleaded that no further skilled men should be withdrawn from aircraft production, but until July 1943 the proposal was turned down. The industry's losses of highly skilled men such as toolroom workers had always been small,³ but from the winter of 1942-43 the Ministry of Labour had been calling up from the industry the younger men in semi-skilled occupations, such as fitter-assemblers, some of the less skilled electricians and sheet metal workers and woodworkers—two trades in relatively plentiful supply which had been little diluted. The men were called up without prior substitution, and although the vacancies they left were automatically granted preference, this did not ensure that they were filled. It was estimated that the call-up had been reducing M.A.P.'s net intake by something like 4,000 a month in the spring and early summer of 1943. The suspension of call-up lasted from the end of July 1943 to the end of December; when men were again called up from M.A.P. work in 1944 special protection was still given to semi-skilled men on designated and on experimental work.

¹ See pp. 213-14 below.

² See p. 220 below.

³ Some idea of the numbers involved is given by the fact that the industry expected to lose only 700 men as Service tradesmen in 1943, in addition to 150 to the R.E.M.E. and 200 fitters to the Fleet Air Arm.

Finally, industry was given a prior claim over the Armed Forces to the services of the younger women called up for war work. When women were first called up in December 1941 they were given the option of joining the Women's Services or of going into industry. Of those called up by the end of March 1942 some 100,000 had opted for the Services or for Civil Defence and 75,000 for industry, while 55,000 expressed no option. At that date the Minister of Labour hoped that the majority of the non-optants could be sent into industry, but by the autumn they were, except in districts of acute labour shortage, all being directed to the Services. The M.A.P. pressed the Ministry of Labour not only to direct non-optants to industry but also to do away with the right of option altogether so that more women out of the total registering could be directed to the munitions industries. In December 1942 it was agreed to allocate all non-optants to industry, but the Minister of Labour was strongly opposed to abolishing the right of option. In the first three months of 1943, the Women's Services received on the average sixty per cent. of their allocation for the whole of 1943, while the M.A.P.'s intake of men and women together was only eight or nine per cent. of its total allocation; the distribution of labour was clearly not going according to plan. In June 1943, therefore, when the first half of the 1924 class of women became liable for National Service, they were registered under the Registration for Employment Order and sent into industry, instead of being called up under the National Service Act, and it was decided that this procedure should in future be followed as further age groups of women became liable for National Service.

All these measures to improve the supply of labour to the aircraft industry ensured that M.A.P.'s manpower allocation was as firm as man could make it. Intake of labour into the aircraft factories did indeed leap up in the second half of 1943. In August and September, when the Ministry had unchallenged priority, intake increased by 53,000 and 24,000 respectively, compared with the average of 5,000 a month earlier in the year, and it remained satisfactorily high until the end of the year. In December 1943 when the labour force on M.A.P. work reached its peak there were 1,711,600 workers employed on M.A.P. work in the munitions industries. M.A.P.'s allocation, as finally revised in July 1943, was 258,800 from mid-1942 to December 1943, and M.A.P. contractors actually obtained in that period 307,300 workers.¹ The Minister of Labour's scepticism in midsummer 1943 about the industry's power to absorb so many workers proved unjustified. It is, however, no doubt true that the industry as a whole was very well supplied with labour in the second half of 1943 and that some firms had more than they required.

¹ Cf. p. 188 fn. 1.

(iv)

The Reserves Exhausted: the Later Manpower Budgets

By mid-1943 the mobilisation of the country's manpower had reached its peak and the reserves of labour were almost exhausted. Such small additions as there would be to the country's labour force would be more than balanced by natural wastage. Quite apart from further drains by military recruitment there was bound to be a net decrease of 150,000 in the numbers employed in industry as a whole during 1944.

The allocation of manpower now largely determined the division of effort within the economy. When, therefore, the manpower budget for 1944 was considered in the autumn of 1943 the planners had to decide how to redistribute the labour force in accordance with strategic priorities. In this redistribution the labour force in the munitions industries was bound to fall. For with the approach of D-Day the claims of the Services were paramount and they had to have priority to expand within the limits imposed by the availability of shipping, aircraft and equipment. Even so, the Services were allocated only 300,000 men and women instead of the 776,000 for which they asked. Increases were also urgently needed—and were granted—in some of the essential services such as coalmining and the railways.

To meet these demands, further cuts were made in certain civilian industries, but they could not be large. It was therefore decided that the munitions industries must lose 346,000 in 1944. The labour force of these industries had indeed already begun to fall in June 1943, having risen from 3,982,900 in December 1942 to 4,020,000 in that month. In 1944 the heaviest loss was to fall on the Ministry of Supply which, having asked for 31,000, was to lose 220,000. The labour force on aircraft production was to fall by 69,000 instead of increasing by 12,000 as M.A.P. asked and the Admiralty's was to fall by 13,000 instead of rising by the proposed 70,000.

These allocations were based on the assumption that the European war would end during 1944. Throughout 1944 the hypotheses about the date of the end of the war in Europe shifted backwards and forwards from the end of 1944 to mid-1945 and meanwhile the extent of relative British and American commitments in the Far Eastern war was undecided. The consequent instability of programmes made long term manpower planning difficult. But the short term needs were clearer; and they indicated in midsummer 1944 a revision of the manpower allocations in favour of the Army and the Ministry of Supply. All the supply departments were feeling the labour shortage acutely. M.A.P.'s labour force had been running down faster

than was planned and the Ministry attributed a three per cent. failure in aircraft deliveries to labour shortages. The Admiralty's labour force was also falling too quickly in relation to the heavy current demands upon it.¹ The Ministry of Supply's labour force on the other hand was not falling according to plan; D-Day preparations had caused heavy and often unexpected demands, while the Army's requirements for gun ammunition had also been increased.²

The revision of the manpower allocations in midsummer 1944, which was confirmed in September, assumed that the European war would end early in 1945.³ Intake to the Army was to be speeded up and, though this meant a heavier loss to industry in 1944 than was planned earlier in the year, the loss falling on the Ministry of Supply was to be reduced from 220,000 to 170,000. The Admiralty was to lose 68,000 instead of 13,000 and M.A.P. 198,000 instead of 69,000.

Continuing uncertainties about the future made the planners hesitant to produce a manpower budget for 1945. A budget—the last of its kind—for the first two quarters of the year did not reach the War Cabinet until just before the European war ended and so was out of date very soon after it had been adopted.

In Table 14 the allocations of labour made to the supply departments for the eighteen months from June 1942 and for the year 1944 are compared with results. It will be seen that by December 1943 the Ministry of Supply had lost 20,000 and the M.A.P. acquired 60,000 more than the 1942 plan provided for. Nevertheless, allowing for the effects of super priority for aircraft work, the position in December 1943 was not widely different from the forecast. The large scale transfer of labour involved was a very considerable achievement. In 1944 events falsified the assumptions made by the planners in December 1943. The growing labour shortage, the increased demands of the Services and the unexpected demands on the Ministry of Supply led in September 1944 to a radical revision of the allocations to bring them more into line with the results thus far achieved. Even so M.A.P., which was to lose 198,000 according to this revision, had in fact lost 297,000 by the end of the year.

There were many obstacles to the practical realisation of the manpower plans. For example, although the Ministry of Labour and the supply departments took special steps to identify labour released by production cuts and to prevent it from being absorbed in the firms' other contracts, government officials could never know all the facts about the disposition of a firm's labour force. It would have been surprising if firms which had been chronically short of labour had

¹ See p. 120 above.

² See pp. 198-9 below.

³ A decision in September that the date assumed should be December 1944, in fact caused no alteration in the plans already drawn up on the basis of the later date.

not taken advantage of a falling programme to ease their problems. Moreover, the workers were not always anxious to transfer and there were difficulties and delays in issuing directions to those who defied the instructions of the employment exchanges.

Nevertheless the fact remains that the distribution of manpower was not too seriously out of line with the allocations. The results may, of course, seem more accurate than they were, for supply departments were willing to absorb labour in any sector if they could not get it where they urgently needed it. But the departments undoubtedly had their manpower allocations increasingly in mind when they settled their programmes and placed their orders. Programmes were not always flexible but scales of equipment—particularly in the case of the Army—were not immutable and they could be changed to fit the available labour supplies. To some extent, too, the call-up could help in the process of adjustment; it could be allowed to fall more heavily on sectors of industry where the supply of labour was comparatively easy.¹

Table 14: Labour Allocations compared with Actual Gains and Losses
1942-44²

| | Allocated for Full Period 1 July 1942- 31 Dec. 1943 (Figures as finally adjusted) | Gains or Losses 1 July 1942- 31 Dec. 1943 | Allocated Dec. 1943 for year 1944 | Sept. 1944 Revision | Losses |
|----------------------|--|--|--|------------------------|--------|
| Admiralty (Supply) . | 110.5 | 103.5 | -13 | -68 | -68 |
| Ministry of Supply . | -164.5 | -186.2 | -220 | -170 | -138 |
| M.A.P. | 258.8 | 307.3 | -69 | -198 | -297 |

(v)

Shifting Priorities: The Tasks of the Ministry of Supply

It has already been shown that the demands on the shipyards mounted continuously as the war drew to its close; the yards were occupied not only with requirements for the war in Europe and the Far East but increasingly with reconversion work and the building of new vessels for peace-time needs; and the consequent labour

¹ See generally E. A. G. Robinson, *op. cit.*, pp. 52-3.

² See p. 188 fn. 1 above.

problems were very great.¹ It was Service requirements for the invasion of Europe which created the greatest difficulties for the Ministry of Supply. These had to be met in spite of a considerable fall in the numbers employed on the Ministry's work. From its peak of 1,686,000 in December 1942 the labour force employed on Ministry of Supply work in the munitions industries fell by 226,500 to 1,459,500 in December 1943. Between December 1943 and June 1945 there was a further loss of 303,400. At that date Ministry of Supply work occupied 1,156,100 men and women.

As has been said, production of some items for which the Ministry of Supply was responsible could be allowed to fall in 1943 on strategic grounds; but other production was still expanding. 1942-43 saw the introduction of many new types; for example the 6-pdr. gun was supplemented and in part replaced by the 17-pdr. and the new cruiser type tanks came into production. The greater part of the labour needed for these was, of course, available in the factories and was simply transferred from the old to the new types. But new stores often needed more labour than the old, partly because they were more intricate, partly because their production was initially less mechanised. As for the tank it shared with the aircraft the privilege of being maintained in full production to the very end of the war.² Between December 1942 and June 1945 the labour force employed on the manufacture of tanks fell only from (very approximately) 190,000 to 160,000, compared with a reduction of one-half in the labour force manufacturing gun ammunition components and of nearly one-third in that producing small arms ammunition.

The demands for special equipment connected with the invasion of Europe were the more difficult to meet because they were often sudden and unexpected. It was largely these demands that accounted for an actual increase in the labour force producing engineering and signalling equipment from approximately 100,000 in December 1942 to 160,000 in June 1945.³ But the largest claimant on labour for invasion preparations was the 'Mulberry' harbour. The first prototype of the pier-head had been ordered in September 1942 and the Ministry made preparations in anticipation of bulk orders; but the other components were not designed and could not be ordered until the project was fully worked out towards the end of 1943, which left only 5-6 months to complete the work. The external breakwater system consisting of floating pontoons was provided by the Admiralty under the code name 'Bombardon'. The Ministry of

¹ See p. 120 above.

² M. M. Postan, *op. cit.*, p. 354.

³ In the winter of 1942-43 a labour force of over 10,000 was built up very rapidly for the manufacture of jerricans and other petrol containers needed for the North African operations, but by mid-1943, the rate of output having exceeded expectations, cuts were already being made.

Supply was responsible for the concrete caissons known as 'Phoenix' and for the steel piers, or 'Whale'. In all, the project employed at peak in March 1944 over 45,000 workers, some 8,000 on 'Bombardon', 22,000 on 'Phoenix' and 15,000 on 'Whale'.¹ There were many other items of equipment which the military authorities did not see the need for until they were right up against the problems of invasion: special explosives, strange devices like the so-called 'dustbins' on heavy tanks, the waterproofing of stores and all kinds of tarpaulins.

After the invasion of Europe one of the chief problems of the Ministry of Supply was the supply of ammunition. Many of the cuts in production that were made in Ministry of Supply work in 1943 were possible for strategic reasons besides being required on grounds of labour shortage. The heavy manpower cuts imposed on the Ministry in 1944 on the other hand required a scaling down of production which was later found to be impossible. Continuing land battles on the Continent in 1944 meant that production, particularly of ammunition for medium and field artillery, had to be stepped up again in the second half of the year and that the Ministry's manpower allocation had to be revised.²

It was a tribute to the administration of programmes and production in the Ministry of Supply not only that the cuts imposed on the Ministry's labour force in 1943 were achieved with a considerable margin to spare³ but also that, despite the falling labour force, the essential needs of the Army were met on time. As an official of the Ministry of Supply pointed out the cuts required a very difficult mental adjustment among all concerned. Previously 'planning meant planning for more . . . Records throughout had meant high records.' This was no longer universally true and yet production of some items had to be maintained and increased.

This process of adjustment was in many ways a more difficult task than the unlimited striving for records. The administrative machinery for controlling the production cuts, however, grew out of the Production Programme Review meetings which had so successfully planned and supervised Ministry of Supply programmes in the years of expansion.⁴ Priorities had to be carefully determined and vigorously observed. 'Mulberry', for example, was only ready on time by the granting of a real overriding priority which in some cases was

¹ M. M. Postan, *op. cit.*, pp. 280 ff. The building workers employed on 'Phoenix' came from the Ministry of Works allocation. The figures quoted above were supplied by the Ministry of Supply; for various reasons the Ministry of Labour gave lower figures (see H. M. D. Parker, *op. cit.*, Ch. XV).

² See p. 196 above.

³ See Table 14, p. 197.

⁴ M. M. Postan, *op. cit.*, pp. 350-1. See also p. 220 below for the part of this machinery dealing with the location of programme cuts.

used ruthlessly'.¹ Production of many other stores, particularly of Bailey bridges, suffered accordingly, but the supplies were such that the setbacks did no harm. Luckily the production of those items which suffered heavy labour cuts did not usually fall in proportion to the fall in the labour force because of an increase in output per head.

This was noticeable in the filling factories. The experience of these factories may serve to illustrate several of the problems which accompanied the manpower cuts. The labour force in the filling factories fell from 133,400 in December 1942 to 77,100 in June 1945. There were, however, no serious general shortages of labour in the factories in those years, though there were shortages of special types of labour, such as skilled workers and the particularly intelligent and deft-fingered women needed in the fuse and initiator sections. A report made to the Minister of Production in 1942 had recommended that the requirements of the factories should be reviewed periodically and target strengths for each agreed between the Ministries of Supply and Labour.² When programmes affecting the R.O.Fs were revised, new target labour strengths were issued. The labour force in the factories sometimes fell below these agreed target figures but this did not cause particular concern in the Ministry of Supply, until the second half of 1944. In that year, recruitment to the filling factories fell from 250-350 monthly in June-September to only 17 in October, and meanwhile the new ammunition programmes were putting fresh demands on the factories. Their requirements were, however, given first preference and were on the whole met, though in January 1945 a small shortfall in the ammunition programme was attributed to labour shortages in the North-West region.

The reduction of a factory's labour force was a very complicated task in which the interests of production and the convenience of the workers in the factory had to be balanced against the requirements of M.A.P. and other work. R.O.F. Chorley might prefer to release men when the M.A.P. factory needed women, or workers from Liverpool when the M.A.P. demands were in Preston. Several times in the later years of the war the Ministry of Supply complained that the Ministry of Labour would not remove labour from the filling R.O.Fs fast enough. In May 1943, for example, Chorley had at least 2,000 workers more than it required. The Ministry of Labour naturally preferred to transfer surplus workers direct from the R.O.Fs to the aircraft and other factories where they were needed and the Ministry of Supply, although it was under no obligation to

¹ M. M. Postan, *op. cit.*, p. 283.

² The 'target', which gave an entitlement to labour, should be distinguished from the 'ceiling', imposed in some factories in difficult areas as a limit beyond which their labour force could not rise. They had no automatic claim to labour up to the ceiling figure.

hold redundant workers pending transfer, generally co-operated in doing so.

On the whole both the Ministry of Labour and the Ministry of Supply were satisfied that the procedure for withdrawals worked well, but in view of these and other difficulties it was not surprising that there were some disputes. For example, Ministry of Labour local officials complained that Chorley was not releasing enough mobile workers, but the R.O.F. claimed to have released, as agreed, a fair cross section of the factory. Again, the labour management at Chorley thought the employment exchanges were over-selective by R.O.F. standards; they were said, for example, to refuse older workers. Chorley was left with half its labour force consisting of men too old or unfit for the Services and unsuitable for, or unwanted in, other industries. The R.O.F. management could use some of them only because it took great trouble to fit workers to jobs according to their capacity.

In the reduction of the labour force in the R.O.Fs and in private firms it was of course essential to secure the co-operation of the workers in the factories.¹ In the R.O.Fs the reductions were on the whole carried through with a minimum of trouble and aroused fewer complaints than the Ministry had expected. The Superintendent at Chorley complained, however, that it was harder to get rid of workers than it had been to recruit them—a difficult task enough. It was not surprising that cotton workers were unwilling to exchange Chorley, with its first-rate working conditions, canteens and medical services, for some of the old mills from which they had come.

(vi)

The Estimating of Labour Requirements

The precise arithmetic of manpower allocations and achievements may give an impression that manpower budgeting was a reasonably exact science. The budgets were, it is true, an indispensable essay in planning and in general they did their job well; they ensured that plans and programmes were trimmed to the supply of that factor of production that was most scarce. But both the estimates of requirements for labour and of the supplies likely to be available were very difficult to make. The requirements of the Services could indeed be computed almost exactly. But in the munitions industries, even though the Government let contracts and had therefore a high degree of control, production depended on the activities of countless

¹ The measures taken to secure this co-operation in the R.O.Fs are discussed in Part II; see pp. 270-1 below.

individual firms. In making estimates of labour requirements the supply departments had either to estimate the needs of industry for themselves on the basis of the production programmes or to ask the firms to state their needs and then scrutinise, collate and adjust them. Both processes were at all times uncertain, though the statistical material available to the planners improved as the war went on. In the later years of the war much thought and ingenuity were given to the compilation of the estimates in the labour, programming and statistics departments of the supply Ministries;¹ but everyone concerned knew, even if they did not say as much in interdepartmental meetings, that accurate forward estimates of requirements were extremely difficult to make.

The Ministry to which the provision of estimates caused the most trouble was perhaps M.A.P. We have already noted the disputes between that Ministry and the Ministry of Labour about the accuracy and the meaning of the estimates—disputes that went on from the end of 1941 through 1942 and 1943. It is therefore worth examining more closely the difficulties that lay beneath these disputes.

One difficulty was that the estimates assumed that the planned aircraft programme would be achieved. But even programmes based on a pessimistic view of available supplies were not certain of achievement. And as for the 1942 aircraft programme, it was based on the principle of setting a high and impracticable target which would spur the industry on to the greatest possible effort. It was not simply labour shortages that stood in the way of achievement of the programmes even at the end of 1942. The M.A.P. Directorate of Labour made at that date an enquiry covering some 1,000 firms employing 800,000 workers into the causes of shortfalls in production. The results plainly showed that labour shortage was only one of many bottlenecks—shortages of raw materials and machine tools, delays due to modifications, etc.—and was not even the greatest among them.

Quite apart from making allowances for shortages of other factors of production, it was most difficult to relate labour requirements to a given output.² It will be remembered that when the new heavy bomber programme was settled at the end of 1941, M.A.P. and the

¹ An official at the centre, who was increasingly concerned in co-ordinating and vetting labour estimates before they went to the War Cabinet, found that 'the methods of making departmental estimates were changed with bewildering and kaleidoscopic frequency and all the ingenuities of at least one statistical department were devoted to misleading the would-be co-ordinator. He could himself only hope to use rather cruder methods of checking and a certain amount of common sense as to which of the supply departments was crying "wolf" with least necessity.' See E. A. G. Robinson, *op. cit.*, p. 50.

² The writer is indebted for the following description of the methods used in M.A.P. to an account already published by the Deputy Director-General of Statistics and Planning whose department gradually took over from the Directorate of Labour responsibility for compiling labour requirements for the manpower surveys; see Ely Devons, *Planning in Practice*, 1950, Ch. VI.

Lord President's Office had agreed that M.A.P.'s labour requirements between August 1941 and the end of 1943 would be 850,000—to provide a peak labour force of 2,100,000.¹ This figure was based on the fact that the aircraft contractors had estimated in August 1941 that they would need 1,571,000 workers in all in August 1942 to meet the July 1941 programme at April 1943. This level of output was converted into standard man-hours and the amount of labour needed to produce the heavy bomber programme, similarly expressed, was calculated accordingly. It may be noted that calculations based on a comparison of actual output with actual employment in 1940–41 produced a very much higher figure; but then production in this period had been disorganised by air attack. A time lag between peak labour input and peak aircraft output of six months increasing to eight months at peak, when the proportion of heavy bombers in the programme would be higher, was allowed. The total requirement thus calculated was somewhat reduced mainly because M.A.P. was prepared to anticipate an increase in efficiency up to one-tenth if industry had a clear run with the types then in production.²

The reliability of these estimates turned on the initial accuracy and on the stability in time of the man-hour figures used. These were provided by the Technical Costs Division. Their original purpose was to provide a basis for agreeing costs with the firms and 'they measured not the actual man-hours taken but the man-hours that might reasonably be expected to be taken, given the organisation and production layout of the firms concerned'.³ Moreover the Costs Division was always heavily overburdened and the manpower planners might be obliged to use an estimate of man-hours taken which was a year or more old and which had been made before the aircraft in question came into full quantity production. This method was so unsatisfactory that it was replaced by calculations based on the labour required to produce a given amount of structure weight of aircraft.⁴ The labour required did not, however, increase in proportion to the weight of aircraft produced, and heavier aircraft would require less labour per unit of weight. This was at first allowed for by an estimate of the increase in structure weight per person employed which could be expected. Later a less crude method was worked out and the estimates were based on labour coefficients for each type of

¹ See p. 188 above.

² The Ministry argued that any increase in output per head which might result from the growing experience of workers would be more than offset by dilution and increased night shift working.

³ E. Devons, *op. cit.*, p. 117. The figures were based on even-flow production after at least the first hundred aircraft had been built.

⁴ It was also abandoned because M.A.P. had itself been forced to discredit the figures when they were used by outside critics of the Ministry as a measure of the relative labour costs of different aircraft (*ibid.*).

aircraft which took account both of structure weight and man-hours, 'the structure weight figures being corrected for such variables as scale of production and size of aircraft'.¹

The fact was that all the methods described above were open to serious common objections. The Director-General of Programmes and Statistics in M.A.P. (Professor Jewkes) himself wrote a paper which he entitled *Mysticism in the use of statistics of aircraft structure weight per head*, arguing that it was impossible scientifically to calculate forward labour requirements, and his scepticism was shared by his colleagues. The Deputy Director-General thought that it was impossible to forecast within 10,000–20,000 a month how much labour the aircraft industry needed, and an official in the Directorate of Labour pointed out that a minimal error of some five per cent. would amount to 100,000 workers.

Part of the trouble was the difficulty of assessing what would happen to output per head. In 1942 many firms were turning over to heavy bomber production with the result that output in structure weight per head was almost stationary from March to December 1942; but as peak production was reached in 1943–44 the greater part of the industry had a straight run with existing types for the first time in the course of the war. What happened at one firm, admittedly one of the most efficient in the industry, producing Halifaxes in 1942–43 is shown in Table 15:

Table 15: *Operatives employed per Halifax Aircraft Delivered by one Aircraft Factory, 1942–43*

| Date | Aircraft Delivered | Operatives Employed per Aircraft Delivered |
|-----------------|--------------------|--|
| 1942 | | |
| April . . . | 21 | 487 |
| June . . . | 30 | 344 |
| September . . . | 40 | 268 |
| October . . . | 44 | 248 |
| November . . . | 46 | 238 |
| December . . . | 47 | 240 |
| 1943 | | |
| January . . . | 42 | 269 |
| February . . . | 52 | 223 |
| March . . . | 55 | 214 |
| April . . . | 55 | 220 |

In October 1942 it was reported of another, also very efficient, firm that it would be producing at peak five more Lancasters plus twenty

¹ E. Devons, *op. cit.*, p. 118.

transport planes with 3,000 fewer workers than were estimated to be needed twelve months earlier for its original programme of eighty Lancasters.

So on the whole the M.A.P. estimates of 1942-43 underestimated increases in productivity which arose from a variety of causes. When it was found necessary in May 1943 to cut M.A.P.'s labour allocation by 200,000 and M.A.P. was asked how, with this cut, it could still hope to achieve the programme, the Ministry pointed out that a better production rhythm was being achieved and that productivity was increasing.

It was difficult if not impossible by this central method of estimating labour requirements to determine their exact geographical distribution and to break them up according to the type of skill required. The estimates did not tell the planners how many draughtsmen were needed in Coventry nor how many boilermakers in South Shields.¹ In a sense this was the crux of the problem. But even had the information been readily available to the manpower planners they would not in practice have been able to take account of it. This was itself an indication that manpower budgeting was a rough and ready instrument.

A problem of more practical importance in framing manpower estimates, that was never satisfactorily solved, was that of the time lag between input of labour and output of aircraft.² Yet another was to decide how much labour to allow for such things as H.E. bombs, ground radio equipment, spare components and repairs, which bore no simple relation to the labour required to produce a given number of aircraft of certain types. This was a problem common to all the supply departments and it would have been easier to estimate the labour required for such items if the departments had known the amount of labour actually employed on any given product, such as propellers, tanks or fire control gear. The M.A.P. pressed the Ministry of Labour to collect such figures but the Ministry thought it would be impracticable.³

One method which would have helped to overcome this last difficulty would have been to rely on estimates of requirements made by the firms themselves. This method was used, as has been seen, as a check on the labour estimates for the heavy bomber programme produced at the end of 1941. The so-called L.34 returns then introduced showing firms' labour requirements for the four quarters ahead

¹ Cf. E. A. G. Robinson, *op. cit.*, p. 119. Such information was available on returns of requirements made by the firms, but only for the following three months.

² This was of course related to the stage reached in production of any given type. One firm which took four years to produce the first aircraft of a type estimated that the minimum fabrication period after the 200th plane would be three months.

³ E. Devons, *op. cit.*, pp. 119-20.

were continued throughout the war.¹ They were useful to the supply departments in many ways, but they were not as a rule used in estimating requirements for the periodic manpower surveys.

Estimates provided by individual firms might have been expected to take rather more account of possible changes in output per head than the overall estimates worked out in Whitehall. But they were subject to many other shortcomings and in particular they depended on the efficiency of a firm's planning. Many firms had little experience of measuring labour requirements under conditions of large scale production, with a much higher degree of tooling, etc., than they were accustomed to. The R.O.Fs and some private firms had by 1942 adequate labour and production statistics to make their forecasts of labour requirements as reliable as they could be in view of the many unforeseeables; but many firms had not. It was suggested that firms with incomplete knowledge of their programmes might underestimate their labour requirements; but many firms were inclined to ask for more labour than their current orders required in the hope that increased capacity would bring them larger orders.² For most firms it was also an irresistible temptation artificially to inflate their demands, knowing they would not in any case be met in full; or at the least firms asked for the maximum number they could employ, as though labour were in plentiful supply: a failing from which even supply departments were not immune. Moreover, by asking for more labour than they could hope to receive managements could provide themselves with a ready-made alibi for production failures.

Regional officials of the Ministry of Labour and of the supply Ministries vetted demands put in by firms, though often this had to be done hastily. In some areas there were weekly meetings between technical officers of the supply Ministries and Ministry of Labour staff at which the labour needs of the factories were considered in the light of their production programmes, and these meetings served a useful purpose. It was, however, argued in a report prepared in the Cabinet Offices in August 1942 that firms' estimates for a year ahead must in any case be a shot in the dark and were not worth the time involved in vetting them; it was suggested that even in the case of the estimates provided for three or six months ahead, which were more accurate, the labour involved for the regional staff of the Ministry of Labour in vetting them would not be justified by the increased accuracy that would result. This vetting was therefore abandoned.

¹ See p. 188 above. The original estimate for the bomber programme was of course in a measure based on earlier estimates from the firms obtained independently by M.A.P. The L.34 returns were made to the Ministry of Labour and covered firms working for all three departments.

² E. Devons, *op. cit.*, p. 115.

Vacancy figures notified to the employment exchanges were equally likely to be exaggerated. Moreover they were recorded in such a way—for example they covered varying periods of time—that it was impossible to use them to measure supply against demand over the whole industry. After pressure by M.A.P., efforts were made in 1943 by the Ministry of Labour to improve the accuracy of the vacancy figures as a guide to demands.

It may be noted that it was not only the estimates of requirements made by firms which were unreliable, but also, in the case of firms working for more than one Ministry, the apportionment as between the various supply Ministries of the labour force already employed in the firms. Often it was genuinely difficult to state how many were employed on work for the different departments; but if aircraft work was known to enjoy a high priority while the Ministry of Supply was reducing its production it was sometimes an irresistible temptation to a firm, at a time of acute labour shortage, to exaggerate the amount of its labour force employed on M.A.P. as compared with Ministry of Supply contracts.¹

So far we have been concerned with the difficulties of M.A.P. in estimating requirements. The methods used in the Ministry of Supply and in the Admiralty were similar to those of M.A.P. In some sectors of production the difficulties were less than in others. The ammunition programme, for example, presented an easier problem to the estimators than aircraft production. It was, however, also because the R.O.Fs possessed accurate and detailed labour and production statistics that by 1942 their estimates of labour requirements were as accurate as it was possible for them to be. The Ministry of Supply was also in a somewhat different position from M.A.P. because it was the first department to suffer cuts in its labour force, at the end of 1942.² The statistical problems of planning programme reductions on the basis of a reduced labour force were of course similar to those of estimating labour requirements for an expanding programme. But the general atmosphere of interdepartmental discussions was somewhat different when a department was working towards a reduction, instead of having continually to justify a claim for a large increase.

Even while the Ministry of Supply labour force was still expanding, however, its approach to the problem of estimating labour requirements was different from that of M.A.P. The difference lay not in the statistical methods used but in the reliance placed on the results. M.A.P., whatever its private reservations, used the estimates in interdepartmental discussions as a firm statement of demands. By

¹ Cf. E. Devons, *op. cit.*, pp. 146-8, where further difficulties in computing the existing labour force are discussed.

² See p. 191 above.

contrast a member of the Labour Supply Division of the Ministry of Supply pointed out in 1942 that estimates of labour requirements should be treated with reserve, and that the Ministry of Labour tended to give too much importance to them by issuing them frequently in formal documents. The Ministry of Supply did not judge the labour supply position by measuring total intake against estimated requirements. It preferred to keep a continuous watch on both the recruitment and wastage of labour in a large number of factories engaged in different branches of munitions production and then investigate the reasons for sudden changes in labour strength in the different groups of factories. The cynic might say that the Ministry of Supply's mistrust of forward estimates was influenced by the fact that in midsummer 1941 it had seriously underestimated its requirements; as a result the Ministry of Labour later argued that in the second half of 1941 it had more than met munitions labour requirements and provided five workers for every four asked for. But there is no doubt that the Ministry of Supply's approach was the more realistic and one that M.A.P. was later forced to adopt.

(vii)

The Labour Preference Machinery

Although the manpower allocations played a large part in settling the supply departments' programmes and were a guide to officials in the regions to the broad direction that the movements of manpower should follow, they did not tell regional and local officials in areas of labour shortage which vacancies should be filled in which order. Manpower budgeting did not remove the need for machinery for settling priorities in the supply of labour; indeed the scarcer labour was, the more essential this machinery became and the more searching the enquiries made before priority was granted.

In the late summer of 1941 a Committee had been set up consisting of representatives of the Ministry of Labour and of the supply departments to fill the need for a priority machinery.¹ The Committee established a system of consultation with the regions on the labour supply position and with the production directorates within the supply Ministries on the firms' programme commitments and output. On the basis of this information firms were, if necessary, granted special preference. In November 1941 the Ministry of Labour laid down that the general principle in allocating labour should be to

¹ For the earlier history of labour priorities see pp. 52-4 above. The new Committee later became a sub-committee of the Labour Co-ordinating Committee and was known as the Committee on Preferences in the Allocation of Labour. Preference was increasingly granted to work outside the munitions field.

endeavour to keep the whole production programme moving forward as uniformly as possible; work of the highest priority should be given preference without neglecting other demands.

This was broadly speaking the effect, at least in regard to light unskilled labour, of the labour priority system in 1941. In the course of 1942, however, it happened increasingly in the Midlands, where there was a concentration of munitions production out of proportion to the population,¹ that firms without special preference got no labour at all. There the preference machinery, originally devised to meet urgent needs quickly, became the chief instrument in day-to-day labour supply. Such a development was probably inevitable as the shortage of labour became increasingly acute; and in general it was agreed by all concerned that the Preference Committee well fulfilled its task of ensuring that urgent demands were met first.

One of the problems which faced the Preference Committee, together with all those responsible for providing labour, was that of labour turnover, or wastage. As the labour force in a factory reached its peak strength it was increasingly realised that a large intake of labour was needed merely to maintain the labour force at its existing level. In the munitions industries as a whole between January 1942 and mid-1943 the number of workers leaving employment averaged about .64 per cent. of the total factory strength a week.² Given a wastage figure of only .5 per cent. of total strength a week, a factory needed to recruit one quarter of its total labour force a year to maintain the current level of employment. Some R.O.Fs needed to recruit as many as 800 workers a month for this purpose. There was another side to this problem: in November 1942 the M.A.P. complained that the aircraft industry's capacity for absorption was largely taken up by the need to train replacement workers. For out of a gross weekly intake of 16 to 17 thousand people the net increase in employment was only 5 to 6 thousand.

This high labour turnover was not necessarily undesirable. It could signify that large numbers of men were being called up to the Forces and that the labour force was being redistributed according to the changing needs of production and in order to spread the burden of dilution equally. High wastage from individual factories could, on the other hand, be due to poor working conditions, or to the fact that workers were able to leave their jobs on inadequate medical or other grounds. Some attention was given to reducing

¹ In the quarter ended June 1942 twenty per cent. of the total demand for unskilled women arose in the Midland region which contained only nine per cent. of the total population. Thirty-six per cent. of its population was already in employment compared with twenty-nine per cent. over the country as a whole. See also pp. 215-17 below.

² For men alone the figure was .48 and for women .92.

wastage which seemed to be preventable. The Select Committee on National Expenditure¹ made critical comments on the high labour turnover in aircraft factories. Comparative statistics did not suggest that this was exceptionally high, and much of it was indeed inevitable. Investigators in a group of M.A.P. factories in November 1942 remarked that a study of the causes of wastage brought no surprises. Workers were lost through death and ill health or women were obliged to leave owing to a change in their domestic circumstances. Some were in unsuitable work, or left to secure work nearer home. Above all, redundancies, which resulted from changes in a factory's commitments, often led to large scale discharges from the factories.

While it was true that the labour released from factories provided a pool from which urgent demands could be met, the high labour turnover—whatever its causes—was a problem to those responsible for maintaining factory strengths; it was a frequent subject of discussion on the Preference Committee. It might seem as if there was a case for keeping factories on preference merely in order to maintain the target strength, but in practice the Ministry of Labour found it impossible to do this, and during 1942 it was agreed that once a factory's preference demands for skilled or unskilled labour had been met it should not automatically continue on preference merely to replace wastage.

Wastage was a general problem; this question apart, it was M.A.P. which came up against most difficulties in the working of the preference procedure. This was chiefly because the growing shortage of labour led the Ministry of Labour to adopt criteria for granting preference which M.A.P. in particular found it difficult to accept. The Ministry of Labour was unable to vet all demands for labour put forward by firms and yet could not accept these demands at their face value. It therefore argued that the M.A.P. and the other supply departments should bring to its notice labour deficiencies that would jeopardise production; these should be put forward for special preference, which, when the demands had been vetted, would very rarely be refused. In considering requests for preference the Ministry of Labour was not satisfied merely that a firm was late in its programme or had genuine labour vacancies; it also wanted to refer to the stock position of the component the firm was producing and the output of other firms making it. It would not, for example, be right for a firm making parts for tank guns to be on the preference list, even if its production was behind programme, if output of completed tanks was not for the time being

¹ *Tenth Report, Session 1942-43, paras. 54-5.*

delayed by a failure to deliver the guns for which the firm in question was making the components.

The M.A.P., however, was very unwilling to accept such conditions. It argued that all demands on the exchanges must be filled if the aircraft programme was to be met. If in the difficult districts this meant going through the preference machinery then the M.A.P. would ask for preference for all demands which could not be met without it. By February 1943 firms employing twenty-eight per cent. of M.A.P.'s labour force were on special preference for one class of labour or another and in recent months their net intake had accounted for sixty-one per cent. of the total net intake to M.A.P. work.

The M.A.P.'s difficulty was in part due to insufficient knowledge about the progress of production. Attempts to balance production in the way suggested by the Ministry of Labour required knowledge of what was happening to the output of all the materials and parts that went into the making of aircraft. As it was, it was only in the course of 1942 that the Directorate of Statistics and Planning built up reliable programmes and statistics of output covering all the major aircraft components. Moreover the M.A.P. lacked any proper system for determining priorities within its programmes so that the Directorate of Labour there was faced with the competing claims of various production directors, each of whom was held to a programme and each of whom felt that his particular product was the most important.¹ The Ministry of Supply, on the other hand, possessed a satisfactory system of determining labour and other priorities within its programmes from a comparatively early date in the war. The Labour Supply Division in the Ministry of Supply also held firmly to the sound rule that, questions of priority apart, the decision as to whether preference was necessary to meet labour demands rested with itself and the Ministry of Labour alone and was no concern of the production directorates.

The difficulties that arose in M.A.P. were overcome in December 1942 when a Labour Priority Sub-Committee of the Ministry's Labour Supply Committee was set up under the Chairmanship of the Deputy Director-General of Programmes and Statistics. Once the production directors were brought together round a table and faced with a limited amount of labour for M.A.P. work it proved possible to reach agreement about priorities and the Committee soon became a very effective instrument.

There were undoubtedly gaps in statistical knowledge and administrative shortcomings in the M.A.P. in 1942; but the Ministry was

¹ There was often a tendency for individual production officers to identify themselves with the firms for which they were responsible, and for the officers to regard as their main function the defence rather than the criticism of the firms' actions; see E. Devons, *op. cit.*, p. 51.

up against very real difficulties in accepting the kind of conditions for labour priority suggested by the Ministry of Labour. At the stage where M.A.P. production was in 1942 most sections of the programme were urgent and stores were accumulating in excess of need to a lesser extent than were some stores for which the Ministry of Supply was responsible. It was felt that production directors must be held to the fixed aircraft programme; once departures from it were allowed in order to keep output of one item in step with output of another the whole programme would fall into confusion and disrespect.¹ Moreover, there were some 15,000 contractors working for M.A.P. on many hundreds of different components and the Ministry could not possibly know of every individual firm where current shortages of labour would affect future output. Large firms would almost certainly make their needs felt. They were more voluble about their difficulties and in closer touch with high officials in the departments, and no doubt their demands were in consequence sometimes met to excess. Something like three-quarters of M.A.P. contractors, however, employed less than 100 workers and one large firm could sub-contract directly to as many as 250 firms, who in turn might sub-contract work.²

Apart from any of these considerations, it was increasingly difficult to retain the priority element in the special preference machinery as the shortage of labour grew more acute. Inevitably the preference list grew, and preference vacancies remained unfilled. Already in the first half of 1942 there was a considerable time lag in filling preference vacancies in the Midlands and in the North-West. During 1942 and the first part of 1943 the number of preference vacancies filled each quarter was in the region of 50,000-60,000, but the number of vacancies outstanding at the end of each quarter fluctuated between 24,000 and 34,000.

During 1942 visits were made by headquarters representatives of the Ministry of Labour and of the supply departments to four of the regions, and an attempt was made to draw up regional manpower balance sheets.³ All of them, however, proved to be light on the asset side and the search for purely administrative remedies, such as the transfer of less essential industries to easier labour regions was disappointing. The Ministry of Labour already had important administrative arrangements for classifying localities according to their capacity to export, or their need to import, labour. These were

¹ E. Devons, *op. cit.*, p. 153.

² Of course many Admiralty and Ministry of Supply contractors, as well as the R.O.Fs, did a large amount of sub-contracting.

³ These visits followed discussions between M.A.P. and the Ministry of Labour. The M.A.P. thought that the Ministry of Labour waited until shortages became serious before developing policies to overcome them, a failing attributed to the Ministry's unwillingness to accept long-term estimates of requirements as a basis for action.

identified by a colour system—scarlet, red, amber or green.¹ But no administrative measures could have overcome the labour shortages apparent by the end of 1942. The programme and production coat was in fact too large to be cut from the labour cloth; the Preference Committee was being asked to perform an impossible task.

As an official in M.A.P. suggested, broad labour priorities should have been established by adjusting production programmes, and this task was essentially one for the War Cabinet. It was one that the manpower budgets fulfilled. Nevertheless day-to-day priorities within the programmes still had to be decided—and in fact, after the first few months, preference vacancies were larger in number and more difficult to fill after than before the programme revisions. The Preference Committee, however, although well informed about the labour supply position, was not an ideal body to determine these day-to-day priorities; the representatives of the supply departments were interested parties and the Ministry of Labour representative was not in a position to act as arbiter. When overriding priority was granted to aircraft production in July 1943 changes were made in the preference machinery which remedied this defect.

The War Cabinet, it will be remembered, had decided that, even if insufficient labour were available to meet all requirements, M.A.P.'s allocation for the period ending December 1943 must be met in full. The Ministry of Labour accordingly notified its regional officials that, as a general principle, vacancies known to arise on M.A.P. work were to be filled before any other vacancies. In the discussions preceding the War Cabinet's decision the Minister of Labour had maintained his belief that the aircraft industry's labour requirements were grossly exaggerated; and this strictly literal interpretation of the decision owed something to the Minister's desire to prove once and for all that the aircraft industry did not need as much labour as M.A.P. claimed.²

However that may be, the non-favoured supply departments saw in the instructions a return to the dangerous practice of the summer of 1940 when other important work was starved of labour while M.A.P. enjoyed an overriding priority which kept the aircraft factories comfortably supplied. These departments therefore strongly opposed the Ministry of Labour's interpretation of the War Cabinet decision. In the view of the Ministry of Production, the Admiralty and the Ministry of Supply the War Cabinet's directive did not mean that at no time and in no place should any deficit in labour supply fall on M.A.P., however serious might be the effect on other vital production. Such a strict interpretation would, for example, be

¹ H. M. D. Parker, *op. cit.*, pp. 296-7.

² See H. M. D. Parker, *op. cit.*, pp. 207-8.

detrimental to the production of common service items like ball bearings or special tools, for which the M.A.P. was not the responsible production department, but which were essential to the fulfilment of the aircraft programme.

The Ministry of Labour's original instruction was current for some six weeks while a compromise was being sought. By this compromise the Ministry of Production was given a share in the working of the preference machinery. This idea was not new. The Preference Committee had on occasions consulted the Ministry about the priority of products; and at the end of 1942 it was suggested that the preference list might be shortened if the Ministry took over responsibility for this side of the Committee's work. The proposal was rejected by the supply departments. Just before the War Cabinet's decision on aircraft priority, however, it had been revived; and to overcome the difficulties raised by the Ministry of Labour's interpretation of this decision it was arranged that the Ministry of Production, in consultation with the Ministry of Labour, should, on application from the supply departments, designate certain vital products, which were to be strictly limited in number. These were to rank as far as possible for first priority with the important parts of the aircraft programme—that is with firms on the M.A.P.'s so-called Main List.¹ Even so the 'Main List' firms were to have priority over designated work where available labour was insufficient to meet both demands. The definition of aircraft work was also extended to include common service items essential to the aircraft programme. In January 1944 M.A.P. lost its privileged position and had to apply to the Ministry of Production for the designation of its products as the need arose, in the same way as other supply departments.

Thus the Ministry of Production became responsible, in consultation with the Ministry of Labour, for deciding on the priority of the product. The labour position in firms making designated products had still to be considered by the Headquarters Preference Committee before they were granted headquarters preference. New interdepartmental committees were at the same time established in the regions to accord second or regional preference where this was considered necessary.

In spite of the revision both of the programmes and of the preference machinery the proportion of total vacancies² filled by first or second preference remained high. Those placed in preference vacancies, which had represented one in eighteen or nineteen of total vacancies filled in the first quarter of 1942, rose to one in ten by the end of 1943. In the first quarter of 1944 they fell to one in eleven or

¹ This excluded those firms on a static or falling programme whose demands did not warrant priority.

² i.e. over the whole field of employment.

twelve but rose again to one in eight or nine till the third quarter of 1945, when they represented one in fifteen. Moreover, though outstanding vacancies fell rapidly from just over 33,000 at the end of September 1943 to just under 18,000 at the beginning of January 1944, they quickly rose again (including second preference vacancies) to nearly 38,000 at the end of March and thereafter gradually to nearly 65,000 in October 1945. This last was a higher figure than the numbers placed in preference vacancies in the preceding quarter.

Certain other steps were also taken in the later years of the war to make sure that labour went to the firms which needed it most. In contrast to its earlier approach to labour supply problems, the M.A.P. concentrated its efforts increasingly on dealing with the shortages firm by firm. For example, in April 1943 it was decided that its contractors should be responsible for bringing to the notice of their local Ministry of Labour officials labour difficulties among their sub-contractors in whatever region these might be. At the same time the regional labour staffs of all the Ministries were constantly adding to their knowledge of the needs and characteristics of individual firms; and the constant pleas by regional controllers of the supply Ministries to be kept informed of major changes of load which affected a firm's labour force were slowly in 1943 bringing results in an increasing flow of such information to the regions.¹

(viii)

The Location of Industry

Manpower budgeting could not deal precisely with problems of local priorities for manpower. Nor could it deal with the problems which arose because munitions labour demands were very unevenly spread throughout the country. These problems grew more acute as the war went on, but they had existed from an early date.

Efforts were continually made to direct new war factories away from the more overcrowded industrial areas. But nothing could at any time be done fundamentally to alter the heavy concentration of the lighter engineering and aircraft and some of the metal industries in the Midlands and the South-East.² The number of factories sited, whether by accident or design, in the North-West region in the rearmament and early war period made that area also, as Table 16 shows, a heavily loaded one. The engineering factories concentrated in these areas expanded much faster during the war

¹ See p. 57 above.

² For an account of the location of industry and the employment situation between the wars see H. M. D. Parker, *op. cit.*, Ch. II.

Table 16: Regional Distribution of Employment in the Munitions Industries,*
December 1941

| Region | % of Total Employment | | | |
|----------------------|-----------------------|-----------|-----------------------|--------|
| | Total | Admiralty | Ministry of Supply | M.A.P. |
| Midlands . . . | 19.9 | 15.5 | 21.6 | 23.4 |
| London and S.E. . . | 19.9 | 17.2 | 16.6 | 22.7 |
| North-West . . . | 17.7 | 15.2 | 19.0 | 17.0 |
| Scotland . . . | 8.2 | 17.0 | 9.2 | 4.5 |
| North-East . . . | 8.2 | 6.8 | 8.5 | 5.8 |
| North Midlands . . . | 5.9 | 4.7 | 5.5 | 6.0 |
| Northern . . . | 4.5 | 12.0 | 4.1 | 1.2 |
| South-West . . . | 4.1 | 2.4 | 2.6 | 6.9 |
| Southern . . . | 4.0 | 3.8 | 2.1 | 7.1 |
| Wales . . . | 3.9 | 1.5 | 6.9 | 2.4 |
| Eastern . . . | 3.7 | 3.9 | 3.9 | 3.0 |
| Great Britain . . . | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Ministry of Labour and National Service

* i.e. the engineering and allied, explosives and chemical industries, including non-ferrous metals production but excluding shipbuilding.

than the heavier industries like iron and steel, coal mining or even shipbuilding—industries that were centred in Northern England, Scotland and Wales. In these areas there still existed a reserve of unemployed male labour in 1940 and this was increased by unemployment among coal miners following the loss of European markets. While unemployment was a problem in these areas dependent on heavy industry, acute shortages of heavy male labour had already developed in the Midlands.

Although the shortage of fit male labour soon became universal, these regional differences reappeared in the history of the supply of women workers. Not only was the expansion of the labour force greater in the light engineering than in the basic industries, but their demand for women workers was proportionately greater since they presented greater scope for dilution. As a result, therefore, in 1941-42, the demand for women workers in the Midlands was much in excess of local supplies, while in Northern England, Scotland and Wales there was a surplus; and throughout the war the shortage of women workers was less acute in these areas than elsewhere. The history of the transfer of these workers to the South is told in another volume in this series.¹ Many of the women who transferred did first-rate jobs and some even preferred to remain in the Midlands; but others never really settled down, and gradually drifted back to their home

¹ See H. M. D. Parker, *op. cit.*, Chs. XI and XVII.

districts. Some transferred workers lived under poor conditions in the Midlands, for though the general standard of housing was higher there than in the North there was a great deal of overcrowding during the war. Above all there was always a risk that workers unwillingly transferred would not give of their best. One engineering firm with a factory in Wolverhampton attributed the higher output per head in its small dispersal works at Hednesford partly to the fact that this drew entirely on local women who came willingly, unlike the main factory whose labour force consisted partly of workers transferred under directions.

In the rearmament period and up to the autumn of 1940 a somewhat loose system of consultation had existed between the Ministry of Labour and the Ministries responsible for munitions production about the siting of new capacity. There was always careful consultation before the siting of new R.O.Fs and a number of them, such as Chorley, Bridgend and Glascoed, were built in areas where there was at that time heavy unemployment. Indeed the Ministry of Labour agreed that both the War Office, and later the Ministry of Supply, and the Admiralty had, on the whole, fully recognized the importance of local labour supplies in siting new factories, though they had not always been able to give this precedence over technical or strategic considerations which required a different location.

The Ministry of Labour contrasted the attitude of the Ministry of Supply and the Admiralty with the Air Ministry's reluctance to cooperate. But the R.O.Fs were owned by the Government and it was easier to influence their location than the location of the privately owned aircraft industry, even including the new factories subsidised by the Government but managed by existing firms. Moreover, though it was on grounds of safety preferable to site the R.O.Fs in relatively isolated districts, every consideration except a possible future shortage of unskilled labour—which was not a thing employers were accustomed to—led the aircraft manufacturers to prefer the Midlands and the South. They wanted expansions to be near the parent works for ease of supervision, in districts where many of the components for the finished product were made, where sub-contractors were plentiful and where there was an abundant supply of skilled engineering labour even if it had to be attracted from neighbouring firms. Moreover Midland firms felt that they knew and were known by Midlanders, an important consideration to them where labour was concerned.¹

More general considerations also militated to some extent against the diversion of all branches of the munitions industry to easier labour supply areas. Strategic considerations, modified in the course

¹ D. M. Ward, *The Other Battle, being a history of the Birmingham Small Arms Co.* (1946), p. 105.

of the war, prevented the siting of factories in coastal districts, particularly in the East.¹ In some areas too there was a shortage of power; this hindered the diversion of industry to Wales in 1941-42. Nevertheless such difficulties should not be over-estimated. On the whole, transport and public services were most overloaded in areas where employment was heaviest and labour most scarce.

In the autumn of 1940 the machinery of control over the siting of new capacity was tightened up, particularly in the Ministry of Supply, whose Labour Supply Division took a strong interest in this question of the location of industry. The Industrial Capacity Committee² had begun to notify the Area Boards of plant extensions to be made with government aid, as soon as financial approval had been given; this brought protests from the Boards that they were not consulted sooner. It also became essential at this time to guide firms in the location of dispersals undertaken as a precaution against air raid damage.

In November 1940, following a meeting with the Ministry of Labour, the Labour Supply Division of the Ministry of Supply asked the production branches to consult with them before deciding on the location of any new factory or an extension costing more than £150,000, a limit which was later reduced. In March 1942 production branches were further specifically told that unless there was no feasible alternative, additional plant needing labour in any quantity should not be put in certain specified areas, including Birmingham, Coventry, Wolverhampton, the Black Country, Stroud Valley, Swindon, Luton and most of Lancashire. Their attention was drawn to the availability of unskilled labour in other districts.

Unfortunately this procedure of consultation was not always observed by the production directorates of the Ministry of Supply in 1941-42. The Labour Supply Division tried to keep a check by obtaining independent information of proposed expansions from the Contracts Department and from the Controller General of Machine Tools; but this information came at such a late stage that it was not easy for the Labour Supply Division to intervene. After mid-1941, however, prior consultation was better ensured, for new building schemes had then to be approved by the Lord President. Even when consultation took place problems of labour supply often had to give place to other technical considerations; for example, production branches were strongly influenced in deciding the location of ex-

¹ In February 1941 an earlier decision that all areas within twenty miles of the coast were vulnerable, which hampered the placing of war production in a number of industrial areas in Northumberland, Durham, Lancashire, West Cumberland and Scotland, was modified and the restricted area limited to the coastal strip from the Wash to Land's End; even inside this exceptions were allowed.

² An interdepartmental Committee set up by the Production Council in 1940; see J. D. Scott and R. Hughes, *op. cit.*, p. 418.

pansions by the relative efficiency of firms. There were, however, undoubtedly occasions when labour supply was not given due weight, and when even the quite frivolous private wishes of contractors prevailed over the strong advice of government departments in the location of new works. On occasions the Labour Supply Division warned the production branches that it could not ask the Ministry of Labour for labour preference for schemes that went ahead against the Division's strong advice. In many districts, however, where the shortage threatened to become acute when peak demands materialised there were still reserves of labour in 1941 and the first half of 1942 and employers and others concerned tended to take greater account of the present than of the future. As it was the Labour Supply Division fought many hard battles, some of them victorious. One result of its efforts was that the Ministry virtually took over Dundee for its work.

As time went on there was a stricter interdepartmental control over the siting of capacity. As early as November 1941 an interdepartmental meeting was held to discuss overcrowding in Kidderminster and, at the suggestion of the Ministry of Supply, departments undertook not to place additional work there. In August 1942 this informal arrangement was replaced by a more rigid control and the number of banned areas was increased. A Location of Industry Committee was set up as a sub-committee of the Minister of Production's Council to approve all projects involving a demand for more than twenty-five workers in areas such as Coventry, Kidderminster, Stroud Valley, Luton and Chelmsford. No extensions were allowed in these regions without the removal of an equivalent amount of production by the department concerned or by another supply department. At the same time it was agreed that the supply departments must consult the Ministry of Labour about all new projects and the departments were warned that it might otherwise be impossible to provide labour.

Machinery within the departments was therefore tightened up still further. In the Ministry of Supply, for example, the inescapable facts were emphasised in a circular from Controller-General of Munitions Production to his production directors; he was fully aware, he wrote, of the many arguments brought forward to show that new capacity must be put in difficult areas, but 'if the labour is not going to be available the arguments are meaningless, since we shall get no production . . . We shall ourselves render unattainable the programmes which we plan.' Directors were to submit to him all proposals for expansion involving twenty-five or more workers; this figure was later reduced to ten. At the same time it was proposed to record centrally in the Ministry information about surplus capacity becoming available to individual production directorates so that

others would know of it. A considerable amount of new capacity had in fact been created unnecessarily for lack of this information.

The most important side of location policy in the later years of the war was its application to the programme cuts, which were, as has been said, first made on a heavy scale in Ministry of Supply programmes. If there was a complete cut in the production of any item there was of course no more to be done; but if production was to be only partially cut the location of the cuts was carefully considered, chiefly in relation to labour supply, first at departmental meetings and then at meetings between representatives of the Ministries of Supply, Labour and Production and later of the Board of Trade.¹ When, in 1944, M.A.P. and Admiralty programmes began to fall, similar departmental and interdepartmental meetings were held to decide in which factories production for these Ministries should be cut.

Departmental decisions on this question were in practice very little altered at interdepartmental meetings. An official in the Ministry of Supply attributed this to the accurate advice about labour supply given by the Ministry's Labour Supply Division. It was also pointed out from experience in the M.A.P. that the officials of the production department concerned knew so much more about the technical problems involved that they could always defend their decisions. It was not in any case possible to spend long in arguments over the location of production cuts, for unless programme changes were made quickly they would not become effective within the period of the manpower allocation.²

Up to May 1943 eighty per cent. of Ministry of Supply programme cuts had been made in the most difficult labour supply areas. As more and more cuts were made, however, the field of choice became increasingly limited and it was impossible to avoid releasing labour in the easier areas, and even creating some local pools of unemployment.³ The same technical considerations which had influenced the location of expansions influenced the location of cuts. For example, in 1944-45 reduction in M.A.P. demands for heavy ball bearings led to redundancy of labour and the closing of ball bearing factories, specially constructed to meet these needs, in Dundee, Northern Ireland and other easy labour supply districts, while acute labour shortages remained in the older factories in Birmingham and Chelmsford. But costs were in any case high in many of these new factories and they were bound to be given up in peace-time.

¹ In 1943 when cuts in Ministry of Supply production were intended chiefly to benefit aircraft work a direct liaison was established between the Ministry of Supply and the M.A.P. to give M.A.P. the chance of taking over capacity released by cuts in Ministry of Supply work.

² E. Devons, *op. cit.*, pp. 128-9.

³ To mitigate these cuts were in some cases made wholly or in part by a reduction in hours of work.

PART II

Labour Welfare and Utilisation

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CHAPTER VIII
INTRODUCTION:
DEPARTMENTAL ORGANISA-
TION AND THE WELFARE
OF WAR WORKERS

(i)

Introductory

THE QUESTIONS of labour welfare and utilisation dealt with in turn in the following chapters are in fact closely inter-related. For example absenteeism could be caused both by bad physical conditions of work, such as inadequate heating or ventilation, and by poor industrial relations and morale; welfare facilities could be improved at the suggestion of the workers if there was good co-operation between managements and men. Technical measures to improve output, such as incentive payments and motion study, depended for their success on similar co-operation. The extension of personnel management, which is discussed as a subject in itself, could influence labour welfare and utilisation at every point. For convenience of arrangement, however, the problems must be dealt with separately. There is some justification for grouping them under three heads: first the provision of amenities both inside and outside the factories—adequate ventilation, heating and lighting, canteens and rest rooms, medical services, housing, transport and day nurseries; second the more intricate and human problems such as absenteeism and industrial relations; and third technical measures to improve output per head, such as technical costing, motion study or improved handling methods.

All these problems occupied industry and government departments in varying degrees at all times, in peace and war. Minimum working standards had been compulsorily enforced since the first half of the 19th century when the hours of work of children and young people were restricted by Factory Acts backed up by state inspection. Technical utilisation problems were of course intimately connected with the general planning of production—the provision of machine tools, the supply of raw materials and the organisation of the stores department. It will be shown, however, that questions of labour

welfare and utilisation received increasing attention as the war progressed and as labour became scarcer.

Of these various matters, the provision of physical amenities was dealt with first in time, for the demand for these amenities up to a certain standard was immediately obvious and had to be met quickly. In the autumn of 1940, for example, women workers transferred to work in Birmingham who arrived at night in the blackout were so discouraged by their own unsuccessful efforts to find lodgings that they immediately returned home. Lodgings had obviously to be found for them by official efforts and a reception system organised forthwith. The search for lodgings gave rise to many difficulties, and the building of hostels and canteens and the general improvement of conditions of work in the factories were continually hampered by shortages of labour and materials and by other difficulties. At the same time it was in some ways a more straightforward task to secure better physical conditions than, for example, to improve industrial relations. It was already the concern of the Factory Inspectorate to see that conditions of work in the factories reached the legal standards and for the Inspectorate to supervise the provision of factory canteens and medical services was a logical extension of its work. Moreover, many managements were very willing to co-operate, within limits, in improving conditions of work; and if they refused they could be compelled to do so. Compulsion was never used save as a last resort, but a compulsorily built canteen was more likely to be a success than a compulsorily appointed personnel manager, and industrial relations could not be improved by decree.

Nevertheless the Government had to use what methods it could to promote personnel management and improve worker-management co-operation. In general, the departments paid greater attention to these more intricate matters in the second half of the war. In dealing with them the Ministry of Labour particularly needed the help of the supply Ministries; for these Ministries were in close relationship with managements and were in a stronger position than the Ministry of Labour, when that department had no legal powers, to influence them. The supply departments were themselves mainly responsible for stimulating technical improvements; and they were, of course, directly concerned, as employers, with labour welfare and utilisation in their own establishments.

(ii)

The Growth of Departmental Interest and Machinery

During the first six months of the war no special efforts were made by government departments to ensure the welfare of war workers either

inside or outside the factories beyond the work of the Factory Inspectorate. The Industrial Health Research Board, which, of course, undertook research on its own initiative, was also available to enquire into and advise on problems of health. Concern about the effects of long hours of work, together with the entry of increasing numbers of women into the munitions factories, led the Home Policy Committee of the War Cabinet in March 1940 to consider the question of factory welfare. At an interdepartmental meeting in May at which the supply departments were represented, it was agreed that the responsibility for inside welfare questions should rest with the Home Office, to which the Factory Inspectorate was at that date attached. The Ministries of Labour and Health were asked to consider how best the outside welfare problems, such as housing, transport and day nursery provision, could be dealt with. Under these arrangements the supply departments were to confine their interest in welfare matters to their own establishments. Indeed already, in pursuance of this policy, the Admiralty had sent to the interdepartmental meeting a representative who could speak only for its direct establishments and not for the contract labour side; he himself had, however, previously argued in departmental discussion that the Admiralty was vitally concerned with matters like hours of work not only as an employer but as a purchaser, with a very real concern in the cost and output of labour. As it proved the supply departments were to come round to this view.

During 1940-41 the provision of adequate welfare facilities such as canteens for war workers in the factories and of lodging, housing, transport and day nursery facilities was given new impetus. Not only was there a greater need for such provision with increasing mobilisation and transference of workers, including many women, and with the problems created by food shortages and air raids, but the new Minister of Labour, Mr. Bevin, took a very strong personal interest in the welfare of industrial workers. The idea of transferring the Factory Inspectorate from the Home Office to the Ministry of Labour was not new; but it was chiefly due to Mr. Bevin's initiative that this transfer took place in June 1940.¹ From the summer of 1940 the main responsibility for both inside and outside welfare questions rested with the Ministry of Labour and the necessary organisation was set up at Ministry of Labour headquarters and in the regions to deal with them. The efforts of the Ministry were backed by compulsory powers. Apart from the Factories Act there were special war-time Orders, making the provision of canteens, welfare supervision and medical services compulsory.² In addition, undertakings could not be scheduled under the Essential Work Orders unless the Ministry of

¹ Originally for the duration of the war, the transfer was made permanent in 1946.

² See H. M. D. Parker, *op. cit.*, Ch. XXIII.

Labour was satisfied with the conditions of work which prevailed in them.

The supply Ministries were also led on account of the Essential Work Orders to take a more positive interest in conditions in their contractors' works. Initially the M.A.P. argued that the urgency of the work was a sufficient ground for scheduling; but when the Ministry of Labour insisted on certain standards as a prior condition of permanent scheduling the departments were inevitably concerned to secure the necessary improvements as quickly as possible. The supply departments' interest in these questions was further stimulated by the fact that the workers in war industry, Parliament and the public generally regarded them as in some way responsible for conditions in their contractors' works. The departments were in any case abandoning of their own accord the more negative attitude adopted in the early months of the war. During 1941 they sent circulars to their regional staff and to contractors urging on them the importance of proper welfare facilities both inside and outside the factories and the need to co-operate with the Ministry of Labour and other responsible authorities in their provision. Early in 1941 the problems expected to arise in housing and transporting labour seemed so great that the Admiralty appointed a Welfare Officer to its headquarters staff. The Ministry of Supply was at the same time building up a very considerable organisation to deal with labour welfare and utilisation, chiefly concentrating on the vast problems arising in the R.O.Fs.¹

Nevertheless the supply Ministries' interest in labour welfare and utilisation was less active in 1940-42 than it later became. M.A.P. regional representatives were asked to draw firms' attention to the need for good welfare provision, but the Ministry had as yet no particular machinery for giving advice on these problems. A whole host of pressing problems, such as long hours of work and absenteeism, were thrusting themselves forward for solution; but when in May 1942 the Ministry of Labour pressed the supply departments to take a more active interest in welfare conditions in their contractors' works, the M.A.P. argued that the responsibility for welfare provision rested solely with the employer and that it was for the Ministry of Labour to see that he discharged it. The Ministry of Labour's view was, however, supported by the press, by trade unionists and by such bodies as the Select Committee on National Expenditure, which criticised the supply Ministries' failure to take more positive action to deal with absenteeism and the long hours worked in many factories.²

It was, however, to be expected, and was particularly apparent in 1941, that the Ministry of Labour was sometimes ahead of the supply Ministries in its awareness of welfare problems, for these problems

¹ See pp. 235-7 below.

² But see pp. 279-80 below.

became known chiefly through the Factory Inspectorate; it was also not surprising that the Ministry of Labour and the supply Ministries should approach the problems somewhat differently. The primary aim of welfare measures in war-time could not, from any point of view, be to improve peace-time standards. 'Their purpose was predominantly to ensure that the necessary increase and maintenance of production were achieved with the least possible hardship to the worker'; but the supply Ministries were inevitably more concerned with increasing production and the Ministry of Labour with mitigating the hardship. Very often both aims could be pursued simultaneously by the same course of action; but the exact effect of adverse working conditions on output was often difficult to determine; and even if to many it seemed clear, for example, that the continuous working of very long hours reduced output in the long run, some of those concerned with immediate production demands showed a natural, if foolish, reluctance to admit it.

The Ministry of Labour had a further interest in good labour utilisation as the supplier of labour. The Ministry complained that the supply Ministries concentrated on piling into the factories labour which, as efficiency improved, became redundant; and that the M.A.P., for example, even pressed for additional labour in the aircraft industry while in some parts of the industry there was considerable idle time. There was some truth in this criticism; but the supply departments believed that, while labour was relatively plentiful and while there were so many other problems involved in the build-up of production to engage their attention, they had on the whole no other course. Some idle time was indeed inevitable in the early stages of production; and much of the increase in output per head which occurred in the second half of the war was not the result of deliberate attempts to economise in labour as such but resulted automatically as the supply of machine tools and materials and the whole flow of production improved and as green labour became experienced. Nevertheless an important turning point in the attitude of managements and government departments, particularly of the supply departments, to labour welfare and utilisation was reached in 1942-43 when supplies of green labour began to dry up. For though absenteeism and high labour turnover were always inefficient, managements naturally became more concerned about them when losses were almost impossible to replace.

The point at which labour utilisation in their contractors' works came to concern the supply departments equally with labour supply varied somewhat according to the timing of their programmes. In the Admiralty there was no very clear dividing line, partly no doubt because skilled labour, which formed a high proportion of the ship-building industry's labour force, had been in very short supply from

a comparatively early date. It was in January 1942 that a memorandum was prepared in the Ministry of Supply, for the consideration of its Executive Committee, which emphasised that in future the Ministry would have to examine labour demands more carefully and pay more attention to the efficient use of labour already employed. 'There had been', it said, 'ample proof that very substantial increases in output could be achieved without extra plant and labour and the Ministry of Supply must press for this type of improvement in its factories by all possible methods.' It may be noted that this memorandum anticipated by several months reports by the Minister of Labour and by the Joint War Production Staff of the Ministry of Production pointing to the need for increased attention to labour utilisation to offset the growing shortage of labour.

Subsequent discussion on the Ministry of Supply's Executive Committee covered a very wide range of questions, including the rationalisation of sub-contracting and the relaxation of Service standards as well as more purely labour matters like absenteeism, dilution and the extension of piece work. The Committee agreed that it was primarily the responsibility of the production departments of the Ministry to see that contractors were making efficient use of available labour and machine tools and had adequate reception and training arrangements. It was reported that a group of specialists in management problems was being added to the staff of the Director-General of Programmes and Statistics and that they would be available on loan to directors-general of the various branches of production wherever they were needed.

The Ministry of Supply already had a comprehensive organisation to deal with labour management and welfare questions in its own establishments.¹ The extent to which the welfare and wages sections of the Labour Department and the specialist advisers gave assistance to outside contractors of the Ministry varied, though all did to some extent. In May 1942 it was suggested that the wages section was engaged as to 85 per cent. of its time with R.O.F. matters; when necessary, however, the section gave a lead unofficially in contractors' wage negotiations with unions.² The Labour Committee of the Ministry had discussed the question of hours of work in outside industry as well as in the Ministry's establishments, but after its demise in 1942 the Labour Department tended to concentrate on the Ministry's establishments, leaving the Ministry of Labour to deal with outside industry. Nevertheless in pursuance of the policy of co-operation with the Ministry of Labour in extending personnel management in the engineering industry, the services of the Labour

¹ See pp. 235-7 and 268-9 below.

² See pp. 162-3 above.

Management Department were offered to the regional controllers of the Ministry of Supply to assist in advising contractors.

During 1942 the M.A.P. was also giving greater attention to labour welfare and utilisation, but it was not until the latter part of the year that decisive administrative steps were taken. When the M.A.P. finally entered the field of labour utilisation it set up, in the Production Efficiency Board, a more specialised organisation than the other supply departments possessed for dealing specifically with their contractors.

This was not surprising, for the M.A.P. had no substantial industrial establishments of its own; there were also special difficulties in organising production in the aircraft industry which made the factories particularly prone to idle time; and there was an urgent need for increased production at a time of growing labour shortage.

In the summer of 1942, a special officer was appointed to stimulate welfare provision for women workers in the aircraft industry. The Directorate of Labour was at the same time reorganised into three departments, one of which was devoted entirely to such questions as housing, transport, hours of work, absenteeism, labour wastage and welfare questions generally. The two subsequent years saw a continuous increase in the size of this department and in the scope of its work.

A second, and in some ways more important, development was the appointment of the Production Efficiency Board. In November 1942 the Minister (Colonel J. J. Llewellyn) asked Sir Charles Bruce-Gardner, the Chairman of the Society of British Aircraft Constructors, to undertake an investigation into the use being made of labour in the aircraft industry. This suggestion was accepted, and after Sir Stafford Cripps had been appointed Minister the proposal was broadened to the setting up of a Board of four members with Sir Charles as the chairman. The other members were Mr. Chappell, Miss Shaw and Major Buchanan. The first had been an A.E.U. organiser for twenty years and, latterly, employed by the Ministry of Labour; the second was one of the country's leading experts in personnel management and motion study, and the third was the executive officer. Regional personnel officers were appointed later.¹

The Board dealt with production efficiency in both its capital and labour aspects. It served as a small, highly qualified advisory body to carry out investigations in the field, as distinct from the usual administrative work of the headquarters and regional staff of the Ministry.² Its method of approach was described as 'to concentrate

¹ See p. 262 below.

² On labour questions the division of responsibility between the special department of the Directorate of Labour and the P.E.B. was never rigid. While the broad distinction held good that the Directorate of Labour was responsible for general policy and the

on the high spots either of particular problems or in particular establishments'; the Board acted as a 'ginger group'. It spoke with an authority derived from expert knowledge and, by direct personal contact with the contractors, ensured that its recommendations were put into effect. In the first year of its existence alone personal contact was made with 298 factories, necessitating 382 visits, and, in addition, the Executive Officer of the Board accompanied the Minister on visits to 94 factories.

Some of the problems which the Board was called on to deal with proved intractable. It was, for example, impossible to eliminate idle time during a change-over in types of aircraft; and the Board made little impression on the problem of high earnings in the Coventry area which is discussed in greater detail below. Nevertheless it did much valuable work.¹

The personal influence of Sir Stafford Cripps, who became Minister of Aircraft Production at the end of November 1942, on the Ministry's policy towards labour welfare and utilisation was also very great. According to the Production Efficiency Board, no single factor had greater influence on personnel management in the aircraft industry than the appointment of Sir Stafford; and his encouragement of joint consultation between employers and workers is well known. For example, within a month of his appointment the Minister declared in a broadcast speech to the 'millions of workers and their families who are now engaged, with me, in providing the aeroplanes and the weapons' that 'I am most anxious that they [Joint Production Committees] should function fully and properly in every factory that comes under my Department'. Where this was not happening workers should get their trade union to see to it at once.² On these and other problems of labour welfare and utilisation—too numerous to list—the Minister, through visits to factories, public speeches and the departmental machinery, pursued and urged on others a policy which promoted the human factor in industry to at least as high a level of importance as the supply of raw materials and capital equipment.

The increased interest of the supply Ministries in labour utilisation accentuated the problem of interdepartmental co-ordination, albeit the Ministry of Labour was anxious to have the supply departments'

P.E.B. for investigating and advising on particular problems, the experience of the P.E.B. naturally influenced policy; and in certain matters, such as personnel management, it was more to the P.E.B. that regional officers looked for assistance than to the Directorate of Labour. Similarly in the course of investigations of particular firms, suggestions were frequently made by the P.E.B. which were normally the province of the Directorate of Labour. This tendency to overlap, however, was not a handicap, and both bodies benefited from each other's experience.

¹ See also pp. 261-4, 319-27 and 429-31 below.

² *The Listener*, 24th December 1942, p. 804.

help. Government policy on this question was defined in a reply to the Select Committee on National Expenditure in August 1942. The primary responsibility for the maintenance of adequate welfare arrangements lay, it was held, with the employers. The Ministry of Labour had the function of defining minimum standards and of bringing to light and correcting deficiencies through its Factory Inspectorate. But at the same time it was agreed that the supply departments had a direct interest in these matters and that their co-operation with the Ministry of Labour was essential. Further, as the supply Ministries were particularly concerned with general management issues in the factories working for them they were to pay, in co-operation with the Ministry of Labour, particular attention to the development of personnel management, as this problem was closely connected with general management problems.¹

In addition, the Ministry of Production set up central machinery to deal with labour utilisation questions which was intended to be, and to some extent was, of a co-ordinating kind. Most notable was the Industrial Panel, which consisted of industrialists and trade union officials who were available to make enquiries into the management of particular firms. Some thirty to forty investigations were made by the Panel. A few of these covered problems common to a whole industry, but the majority were investigations into individual firms, some of a general nature, others into one specific aspect of management. The Panel was used particularly, though not exclusively, to deal with firms working for two or more supply Ministries. The Ministry of Production was anxious to supervise the activities of the supply Ministries in the field of labour utilisation as in other matters,² but the Industrial Panel had only a limited value from this point of view; for when its enquiries were conducted at the request of the supply Ministries concerned they alone were responsible for follow up action on the Panel's recommendations. The results of the Panel's work were, however, valuable in themselves. Certain changes in management which proved necessary had radical effects on labour utilisation in the firms concerned.³

Less important was the Munitions Management and Labour Efficiency Committee, set up early in 1943 in pursuance of the same aim of supervising and stimulating the work of the supply Ministries. This Committee held a number of meetings, but chiefly to hear reports on what had been done by the departments primarily concerned. By this time adequate machinery to deal with these problems

¹ *Fourteenth Report from the Select Committee on National Expenditure*, Session 1941-42, 14th August 1942, para. 34.

² Compare J. D. Scott and Richard Hughes, *op. cit.*, pp. 457-65.

³ See p. 434 below.

existed in the Ministry of Labour and the supply departments and there was effective co-operation between them.¹

(iii)

The Improvement of Physical Amenities

It is not proposed to consider here in detail the improvement of physical amenities in the factories of government contractors, for, as has been said, it was primarily the responsibility of the Factory and Welfare Department of the Ministry of Labour to see that adequate welfare facilities were provided both inside and outside the factories.² The headquarters and regional labour staffs of the supply departments had, however, an important secondary rôle. It was their task to recommend to the appropriate authority in their particular Ministry that financial assistance towards the building of welfare accommodation should be given to contractors who needed, and qualified for, it and to help firms through the necessary maze of licences and permits for building and equipment, bringing pressure to bear as necessary on the government departments responsible for issuing them. The supply departments had to be specifically consulted about all welfare improvements which involved building, because the materials (in the early years of the war) and the labour for this work had to come from the allocation periodically made to them to cover all building projects, including new factories, in which they were concerned.³ Finally, as has been said, the supply Ministries added their pressure to that of the Ministry of Labour when employers proved recalcitrant. A considerable part of the work of M.A.P.'s regional personnel officers, for example, centred around matters raised by the Ministry of Labour Factory and Welfare Department.

Welfare provision in the many diverse industries and factories

¹ The Committee was chiefly intended to deal with questions raised by the supply Ministries, though it could itself initiate action. The Chairman of the Committee was Sir Charles Craven. Its members were nominated by Ministers but were to be regarded not as representatives of their Ministries but as individuals with particular qualifications. They were Mr. F. Chappell (M.A.P.), Mr. J. C. Little (Ministry of Labour), Sir Percy Mills (Ministry of Production), Lord Weir (Admiralty) and Sir William Rootes (Ministry of Supply), who later resigned. Other machinery set up by the Ministry of Production and the Machine Tool Control to give technical advice to firms is referred to on pp. 433-4 below.

² The difficulties encountered and the results achieved are described in H. M. D. Parker, *op. cit.*, Ch. XXIII.

³ At a later stage building materials for welfare projects came out of the Ministry of Works' allocation; the supply Ministries desired that building labour should be provided in the same way, making reference to them unnecessary, but this proposal was not adopted.

which were in war-time drawn into munitions production alongside the professional manufacturers of armaments was at the outset very uneven. For example, the chocolate factories, turned over to the manufacture of munitions, had had well developed personnel management and welfare provision far in excess of statutory requirements for many years. In many shipyards, on the other hand, particularly in the smaller repairing yards whose men often worked scattered over wide areas in public docks, welfare provision beyond the requirements of the Factories Act was almost unknown. Conditions also varied very widely between factories and yards of a similar type.

These differences remained, partly because war-time shortages made it impossible to make radical improvements even when the will to make them was there. In war-time managements were hindered at every turn in their efforts to improve conditions of work: black-out restrictions made it difficult to secure adequate ventilation and lighting arrangements; sanitary facilities were stretched to the limit by the rapid increase in the number of workers and the higher proportion of women employed; managements fought an uphill battle to reduce accidents and sickness, for against the assets of safety measures, guards, fencing and well-equipped surgeries had to be set trainees unused to machinery, the greater speed of production and the general shortage of doctors and nurses; perhaps worst of all, long working hours were inevitable in war-time. The fact remained that the very challenge of war-time dangers and difficulties helped towards the maintenance of peace-time standards—even, in some fields, to an improvement upon them—and to a marked increase in the interest of both management and workers in health and welfare.

(iv)

Welfare Provision in Government Establishments

(a) THE R.O.Fs

The Admiralty and the Ministry of Supply were concerned as employers with conditions of work in their own establishments. In the following chapters the policies pursued by the Ministry of Supply in the R.O.Fs are discussed in some detail. The Ministry's problems were not radically different from those of private employers in old or new factories; in fact the problems and experience of the Ministry, the more easily described since policy was centralised in the Ministry and the sources are readily available to the present writer, are a useful indication of those of employers generally. Nevertheless the R.O.Fs were in a special position compared with most private industrial undertakings and with the royal dockyards.

The most obvious difference was the very rapid increase in employment in the R.O.Fs between 1939 and 1942.¹ The Ministry of Supply was also obliged to determine and operate a centralised labour policy to cover the many diverse establishments for which it was responsible. Some were old, badly planned and without amenities, others were newly built and up-to-date; some were located in large cities, others were miles away from even a small town; some employed only 1,000 workers, others upwards of 20,000. Moreover, the older factories had traditions, understandings and agreements covering the operation of the factory and relations between workpeople and managements, whereas the new factories had no traditions whatsoever and a hurriedly recruited labour force, strangers alike to themselves and to the management.

The need to pursue a centralised policy in the face of this diversity encouraged a Procrustean policy of forcing the factory to fit the policy. This was most marked in the transplanting of traditions and agreements which had grown over many years and under particular conditions in the old establishments to the new factories, rather than waiting for the fresh soil to throw up new traditions. It should, however, be noted that so far as certain problems arising out of current war-time conditions were concerned no traditions existed and no transplanting from old to new was possible. In fact the tendency was reversed and the old factories learnt from, and followed, the new.

The Ministry of Supply had therefore to deal with all the labour problems which arose in war-time in particularly complicated circumstances. Moreover, awareness of welfare problems did not always come readily to an industry and personnel steeped in a somewhat lofty contempt for such problems in the past. Ministry of Supply labour policy was developed only gradually, with its share of mistakes, retreats, diversions and confusion. But a policy did emerge and achieved some remarkable successes, and in so doing provided both the participants and future students with a wealth of material on labour questions.

The problems of providing adequate welfare and transport facilities in the newly built R.O.Fs in the early war years have already been touched on in connection with labour supply.² There is no question that so far as welfare provision in the R.O.Fs was concerned the Ministry of Supply got off to a somewhat slow start. In September 1940 the Ministry of Labour pointed out to the Ministry of Supply that it had received repeated indications from the evidence of factory inspectors that welfare arrangements at the R.O.Fs were not up to the standard then common in the better private firms. The Ministry of Labour instanced welfare supervision, canteens and the physi-

¹ See Table 13, p. 180 above.

² See pp. 183-4 above.

cal environment in the factories as being of a comparatively low standard.

These shortcomings were due to a variety of causes. Many of the difficulties arose because in some factories construction and production were proceeding simultaneously. The fact that the majority of the R.O.Fs were constructed after the passing of the 1937 Factories Act ensured that the provisions of this Act were on the whole amply fulfilled when the factories were completed, inasmuch as they were dependent on the structure and lay-out of the buildings. Canteens, washrooms, sanitary facilities, surgeries and first aid posts, rest rooms and adequate heating and lighting provision were planned in these factories from the start. Nevertheless certain additional problems naturally arose in operation. For example, the introduction of women workers in factories planned only for male workers involved hasty readjustments and rebuilding.

Another difficulty referred to by the Ministry of Labour was that whereas the managements of the better firms normally acted promptly upon the advice of the factory inspectors, managements of R.O.Fs had been reluctant or unable to make improvements without approval from headquarters, where action had been delayed or hampered by financial considerations. There were other reasons why the Ministry was slow to take action. There was no strong welfare tradition in the older R.O.Fs, such as Woolwich, and practice in these factories had, particularly early in the war, considerable influence on headquarters' policy. The Ministry of Supply was also preoccupied with production problems which seemed, and probably were, more immediately urgent. The superintendents of the R.O.Fs were heavily overburdened. The crux of the matter was that there was no staff with high status either at headquarters or in the factories whose business it was to concern themselves solely with the human side of management.¹

During 1941 such staff were provided and a comprehensive organisation was built up at headquarters and in the factories to deal with labour welfare and utilisation in the R.O.Fs. The most important question at issue in this development was whether these matters should be dealt with by the R.O.F. organisation at headquarters or by a centralised labour department providing a general service to Ministry establishments and contractors. During 1940 and 1941 there was a steady tendency within the Ministry for labour matters to be co-ordinated in one centralised department. This movement, which met with some opposition from the Director-General of Ordnance Factories' Department, culminated in February 1942 in a reorganisation of the Labour Department under an Under-Secretary (Labour)

¹ The development of labour management in the R.O.Fs is discussed on pp. 268-9 below.

(Mr., later Sir, Oliver Franks) and a Principal Assistant Secretary (Labour). In addition to its work on the labour supply side the Department had sections concerned with welfare, hostels and wages, primarily, though not entirely, in Ministry of Supply establishments. In addition to these administrative sections there were a number of specialist advisers—the Chief Medical Officer, Controller of Canteens, the Director of Public Relations, and the Director of Hostels. In September 1941 a specialist in labour management had been appointed to the staff of the Director-General of Ordnance Factories as Director of Ordnance Factories (Labour) and a staff of labour managers was built up in the factories; their work was co-ordinated through area labour managers. In May 1942, however, in continuance of the policy of centralisation, responsibility for labour management was transferred to the Labour Department with a Chief Labour Management Officer in charge.

This was roughly the position when in August 1942 the Select Committee on National Expenditure issued a critical report on the utilisation of labour and the high absenteeism in the R.O.Fs.¹ The Committee was concerned about the lack of a positive policy in the Ministry of Supply on such questions as absenteeism and hours of work and about the fact that there was a surplus of labour in the filling, concurrently with shortages in the engineering, factories. To remedy these defects it recommended the amalgamation of the Departments of the Director-General of Ordnance Factories and the Director-General of Ordnance Factories (Filling),² and proposed that the Director-General's Department should have full responsibility for labour welfare and utilisation in the R.O.Fs.³ These proposals, involving major administrative changes, were quite unacceptable to the Ministry of Supply; but some improvements were possible within the existing organisation.

So far as welfare questions were concerned the reorganised Labour Department, with the arrangements for consultation with the production departments described below, was a potentially effective instrument for evolving and executing a sound policy. In fact a comprehensive policy to deal with absenteeism in the R.O.Fs had already been worked out and was about to be applied when the Select Committee's report was published, though it was true that in general the Committee's investigations and its report administered a necessary jolt.⁴ The arguments in favour of centralisation of control of labour matters

¹ *Eleventh Report from the Select Committee on National Expenditure, Session 1941-1942*, 16th July 1942.

² *Ibid.*, paras. 21 and 60.

³ *Ibid.*, paras. 53 and 60.

⁴ In regard, for example, to hours of work the Minister accepted the Committee's rebuke. *H. of C. Deb.*, Vol. 382, Col. 1081, 5th August 1942; see pp. 278-9 below.

in the Labour Department were strong. The problems concerned were common to the R.O.Fs and to other work for which the Ministry of Supply was directly responsible, as, for example, storage depots and work done by the Ministry's inspection and technical staff and by direct employees of the Home Grown Timber Department. Beyond this were the Ministry's thousands of contractors. A department dealing with the problems over a wide field could more easily secure a high status and a skilled and specialist staff; it could ensure uniformity of treatment where this was desirable; and it could benefit from its experience in dealing with the Ministry's direct establishments in any assistance given to private firms.

The Select Committee's criticisms could largely be met by arrangements to secure co-operation between the Labour Department and its specialised advisers and the employing departments. This co-operation was not, of course, dependent on organisation alone. In fact it was possible for specialists on labour welfare working within a production directorate to be less willing to consider the point of view of those concerned with production than might others working in a separate labour department. Apart from personal consultation, there was, however, a good deal of machinery to facilitate co-operation. There continued to be officials in the employing departments acting as a liaison with the Labour Department. During the middle years of the war the Ministry had a Labour Committee, under the chairmanship of one of its Parliamentary Secretaries, responsible for formulating policy on labour supply and utilisation; on this the employing departments and production directorates of the Ministry were represented. There was also the Welfare Board, consisting of officials of the Ministry, including the two Directors-General of Ordnance Factories, under the same chairmanship, whose task was to supervise the medical and labour management services in the R.O.Fs.¹ The Director-General of Ordnance Factories was by long standing custom chairman of the Engineering Trades Joint Council and this alone ensured that he was in close touch with the development of wages policy.

The Select Committee also raised the issue of functional control versus the authority of the individual factory superintendents. 'In the factories', it reported, 'effective control by the Superintendent has been hampered by the encroachment of these specialist authorities, and the regional administration of filling factories was found to encourage this tendency.'² The Committee did not dispute the

¹ In addition a Welfare Advisory Panel, consisting of some dozen outside experts, was set up in mid-1943 to advise the Minister on such matters affecting the general welfare of workers in Ministry of Supply establishments as were referred to it by the department. In April 1944 a further official committee, the Women's Committee on Working Conditions, was set up to deal with problems particular to women workers, which were the special responsibility of the Deputy Chief Labour Management Officer.

² *Report, op. cit.*, para. 50.

principle of functional control, but thought that the pendulum had swung too far.

The Committee's conclusions were based on the evidence of superintendents. Practice had in fact got out of line with the long established War Office principle on this question, which was based on the organisation of the Army. According to this principle, heads of establishments, including superintendents of the R.O.Fs, were responsible for running their own establishments, but the appropriate authorities at headquarters, such as the Chief Medical Officer and the Chief Labour Management Officer, gave professional and technical advice to the factory medical officers, labour managers, etc.; this advice was given via the superintendent and the officers concerned were to accept the superintendent's instructions on any doubtful point. The principle was restated and the position clarified in an important circular—the Captain of the Ship' circular—issued to superintendents in August 1942.

The headquarters branches were able to bring very wide experience to bear on any given problem arising in a factory; but in general responsibility for welfare provision rested with the superintendent and staff of the Labour and Medical Departments of the factory. On their initiative and resourcefulness, and on the extent to which close co-operation existed with the workers of the factory, the quality of the working conditions largely depended.

That the work of these officers, built on the sound foundations of well-designed buildings, was on the whole successful was shown in a review of factory environment which took place in the autumn of 1943. Following a meeting of the Labour Committee at which the relationship between absence from work and environment in the factory was discussed, the superintendents of all engineering and explosives factories were asked to report on working conditions. The filling factories were not included in this review for much attention had already been given to their problems. At the same time the Parliamentary Secretary invited the views of the Welfare Advisory Panel¹ on the conditions in engineering R.O.Fs.

The results of these investigations could not be said to be conclusive. As no yardstick had been provided the reports from each factory represented individual judgments on the conditions prevailing there; and the Welfare Advisory Panel, while it approached each factory from a common standpoint, made only short visits to the engineering factories to which its enquiry was limited. The reports revealed no serious shortcomings in the working conditions in engineering and explosives factories but drew attention to some defects. There was firstly the well-known difficulty that black-out requirements made

¹ See p. 237 fn. 1.

ventilation and lighting very poor in many shops; secondly, facilities for drying clothes in wet weather were inadequate; and thirdly, rest rooms would, it was thought, be of greater value if the medical departments were made responsible for them and they were supervised by a trained nurse. In addition a number of shortcomings in individual factories were noted. These included a shortage of seats for women workers, dirty and slippery shop floors, unhygienic practices in some canteens and complaints regarding fumes in explosive factories. Twelve months after these enquiries, in September 1944, it was reported that substantial improvements had been made.¹

(b) THE ROYAL DOCKYARDS

The majority of the R.O.Fs were new buildings. The provision of up-to-date welfare facilities in some of the royal dockyards was, by contrast, gravely hampered by the age of the buildings and lack of space. The Admiralty had been anxious to make improvements before the war but had been prevented by lack of money. When war came it was impossible to spare building materials and labour to make the radical alterations required. Dockyard welfare officers in conference at Devonport in December 1942 agreed that all the yards were, according to modern standards, lacking in adequate cloakroom and drying-room facilities. This was particularly true of Devonport, where the buildings were ancient and primitive. But, though the Admiral Superintendent and his staff were only too anxious to improve conditions, no really substantial progress could be made at that stage in the war. Improvements were made in all yards as far as space, materials and labour permitted, but it was realised that the full scale reconstruction necessary would have to wait until the end of the war.

The main obstacle to the improvement of conditions in the dockyards was thus the age and design of the buildings. But in addition the Admiralty did not possess an expert and centralised department to deal with welfare and labour utilisation as a whole, such as existed in the Ministry of Supply. In the Admiralty the direct and contract labour sides were kept apart to a greater extent and the organisation was altogether less centralised. Personalities had no doubt their share in this difference between the Admiralty and the Ministry of Supply organisation; but the preponderant importance in the Admiralty of the older establishments, with their long and unique traditions, was also a decisive factor. Though a certain number of new Admiralty establishments were built during the war, the Admiralty lacked the

¹ The impressive development of the medical services in the Royal Ordnance Factories, including the effective measures taken to reduce the incidence of dermatitis and toxic jaundice, is recorded in Sir Arthur MacNalty, ed., *Civilian Health and Medical Services*, in the series *Medical History of the Second World War* (H.M.S.O., 1953), Vol. I, Part II, Ch. III.

challenge provided to the Ministry of Supply by the new R.O.Fs radically to alter its organisation for dealing with welfare questions in its establishments.

The welfare section,¹ first established in the Admiralty on a small scale in April 1941, was initially responsible only for welfare questions arising in contractors' works. The Labour Branch dealing with Admiralty establishments functioned independently of the contract labour side and was organised mainly on an 'establishments' basis, each section dealing with the problems arising in a particular type of establishment. In April 1941 the Ministry of Labour complained that it could not understand why the Admiralty was taking such a keen interest in the welfare of employees in the factories of its contractors, which was chiefly the responsibility of the employers and of the Ministry of Labour, when the Ministry had great difficulty in persuading the Admiralty to make improvements in the welfare of workers in Admiralty establishments.

In July 1942 the Admiralty labour organisation was reorganised. The Directorate of Contract Labour was abolished and its successor the Contract Labour Branch, with a new head, formed together with Labour Branch (responsible for Admiralty establishments) a Labour Division under a Director of Labour (Mr., later Sir, John Lang). Under this arrangement the Welfare Section assumed a greater share of responsibility for welfare provision in Admiralty establishments which it retained until it was disbanded early in 1945. But the responsibility for labour management and welfare was never integrated in the Admiralty to the same extent as in the Ministry of Supply. The Welfare Section and Controller of Canteens provided a common service in such matters as hostels and canteens; but the responsibility for wages questions, hours of work, absenteeism and the development of personnel management remained with the Contract Labour Branch so far as private industry was concerned and with Labour Branch, the Dockyard and other employing Departments so far as Admiralty establishments were concerned, except that the work of both Contract Labour and Labour Branch was co-ordinated at the level of the Director of Labour. The dockyard staff concerned with welfare and personnel questions—and even within the dockyards themselves there was no centralised labour management department²—were less closely supervised from headquarters than the labour managers in the R.O.Fs.

Whether a more centralised organisation would have produced better results must remain an open question. The difficulties in improving welfare facilities in the royal dockyards can be illustrated by the history of the provision of canteens. At the outbreak of war the

¹ Under an official previously on the staff of the Industrial Welfare Society.

² See pp. 267-8 below.

royal dockyards had only mess rooms, with facilities for heating packed meals, and canteens run by Workmen's Societies.¹ Most of these canteens were unsatisfactory in peace-time. They became even more inadequate with the war-time expansion of the labour force and increased need for canteen meals; and their managements were unable to cope alone with the situation which arose at Devonport and Portsmouth when homes and dockyards, canteen buildings and restaurants, were bombed in 1941.

In May the Ministry of Labour forwarded to the Admiralty a report from its factory inspectors on the inadequacy of these canteens.² The Admiralty agreed that the remarks of the factory inspectors were 'fair criticism'. It had believed for some years that facilities in the dockyards fell short of what they should be and were probably inferior to those in most firms of standing. Had they been reasonably attractive and well run much greater use would have been made of them in peace-time. Improvements had not been made before the war because money for canteens had to come from the same pool as that for essential dockyard equipment, crange, etc., and for its repair.

It was still many months before the situation was remedied. In December 1941 the Admiralty received Treasury authority to bear the full cost of the building, initial equipment and maintenance of canteens in its establishments.³ Soon afterwards the Admiralty secured the services of the Ministry of Supply Controller of Canteens⁴ to assist with the provision of canteens in Admiralty establishments where none existed and to advise as necessary on the running of existing canteens. It was found that canteens could be more efficiently run by the Canteens Department than by local committees of management and this became increasingly the general rule.

In the second half of 1941 the Admirals Superintendent submitted proposals for building extensions, which were to be of a temporary

¹ Representatives of the management and workers' sides of the Whitley Yard Committees acted as advisers. Only at Sheerness, where the canteen was established in 1939, was it run by a Canteen Committee, responsible to the Whitley Committee, with a chairman from the management side.

² The Admiral Superintendent at Devonport, who was convinced that the Admiralty should carry a greater share of responsibility for the management of canteens, pointed out that the canteen in his dockyard, which employed some 13,000 workers, had been serving only 300 meals a day with inadequate and antiquated equipment. At Chatham in December 1941 employees petitioned the Minister of Food about the inadequacy of the dockyard canteen and the Factory Inspector confirmed that it was dirty, the food poor and the superintendent unsuitable.

³ The Treasury rules of 1922 allowing departments to pay only part of the cost of establishing canteens were not in accordance with the position under the Factories (Canteens) Order of 1940 which placed full responsibility on the employer. There had been a meeting at the Treasury in February 1941 in which agreement was reached in principle that the departments should bear full responsibility. The subsequent delay over Admiralty establishments is difficult to explain.

⁴ In December 1943 he was appointed Controller of Canteens to the Admiralty as well.

nature, and for the new equipment required for dockyard canteens. Treasury approval for these was obtained at the beginning of 1942. Owing to their low priority, however, none of the three canteen buildings sanctioned to be built at Portsmouth in January 1942 was in use a year later. In fact, though one was complete, two had not been begun. But in May 1943 the work was speeded up by a priority from the Ministry of Works and Buildings enabling additional building labour to be brought in.

(v)

Housing and Hostels

The supply departments had a more direct share in the building of accommodation than in other welfare provision made for their contract labour. And the Ministry of Supply was responsible for a large hostels programme to house R.O.F. employees. In the pre-war period and in the months immediately after the outbreak of war the large scale provision of accommodation for workers was not normally included in plans for new factories. It was assumed that sufficient workers, at least all except key workers, would be available locally. This assumption proved untenable, for new factories were not always placed in areas where labour supplies were plentiful.¹ It therefore became necessary at an early date to ensure that workers who removed from other districts to work in the new factories found accommodation in lodgings or in houses of their own.²

It soon became apparent that existing accommodation was insufficient and the Government embarked on a considerable programme of house and hostel building. This was drawn up by the interdepartmental Housing (War Requirements) Committee which was set up in January 1940.³

(a) MARRIED QUARTERS

In the early stages of the war it appeared that sufficient building labour and materials would be available to allow the building of houses so that a proportion of the married workers transferred to new factories could bring their families with them. At first the Housing

¹ See pp. 217-19 above.

² The main responsibility for the placing of war workers in lodgings rested with the Local Authorities acting under the direction of the Ministry of Health, although the Ministry of Labour, individual firms and the voluntary societies, such as the Women's Voluntary Services, also took a large share in this work. See H. M. D. Parker, *op. cit.*, Ch. XXIII.

³ The Committee consisted of representatives of the Office of Works, the Treasury and the Ministry of Labour and the Service and supply Ministries under the chairmanship of the Minister of Health (who was later replaced by the Treasury representative).

(War Requirements) Committee relied chiefly on local authorities, firms and other existing organisations to provide the necessary new houses for war workers.¹ When a review was made in February 1941 of schemes of this type it revealed that plans existed to provide some 3,400 houses in or near eighteen different towns. The co-operation of local authorities was relatively easy to secure when the chances of recovering the cost of houses were fairly secure. They were prepared, for example, to build houses for employees in permanent Admiralty establishments in places like Plymouth but were less willing to build in relatively isolated areas to meet what might prove to be temporary demands. They were also reluctant, as later became necessary, to build houses of a temporary nature to inferior war-time standards. As a result estates providing married quarters for war workers were to a growing extent built by government departments.

During 1940 the need for additional accommodation became increasingly apparent as new factories came into production and others were dispersed as a precaution against air attack. In February 1941, therefore, the Housing (War Requirements) Committee proposed that the Government should provide family accommodation for transferred workers up to the limits found practicable. This proposal was accepted by the Production Executive of the War Cabinet and before the end of 1941 the Committee had approved new building to accommodate 10,000 workers for M.A.P. with their families, nearly 8,000 workers for the Ministry of Supply and over 1,000 for the Admiralty.²

Other claims on the diminishing supplies of building labour and materials made it impossible, however, to complete the programme approved by the Committee. Towards the end of 1941 the Committee suggested that the provision of married quarters should be restricted. Neither the M.A.P. nor the Admiralty favoured this proposal, for since their contractors required a comparatively high proportion of skilled labour these departments were particularly concerned to secure married quarters for skilled men transferred. The M.A.P. had in fact just put forward an ambitious programme for the erection of further married quarters in connection with its new

¹ For example, arrangements were made with the Glasgow Corporation and the Scottish Special Housing Association to provide 500 houses for workers at the Rolls-Royce aero-engine factory at Hillington and Stewart & Lloyds undertook to build 300 houses for their employees at Corby.

² In the early stages houses and hostels for war workers were built under the supervision of the supply Ministry concerned. It became increasingly the practice, however, for standards agreed interdepartmentally to be made binding on all departments, and the Ministry of Works and Buildings gradually took over responsibility for the erection of houses and hostels. Nevertheless of the estates built for the Ministry of Supply twenty-four, comprising 3,450 quarters, were built under the direction of the Ministry of Supply compared with nineteen, comprising 1,950 quarters, built by the Ministry of Works. The former were permanent two-storied brick buildings; the latter one-storey buildings of a variety of methods of construction, most of them intended only for war-time use.

aircraft programme¹ on the basis of providing such accommodation for up to 50 per cent. of married transferees in towns where family accommodation was not otherwise available. To serve the engineering R.O.Fs the Ministry of Supply had also provided a high ratio of married to single accommodation; but they had planned a very large hostel programme, described below, to house the workers, of whom the majority were women, transferred to the filling factories.² The Ministry therefore preferred to see priority given to the completion of hostels.

In the event, M.A.P. requirements for skilled labour did not develop on the scale expected. In any case the provision of new housing on such a scale was deemed to be impossible. In November 1941 the Prime Minister had issued a directive which aimed at finishing first those schemes already embarked upon and cancelling as far as possible all schemes not then begun. In January 1942 the Production Executive ruled that no further married quarters should be built, other than those whose construction was already begun, except for the use of certain managerial and other staff who had to live close to the factory and be available day and night.³

The number of houses already built was not negligible. In total 43 estates comprising 5,400 quarters were built for use by employees of the Ministry of Supply or their contractors and 70 estates, with 7,800 houses in all, for workers on M.A.P. production. Accommodation in houses and flats was also provided by the Admiralty; and in addition the Admiralty negotiated with local authorities and independent bodies to provide houses for Admiralty employees and their families.

The management of married quarters presented no new problem in the same sense as the management of the large war-time hostels for industrial workers; but the difficulties of both tenants and managements were increased by the inevitable use of substitute building materials before their worth could be fully tested,⁴ and by the fact

¹ See p. 187 above. It was expected that it would be necessary to transfer skilled workers on a considerable scale in order to man full night shifts in the aircraft factories, but this was never in fact done.

² In November 1941 the plan was to build 4 hostels housing 2,824 workers for the engineering R.O.Fs and 2,402 houses, compared with 46 hostels, housing 49,800 workers, and 3,680 houses for the filling R.O.Fs.

³ The ban was not in practice absolute. The Admiralty later secured permission after much discussion for the erection of two estates of 200 married quarters each for the use of men transferred from the southern dockyards to repair bases on the West Coast of Scotland. Some additional family accommodation was also provided by the adaptation of hostels built for, but not fully occupied by, single workers, as was done, for example, at the R.O.F. hostel at Glascoed; and the practice of requisitioning existing houses for war workers and their families was continued.

⁴ For example the tar layer in the solid concrete floors did not always form an effective damp-proof course and in many cases asphalt had afterwards to be laid on top of the concrete; and constant adjustments had to be made to ball valves on many estates because of the substitution of bakelite for copper balls.

that the building labour available was often of poor quality and lacked supervision; maintenance work, usually the responsibility of the Ministry of Works, was therefore very heavy.

The great majority of Ministry of Supply estates were managed by trained housing managers directly employed by that department. The Ministry of Supply was satisfied that this method secured the most complete control over the estates and ensured a friendly relationship with the tenants resulting from a sympathetic understanding of their needs. M.A.P., on the other hand, usually arranged for indirect management by the local authorities in whose areas the estates lay; this was partly no doubt because its estates were built largely for contractors' labour rather than for labour in the Ministry's direct employment. The M.A.P. did, however, induce certain authorities to employ women housing managers to take charge of its estates, and a trained woman housing manager was also appointed at headquarters to watch over the work of the local authorities in connection with these estates.

(b) HOSTELS

In the early months of 1940 consideration had already been given to the need for hostel accommodation for single workers employed at R.O.Fs Blackburn, Hereford, Chorley and Glascoed. In July 1940, that is some months before the decision referred to above to provide married quarters, the Housing (War Requirements) Committee decided that government departments should have authority to provide quarters in hostels for single workers. Broadly speaking this provision took two forms. Firstly, hostels were built in towns where lodging accommodation was limited, to house workers from a number of factories working for one or more departments. Secondly, hostels were built exclusively for workers employed in Ministry of Supply and Admiralty establishments, situated often in relatively isolated districts. Some hostels were similarly built for the use of employees in isolated private factories; for example a large hostels scheme, for which M.A.P. was responsible, was authorised to house workers employed in the underground factory of the Bristol Aeroplane Company at Corsham. In an intermediate category were the hostels built in the Birmingham, Wolverhampton and Black Country districts to house workers in the drop forgings industry.

In the first group, to house contractors' labour, some sixteen new hostels were in use by the middle of 1942. Eight of these were built on the responsibility of M.A.P. and housed about 7,000 workers and eight, housing some 4,000, on the responsibility of the Ministry of Supply.¹

¹ The department which was expected to be the main user of a hostel bore the financial responsibility for it and made arrangements for its management. Building was the responsibility of the department's own Works Department or of the Ministry of Works.

Further hostels were built in subsequent years and converted houses were also used to house contractors' labour. Some indication of the total number of new and converted hostels used for this purpose is given by the number of hostels for munitions workers managed by the National Service Hostels Corporation.¹ The Corporation managed sixty-five hostels for the three supply Ministries, forty-seven for M.A.P., fifteen for the Ministry of Supply and three for the Admiralty, with a capacity for some 35,500 workers.

In the second group of hostels, for employees in government establishments, by far the largest schemes were those to house workers in the R.O.Fs. In all some thirty hostels, most of them housing 1,000 workers, were built for this purpose. By comparison the Admiralty hostels programme was very small, the major scheme being to house 800 workers in the Royal Naval Armaments Depot at Trecwn in Pembrokeshire. Another large hostel was built for workers at the Royal Naval Propellant Factory at Caerwent and smaller ones at various other establishments. The supply departments also made considerable use of converted houses as small hostels both for their own employees and for those of their contractors.

The R.O.F. Hostels: the problem of estimating the demand

Many problems arose in the planning, building and management of the R.O.F. group of hostels. One of the most difficult was that of estimating how much accommodation would be required. In the event, many more hostels were planned, and more hostels actually built to house R.O.F. workers than were ever needed for that purpose; and the hostels finally used were never full to capacity. Of thirty hostels completed by mid-1942 seventeen were surplus to R.O.F. requirements and were immediately handed over to other departments to house industrial workers or Service personnel; and of the twenty completed hostels in use by the R.O.Fs six were, in July 1942, filled to only 75 per cent. or more of capacity, three to 50-75 per cent. and eleven to under 50 per cent. Of the 18,900 beds then available 10,900 were occupied by staff and residents and the remainder were empty. Subsequently the number of beds available was reduced to 16,200 and the lowest figure of occupation recorded was 10,200 (in June 1943) while the highest was 12,400 (in October 1944). Between these two dates, however, the number of beds

¹ This was established in May 1941 as a company limited by guarantee and with no share capital. The Board of Directors was appointed by the Minister of Labour, representatives of the supply departments being co-opted to it. (See H. M. D. Parker, *op. cit.*, Ch. XXIII.) The Corporation ran the great majority of hostels used by workers on M.A.P. contracts, but a smaller proportion of those built for Ministry of Supply and Admiralty contract labour. It also, however, managed some hostels attached to Admiralty establishments.

occupied by Ministry of Supply employees fell from 8,900 to 7,800 and the number occupied by others rose from 1,300 to 4,600.¹

Not only was this over-provision of hostel accommodation a serious problem to the Ministry of Supply but it naturally attracted the attention of the press, of individual Members of Parliament, of the Select Committee on National Expenditure and of the Committee on Public Accounts. In 1942 the Select Committee severely criticised 'this remarkable miscalculation, involving an expenditure of many millions'.² How did it arise?

Primarily it was due to the sudden and unexpected fall in the planned labour demands of the R.O.Fs which occurred in late 1941 and in the first half of 1942.³ The requirements of the filling factories were heavily cut; this particularly affected requirements for hostel accommodation for, as the hostel programme stood at the end of 1941, thirty-two were intended for the filling, compared with five for the explosives, and four for the engineering, R.O.Fs.

A hostel programme to house 19,000 R.O.F. workers was approved by the Housing (War Requirements) Committee in July 1940 and by January 1941 this figure had risen to 26,000. In February, however, the situation was radically altered by the introduction of the three shift system and at the same time the estimated ultimate strength of the factories was considerably increased. Moreover, serious air raids had begun and it was feared that their continuation would interfere with billeting and transport facilities. In these circumstances a hostel programme to house 69,000 workers was agreed after considerable discussion between the Ordnance Factory Department, the Ministry of Supply's Labour Department and the Ministries of Labour and Health. The figure was a compromise between one of nearly 100,000 originally put forward by the Ordnance Factory Department and one of 56,000 suggested by the Ministries of Labour and Health.

During 1941-42, however, the peak labour requirements, which in February 1941 were put at 380,000, were gradually reduced until in May 1942 they stood at only 159,000. Hostels took some nine months to build so that by the beginning of 1942 many of those planned in the spring of 1941 were complete or nearing completion. The entire programme had not, however, been put in hand at once and the Ministry of Supply was able to make adjustments in it at the end of 1941 when the first drop in labour demands occurred; economies were in any case made essential at this time by the

¹ It should be noted that some beds were deliberately kept empty because sleeping accommodation was arranged in relation to the shifts on which residents were employed so as to cause the minimum of disturbance to their rest and to ease the work of hostels staffs.

² *Eleventh Report from the Select Committee on National Expenditure, op. cit.*, para. 39.

³ See p. 181 above.

growing stringency in building labour and materials. Hostels to house 23,000 workers were cut out of the March 1941 programme before they were begun and building work was stopped on hostels to house a further 8,000. But the further drop in labour requirements of over 70,000 which occurred in the spring of 1942 came too suddenly and too late for the hostels programme to catch up with it. And this cut in the labour force required was likely to have a 100 per cent. effect on requirements for hostel accommodation; for the hostels had been built to house just these additional workers who would probably have had to come from other districts and for whom lodging accommodation would not have been available.

A glance at the history of hostel projects for shipyard and other Admiralty workers shows a similar story of sudden changes in labour demands causing radical alterations in hostel plans and of completed hostels only partially occupied. They passed relatively unnoticed because only a few hundred workers were involved in all. Analogous difficulties arose in filling to capacity hostels managed by the National Service Hostels Corporation, which even though they took in agricultural workers and civilian evacuees were never completely full. Nevertheless it was comparatively easy for the Corporation, with its hostels situated in large towns, to throw them open to industrial workers from factories whose demands for hostel space had not originally been taken into account.

That R.O.F. labour requirements were over-estimated was not the only reason for the redundancy of R.O.F. hostel accommodation. The estimates of the amount of labour which would be available locally and of the available lodgings seem also to have gone astray. The Minister of Supply emphasised in the House of Commons that the estimate of hostel requirements was not a guess;¹ nor indeed was it in the sense that it was carelessly made, for it was the result of considerable consultation between the interested departments. On the other hand the basis of the calculation was bound to be to some extent guesswork. The following paragraphs are undoubtedly an essay in hindsight. They are in no way intended as a criticism of those responsible for providing hostel accommodation, for to them it seemed impossible that, for example, workers would be prepared to travel long distances, in the black-out and in all weathers, for years on end rather than live in hostels. On the other hand, it may be of interest to record in what ways the assumptions of the planners were belied.

The planners, in the circumstances of the spring of 1941, made several assumptions which proved to be false. In the first place they under-estimated the amount of local labour that would be drawn

¹ H. of C. Deb., Vol. 382, Col. 1077, 5th August 1942.

into munitions work by the concentration of industry and the mobilisation of women workers, which had not then begun. In calculating the amount of lodging accommodation which would be available they assumed that 75 per cent. of the male workers transferred to the R.O.Fs would be married men accompanied by their families and set aside three rooms for each such worker. The calculations would be falsified if a factory recruited a higher proportion of single workers or if the married men left their families at home. Moreover, although the number of billets to be found in residential districts was often less than those officially available, the absorptive capacity of the industrial areas proved much greater than expected. The planners also made what was described as the 'fundamental error' of assuming that workers whose houses were more than twelve miles from the factory would be willing to move into hostels.¹ They were in fact prepared to travel far greater distances to avoid doing so.

Although some of the miscalculations described above arose because industrial mobilisation on a full war-time scale was not visualised in the spring of 1941, the estimates were made in an atmosphere of tension which lessened rather than increased as the years passed. In the spring of 1941 the production of ammunition was lagging behind programme; labour shortages in the factories were severe and absenteeism high. Air raids were expected to reduce lodging accommodation and to interfere with travelling on a far greater scale than in fact they did. In the circumstances it was not surprising that those responsible erred on the side of over—rather than under—provision of hostel space.

High on the list of the Select Committee's charges in their indictment of the planners was the claim that 'no account was taken of the fundamental question: would the workers be willing to live in the hostels?'² The estimates, it was said, were made by some academic person good at arithmetic and nothing else.³ According to the Parliamentary Secretary to the Ministry of Supply doubts as to whether the workers would be willing to live in the hostels had been in the minds of those who made the estimates, 'but', he said, 'certain decisions had to be taken'.⁴ The matter was not, however, one which required such serious consideration when the hostel plans were made, for had labour been needed by the factories on the scale originally intended the workers would have had no choice but to live in hostels. It became a serious problem when workers were presented with the alternative of home, billet or hostel, and many chose even

¹ Cf. speech by Mr. Silkin, H. of C. Deb., Vol. 382, Col. 1117.

² *Report, op. cit.*, para. 39.

³ Mr. Silkin, H. of C. Deb., *op. cit.* Compare speeches by Mr. Ammon and Sir J. Wardlaw Milne, *ibid.*, Cols. 1138 and 1146-7.

⁴ Mr. R. Asheton, *ibid.*

over-crowded billets or long journeys to work rather than live in the hostels.

There were initially certain shortcomings in the standard of hostel accommodation;¹ and inevitably some managements were more efficient than others. But on the whole the hostels provided a high standard of accommodation, comfort, food and care. Their unpopularity was not chiefly due to failings on this score; in fact, food, for example, was sometimes unpopular just because it was of a higher standard than some of the residents were accustomed to. Hostels were unpopular because they were not and could not be made the same as homes. Some officials believed that the prevalent view that the hostels were government institutions was the dominant reason why many people would not live in them. Various steps were taken to meet this objection—for example, the hostels were given individual names and all reference to the R.O.F. omitted from their title.

According to the Select Committee on National Expenditure much of the unattractiveness of the hostels was due to their great size which tended to reproduce the factory atmosphere.² Hostels were originally planned, and a few were built, to house 2,000 workers, since a hostel of this size was most economic from the point of view of building costs; but as increasing account was taken of questions of administration and welfare, hostels were built to house 1,000 workers each. Each hostel contained *inter alia* a number of separate sleeping blocks or hutments and a central brick-built 'welfare' block, which included a large assembly hall, common rooms and dining hall. At a later date, to create a more homely atmosphere, small common rooms were provided in the sleeping blocks in addition to the central welfare accommodation; and everything possible was done by the voluntary societies managing the hostels to encourage the growth of smaller communities within the larger unit of the hostel—such as the use of the house system and the creation of small groups for leisure time activities. Much was done by the societies to promote W.E.A. classes, cookery and needlework classes.

What the majority of residents preferred, however, were the cinema shows and dances to which they were accustomed. These were, of course, provided and the hostels built up a thriving social life in which the residents of the neighbourhood and local Service personnel shared, and which to some extent offset people's objection to living in the hostels because they were situated away from the amenities of the towns.³ As the years passed, also, the residents took an increasing

¹ See H. M. D. Parker, *op. cit.*, Ch. XXIII and pp. 254-5 below.

² *Report, op. cit.*, para. 41.

³ An M.A.P. factory at Corsham in Wiltshire had difficulties with absenteeism among transferred workers because of the lack of local entertainment until a very fine community hall was built on the site.

share in the management and the hostels became real communities instead of mere aggregates of human beings. But none of these palliatives could go to the root of the trouble; the hostels remained institutions and some of the physical comforts of home were bound to be lacking. There were, for example, few open fires, perhaps a particular loss to girls from the coalmining districts; nor had residents any facilities for making tea to drink in their rooms.

Many residents also disliked the cafeteria system of service at meals which was inevitable under war-time conditions. Of complaints directed against the hostels a considerable number concerned food. Mass grumbling about food in institutions of all kinds is a common phenomenon arising not only from the quality of the food but from a multitude of other causes, such as a reluctance to admit the food to be as good as or better than that provided at home.¹ Many grumbles about food arose because it was unaccustomed. It could not, however, be seriously suggested that the customers, or some of them, should be given what they wanted in the form of the continual fish and chips, cakes and pickles that they were used to. In fact residence in R.O.F. hostels revolutionised the feeding habits of many workers; and the health record of the residents was good. Some of the complaints about food of course resulted from genuine shortcomings in the cooking and service. These were chiefly due to the poor quality of the kitchen staff available.

Another factor influencing the popularity of hostels was that of cost. Charges in R.O.F. hostels were originally fixed at 30s. a week for men and 25s. for women excluding the main meal, taken at the factory.² Hostel charges were probably a factor in keeping lodging charges down. For when the Ministry of Supply came to investigate why the hostels were not more popular they found that in some districts lodgings could be had for 25s. to 30s. a week including a mid-day meal and personal laundry.

There was thought to be some case for a varying charge in different hostels; local lodgings charges varied, and 25s. a week seemed more to, say, a Welsh girl than to those in more prosperous districts; many of the Welsh workers also made a practice of sending money home. It was, however, decided to keep the charges uniform; and in November 1941 charges were reduced in all hostels to 27s. 6d. for men and 22s. 6d. for women.³ There was now no question, apart from the losses incurred because the hostels were not full, of making them in any sense self-supporting. By March 1942 there was already a deficit

¹ Cf. *War Factory*: A report by Mass Observation (1943), pp. 74-5 and 108-9.

² Little evidence on costs was available, but it was hoped that these charges would cover running costs, apart from interest on capital expenditure on buildings and equipment, when a hostel was seventy-five per cent. full.

³ National Service Hostels Corporation charges, which had been based on the original Ministry of Supply figures, were also reduced.

of nearly £80,000 between receipts from residents and payments for the operation of the hostels. On the other hand the reduction made in November 1941 would probably have needed to be more drastic to make a very appreciable difference in the popularity of the hostels.

Moreover, while potential residents were being enticed with the offer of lower charges they were at the same time being encouraged not to use the hostels by the existence of government contributions to their travelling expenses. The Assisted Travel Scheme as it applied to government establishments—similar schemes existed in outside industry—was drawn up by the employing departments in consultation with the trade unions in the autumn of 1940; it was not an industrial agreement. The travelling expenses in excess of 3s. a week of workers in establishments fulfilling certain conditions were paid by the employing department. The establishment concerned had to be a new one, or an old one enlarged beyond recognition, situated in a remote area and in a neighbourhood where scarcity of accommodation made it impossible for workers to live within reasonable distance of their work. The last phrase was a vague one and the test seems never to have been applied. As a result of this agreement a worker would often save nothing in travelling expenses by living in a hostel. For safety's sake R.O.F. hostels were built at least a mile from the factory and it was sometimes necessary to go several miles further to find a suitable site. There were therefore workers travelling to the factories from the hostels who paid 3s. a week in fares while there were many others who travelled from home or lodgings at a real cost of £1 a week but who, owing to the Assisted Travel Scheme, paid only 3s. of it themselves.

An appreciable number of R.O.F. employees travelled very long distances to work. About 1,500 of the 26,000 employed at Bridgend, for example, travelled more than three hours daily, excluding their walk to and from the bus stop or station, from homes and lodgings in the Welsh valleys. There was little detailed knowledge of the relationship between these long journeys and fatigue; but while some of those who travelled long distances were good workers and regular in attendance, there was a *prima facie* case for thinking that long daily journeys tended to increase fatigue at work and the temptation to the workers concerned to absent themselves for minor reasons. The transport of these workers also consumed scarce commodities like petrol and rubber. In December 1941, therefore, the Ministry of Supply decided to restrict the use of the Assisted Travel Scheme, beginning 'with small nibbles' at journeys of three hours and more at Bridgend, Glascoed and Hereford.

During 1942 members of Parliament continued to ask why long journeys to work were still subsidised while hostels were half empty,

but in practice it proved impossible to limit the scheme. In August 1942 the attempt was abandoned. One of the difficulties was to discriminate between married men and women living at home, who would naturally greatly have resented the withdrawal of assisted travel, and single girls living at home and in lodgings who could reasonably have been expected to move into the hostels. But there was no guarantee whatever that they would do so and superintendents were in general afraid to risk the loss of labour which the withdrawal of travelling assistance entailed.

There were in fact differing views within the Ministry of Supply on the desirability of inducing workers to live in hostels by withdrawing assisted travel. In some cases a satisfactory solution of the problem of long journeys, which did not however affect the use of hostels, was found in the exchange of workers between factories; for, in Lancashire and South Wales in particular, employees of one R.O.F. were in fact found to be living considerably nearer to a second, which had come into production after they had taken up employment in the first. Some travelling time was saved by adjustments made to do away with such anomalies.

Hostel Management

Certain voluntary societies were asked to undertake the management of R.O.F. hostels in 1940 when it was first found that the hostels would be necessary. The Ordnance Factory Department decided that it could not itself run them and after consultation between the Ministry of Supply and the Ministry of Labour Miss Curwen of the Y.W.C.A. was approached. In subsequent discussions her organisation and certain others agreed to run the hostels as agents for the Ministry. Thus began an association which the Ministry much valued, chiefly because the societies 'stood for certain traditions and ways of dealing with human beings'.

The organisations concerned were the Co-operative Holidays Association, the Holiday Fellowship, the Workers' Travel Association and the Y.W. and Y.M.C.A. (The two latter organisations acted together in this matter through a joint committee.) An agreement made in November 1940 between the Ministry of Supply and these associations laid down the conditions under which they were to operate the hostels as agents for the Ministry. The hostels were to be run on a non-profit making basis. The Ministry was to be responsible for the buildings and equipment and for major repairs and maintenance; running costs were to be met out of a special account provided by the Ministry and administered by the association concerned. The associations were to aim at covering running costs out of receipts from charges assuming the hostels to be about three-quarters full, in the hope that possible early losses would be made good when they were

completely full. A *per capita* payment was to be made to each association for administrative expenses at headquarters.

The associations were to be given a fairly free hand in management. The guiding principles of management were to be discussed at meetings of a body to be known as the Royal Ordnance Factory Hostels Council, representative of the Ministry and of the associations. It was 'the intention of the Ministry to be guided largely by the experience and advice of the associations, but in the event of any difference of opinion arising it would be expected that [the association concerned] would conform to the wishes of the Ministry'. The Council was to discuss such questions as charges, wages and conditions of hostel staff (later the subject of formal agreement between the Ministry and the trade unions concerned), the standard of meals and any other matter of general or particular interest. On such matters as discipline, health, leisure time activities and religious services the Ministry was to rely on the associations but would be ready to assist if difficulties arose. The Hostels Council met regularly every month or two months during 1941-43 but less frequently in subsequent years, and discussed every manner of subject concerned with the administration of hostels.

The managing associations had taken on a large task of which neither they nor any other individual person nor organisation could be said to have had experience. Staff in the associations' headquarters and in the hostels had indeed run clubs, hostels and holiday homes, but these were much smaller than the hostels and did not cater mainly for industrial workers—certainly not for the unskilled. The problems of managing, as of planning, the R.O.F. hostels were new. They were accentuated by war-time difficulties; there was an acute shortage of suitable staff of all kinds from hostel managers to kitchen maids; it was a problem to find senior staff who combined organising capacity with an ability to deal with workers of all grades. The opening dates of hostels, depending on the progress of building, were uncertain so that it was very difficult to make initial staffing arrangements. Once the hostels were open residents either did not come nearly as fast as was expected or they arrived, as for example in one instance, 500 at a time. The type of resident naturally varied widely; sometimes, as in the early stages at Chorley, they were of a very poor type and very difficult to handle.

To begin with accommodation in the hostels was also inadequate. Some of the early hostels were built by the Controller of Building Construction in the Ministry of Supply and others by the Ministry of Works, and both types were in various ways unsatisfactory—kitchens were badly planned and both cubicles and assembly halls were too small. The voluntary societies were consulted about hostel standards by the Ministry of Labour in the summer of 1940 and their views

were passed on to the Housing (War Requirements) Committee. The managing associations were consulted by the Ministry of Supply from the autumn of 1940 onwards and alterations were made to plans at their suggestion, but they were not satisfied about the arrangements for consultation. They continued to press at meetings of the Hostels Council until even as late as September 1941 that they should be shown plans as early as possible and be given an opportunity to discuss them before construction began. The Ministry asked for their indulgence, pointing out that in all the difficulties of war-time it had embarked on a programme of this size without the necessary time for complete planning and consultation; it was inevitable, therefore, that many problems would arise of which no one had thought, or which they had been unable satisfactorily to settle. Eventually in February 1942 a satisfactory standard plan, a revision in the light of experience of the standard plan adopted in April 1941, was agreed upon by the departments concerned.¹ From the spring of 1941 the Ministry of Works took over the main responsibility for the building and conversion of houses for use as hostels; but the Ministry of Supply Hostels Section retained its own architects, who were able to watch over the interests of the users, and to hold their own on technical matters with the Ministry of Works staff.

The managing associations had, therefore, many difficulties to contend with. In December 1941 a Committee of Investigation was set up, consisting of the Director of Hostels (Mr. Butlin, who had been appointed to this post on the initiative of the Minister, Lord Beaverbrook), the Assistant Secretary responsible for the hostels, and an adviser from the Ministry of Works. The Committee was somewhat critical of the management of some of the hostels it visited; those in charge were said to lack experience and to be overwhelmed by the job in hand, and also to have very little knowledge of the running costs. It was, however, probably inevitable that Mr. Butlin and the voluntary societies should not see eye to eye on the problems of hostel management. Moreover the Committee did not stay the night in any hostel (being unwilling, it was suggested, to taste their own medicine) and some of their comments were shown to be superficial when tested against the experience of members of the Ministry of

¹ The plan of April 1941 included provision for a chapel or church hut which could be used as a quiet room or for communal services. After a dispute between the Ministry of Supply and the Ministry of Works as to whether or not this was to be provided for all hostels, the Ministry of Supply had to bow to a Housing (War Requirements) Committee decision that it was only to be included where local religious facilities were too far away or inadequate for the increased population.

The Ministry of Supply and the managing associations encouraged the work of the churches among hostel residents and the Bishop of Lichfield (Edward Woods) acted as an adviser to the Ministry in this matter. Such chapels as were built were normally used in turn by the various Protestant denominations and by the Roman Catholics. At Burghfield, however, where there were many Irish workers, the chapel was consecrated as a Roman Catholic Church.

Supply staff who had a close knowledge of the hostels concerned. Nevertheless the Committee's report emphasised the need for greater central guidance in the running of the hostels, which could not economically be provided by each voluntary society and which came to be increasingly provided by the Ministry itself.

There were other facts to explain this development. The Ministry had undertaken a large scale experiment which proved to be of interest to many people and which gave rise to a constant volume of criticism which the Ministry had to be in a position to answer; and as National Service Hostels Corporation hostels were opened some of this public interest naturally centred on a comparison between the Corporation's hostels and those run for the Ministry of Supply by the voluntary societies.¹ To meet this situation, therefore, and to provide the additional guidance which was felt to be necessary, specialist staff in the Ministry's headquarters, such as the Chief Medical Officer and the Canteens Adviser, took an increasing share in advising the societies and individual managements on matters of which they had expert knowledge. Regional liaison officers were also appointed to the Ministry of Supply staff who, from Birmingham or Manchester, visited the hostels in their area to assist managements with the various problems which arose. Their work was supervised by a headquarters official who also spent a great deal of time in visiting the hostels. In addition a small Hostels Advisory Committee, whose members were chosen partly because they were in a position to hear the residents' views on the hostels, was set up.²

The voluntary societies were a little anxious about these developments. In June 1942 they brought the matter up at the Hostels Council, pointing out that the Ministry had recently been taking a more active part in management and asking how far it proposed to go. The Ministry stressed that it was anxious to ensure that its more active share in management did not constitute interference, and pointed out that it would be confined to things which did not in the main affect the kind of atmosphere and way of life which the associations worked to provide. Thus, for example, while the Ministry helped in negotiations with the film industry or with the Council for the Encouragement of Music and the Arts, the societies were encour-

¹ The chief criticism arising from this was of the high percentage of staff to residents in the voluntary societies' hostels. It was, however, justified by the fact that the hostels were only partly full and by the fact that most of the R.O.Fs were on a full three shift system so that kitchen staff, for example, had to be on duty for twenty hours a day. Staffing difficulties may also have been greater in the more isolated R.O.F. hostels: there were many untrained workers and absenteeism through sickness was sometimes high. There was also, however, a wide variation in the proportion of kitchen staff to residents between individual R.O.F. hostels, which was less easy to explain.

² The original members were Dame Anne Loughlin of the T.U.C., Miss Irene Ward, M.P., and Mrs. Solomon, a member of a retail firm which had released many employees for factory work. Later, at the request of the societies, Mr. George Haynes of the National Council of Social Service joined the Committee.

aged to, and did, develop their policy towards recreation and entertainment on markedly individual lines, to the great benefit of the Ministry's hostel organisation generally. No more seems to have been heard of the societies' apprehensions. So far as the comfort and welfare of the residents were concerned the hostels prospered, even if they were not full. There was strikingly little Parliamentary or public criticism of the provision made, and the Ministry felt that its policy of entrusting the management to the voluntary societies had been fully justified.

CHAPTER IX

PERSONNEL MANAGEMENT AND ABSENCE FROM WORK

(i)

Introductory

BEFORE THE FIRST WORLD WAR very few employers made any particular arrangements for supervising the welfare of their workers beyond ensuring the observance of the health and safety provisions of the 1901 Factory Act. Between 1914 and 1918 the number of welfare supervisors employed in industry increased considerably. They were generally responsible for welfare matters alone: matters such as health, cloakroom and rest room facilities, canteens, sports clubs and other forms of recreation outside factory hours. Labour, or personnel, management as it was developed between the wars included not only welfare supervision but important functions in connection with the control of employment. The personnel manager, in co-operation with the production staff, would engage and dismiss workers, assess their suitability for various alternative jobs, make sure that they were settling down in the factory and assist with factory training schemes. He (it was more usually she) also helped to ensure good co-operation between the management and workers and had certain advisory functions in negotiations between management and the trade unions. For satisfactory personnel management it was essential that all or most of these functions should be integrated in one department.

Personnel management was defined by a personnel manager of wide experience, Miss Shaw of the Production Efficiency Board of M.A.P., in 1943 as 'that aspect of managerial work which deals with the human element in industry'. She pointed out that

Much care and attention are given in industry to the installation and maintenance of machinery; but the infinitely more complicated human operator is frequently left to adjust himself to his surroundings as best he can. The best machine tools and the most efficient planning can be rendered useless by ill-trained and badly placed operators; by high labour turn-over; by heavy absenteeism; by lack of co-operation between management and operators. These are some of the symptoms of bad personnel

management, only too frequently found in industry; they indicate the absence of well thought out labour policy systematically applied.¹

In the period between the wars, thanks to the efforts of the Factory Inspectorate of the Home Office and of the two voluntary societies in this field,² considerable advances were made in the training and extended employment of welfare supervisors and personnel managers. At the outbreak of war, however, a large number of those employed as welfare supervisors or concerned in some way with labour management were untrained and inefficient, and many large factories had no welfare supervisor, let alone a personnel manager. There was still much indifference and prejudice to be overcome. Not only managements but workers in the engineering industry were sometimes prejudiced against welfare supervision and personnel management. Some trade unionists were inclined to regard welfare supervision as patronising and devised to divert the workers from efforts to secure more solid advantages in the way of reduced hours or increased wages. Others suspected it as being merely a method of getting more out of the workers. More important, however, in determining the trade union attitude to welfare supervision was the fact that the engineering industry was comparatively well organised and that comprehensive agreements and procedure existed to safeguard conditions of work.

Throughout the war measures were taken to extend the use and to raise the standard of personnel management. The Factories (Medical and Welfare Services) Order,³ made in July 1940, gave the Minister of Labour powers, to be exercised through the Factory Inspectorate, to direct employers engaged on government work to employ the staff necessary for medical supervision, nursing and first aid services and for the supervision of the welfare of their employees. A further sanction was provided by the fact that no establishment could be scheduled under the Essential Work Order of March 1941 unless the Minister of Labour was satisfied with its welfare arrangements. It will be noticed that the Order of July 1940 referred only to welfare supervision and not to personnel management; but in practice the Factory Inspectorate was anxious to promote personnel management in its full sense and deplored the tendency of many managements to concentrate on welfare supervision only.

Although the Order gave the Minister of Labour compulsory

¹ *Production and Engineering Bulletin*, July 1943. For a more detailed statement of the functions of a Personnel Management Department see C. H. Northcott, *Personnel Management* (1945), pp. 5 ff. Other essentials of good personnel management are referred to on pp. 262-3 below.

² The Institute of Labour, now the Institute of Personnel, Management, and the Industrial Welfare Society.

³ S.R. & O. 1940, No. 1325, 16th July 1940.

powers, neither he nor the supply Ministers were anxious for them to be used. The cornerstone of personnel management was the employer's goodwill towards his workers and this could not be created by a compulsory order; nevertheless goodwill alone was not enough and compulsion might be necessary to secure a proper organisation. Seventeen compulsory orders in all were issued in the course of the war. Improvements in personnel management also sometimes followed when a supply Minister as a last resort put in a controller to replace the management of a firm which had proved itself inefficient. Although persuasion rather than compulsion was the accepted approach, some of the regional controllers of the supply Ministries felt that compulsion should have been used more often.

It was useless to persuade firms to appoint personnel managers without increasing the supply of qualified staff. In 1940 special three-monthly training courses were planned and subsidised by the Ministry of Labour in co-operation with the Institute of Labour Management, the Industrial Welfare Society and certain universities. By August 1944 there were facilities for training nearly 1,000 students at a time. Refresher courses, in the form of evening lectures, providing eventually some 800 places, were also organised on the initiative of the factory inspectors.

Various measures were also taken to advise firms on personnel management. For example, at the beginning of 1941 the problem of getting and keeping women in the war industries led the Minister of Labour to issue a manual of guidance on *The Employment of Women*. This explained the functions of a personnel officer and recommended the appointment of a woman personnel officer in the larger firms. Early in 1941 Mr. Lloyd Roberts, the Chief Labour Officer of Imperial Chemical Industries, who was also President of the Institute of Labour Management, was loaned to the Ministry of Labour at the request of the Minister to advise the Ministry and the supply departments and individual firms in the matter of personnel management, particularly in its bearing on industrial relations.

As a result of these and other measures, of the day-to-day work of the Factory Inspectorate, and under the stimulus of necessity, the employment of welfare supervisors, and to a lesser extent of personnel managers, increased. Nevertheless only a few factory inspectors were by chance qualified to advise on personnel management and all of them had much else to occupy their time.¹ The Ministry of Supply, as employer, had been active in setting up Labour Management Departments in the R.O.Fs,² but up to 1942

¹ At the end of the war a Personnel Management Advisory Service was established in the Ministry of Labour and special personnel management advisers were attached to the Factory Inspectorate.

² See pp. 268-9 below.

the supply departments on the whole assumed that responsibility in the matter of welfare provision and personnel management rested with the Ministry of Labour. At the beginning of 1942 the departments were taken to task for their lack of interest in these questions by the Women's Consultative Committee, a consultative committee to the Ministry of Labour. The Committee stressed the importance of personnel management in dealing with absenteeism, and urged that the supply departments should secure adequate personnel management in their contractors' works. It was particularly concerned about the shortcomings of the aircraft factories.

In the summer of 1942, when the division of responsibility between the Ministry of Labour and the supply Ministries for labour welfare was clarified,¹ it was agreed that the supply Ministries, in co-operation with the Ministry of Labour, should pay particular attention to the development of personnel management as this problem was closely connected with general management problems.²

(ii)

The Work of the Production Efficiency Board

In the second half of 1942 there was a growing recognition by the M.A.P. of the necessity for improved personnel management in the aircraft industry. A meeting of regional controllers unanimously agreed that the biggest contribution which the department could make towards improving welfare conditions was to secure a better standard of personnel management in the factories. In August a circular on the subject was issued to contractors. Nevertheless little had been done by the end of the year when the Select Committee returned to the charge that the Ministry of Aircraft Production took little if any direct interest in the welfare of workers in its contractors' works; in the Committee's view the Ministry's attitude towards its responsibilities in this matter had not in the past been progressive.³

It was the P.E.B. that was responsible for a complete reversal of the attitude of the Ministry towards personnel management and a

¹ See pp. 230-1 above.

² *Fourteenth Report from the Select Committee on National Expenditure*, Session 1941-42, 14th August 1942, para. 34. When the Essential Work Order was being drafted the Ministry of Labour had proposed to take powers to appoint personnel managers where managements were unwilling to make satisfactory arrangements. But the Ministries of Supply and Aircraft Production pointed out that there was no sharp distinction between personnel and general management and that if the Ministry of Labour had such powers it would lead to divided responsibility. It was therefore agreed that the Ministry of Labour should report cases where action was necessary to the appropriate supply Ministry which would itself take the required action.

³ *Third Report from the Select Committee on National Expenditure*, Session 1942-43, 17th December 1942, para. 61.

marked improvement in the practice of its contractors. One of the Board's members was a leading expert on personnel management. In the first six months of 1943 ten regional personnel officers, men and women who had been trained in this vocation, were appointed, and these officers held regular meetings to discuss the problems of developing personnel management in the industry. Because of the shortage of trained personnel managers four courses were held at universities for training suitable candidates from aircraft factories. Two of these were held in conjunction with the Ministry of Labour and two were held by the M.A.P. alone. In June 1943 the P.E.B. issued a series of eight leaflets setting out in full the functions of a personnel manager and the methods of organising a personnel department. These were distributed to every contractor in the industry; there were in addition heavy demands for them from firms in other branches of munitions production. It was also impressed on regional controllers that they must deal with conditions which resulted in waste of labour within the factory just as vigorously as with the problems of labour supply to the factory. In sum, no effort was spared to persuade contractors to improve their machinery for ensuring better welfare conditions, attention to the problems of individuals and groups of workers and general control of the labour in their factories.

The task was not an easy one; it has been noted that the industry was without a welfare or personnel management tradition. The control of labour under the Essential Work Order had led to the appointment of labour managers in a number of factories to deal with requests to the employment exchanges for labour, applications by employees for release and so on; and the influx of women had led to the appointment of women welfare officers. But personnel managers in the true sense of the word were relatively few. In some firms, as a result of pressure from the Ministry, they were imposed, very unsatisfactorily, on the existing organisation for dealing with labour management and welfare supervision so that labour questions were dealt with piecemeal: a fatal error. In others the need to provide a good servant of the firm with a job when his peace-time work, for example as sales manager, had disappeared led to the appointment of untrained persons.

One of the greatest difficulties was to ensure that more than lip service was paid to the idea of personnel management. Many contractors appointed personnel managers with the usual trappings of office staff, records, etc., but with only a junior status in relation to the production departments. The salaries offered, particularly in the early years of the war, were too low to attract first class recruits. Office without senior status in the firm was a negation of true personnel management; the crux of the matter lay in persuading

managements to accord full and effective recognition in practice of the high status which personnel managers should enjoy.¹ Other managements tended to think that provision of elaborate welfare schemes was the most important function of personnel managers. Such a method provided a glittering shell, but without the changed approach to labour that was necessary.

The policy pursued by the P.E.B. in face of these and other faults of commission and omission was one of persuasion rather than compulsion. This policy was relatively successful because of the experience in personnel management of members of the P.E.B. and regional personnel officers. Moreover, instead of discussing the matter generally, the P.E.B. attempted to prove by facts and figures that genuine personnel management was advantageous to the employer. For example, when contractors complained that their demands for labour to replace wastage were not being met, the P.E.B. tried to show that with good personnel management the necessary labour could be kept in the factory; or that the absence from work of certain women employees, which was dislocating production and which had not yielded to threats of prosecution or dismissal, could be reduced, say, by a minor readjustment in hours of work to allow time off for shopping. The general managers and senior staff in most factories had no time to examine cases such as these in detail; the shop superintendents and foremen were trained in the tradition of 'hire and fire', and only a minority had the time or energy to adapt themselves to deal with the new conditions created by full employment and the Essential Work Order and with the problems of transferred workers. Personnel managers on the other hand were trained to deal with just these problems and given adequate scope and authority could go some way towards solving them.

It is difficult, if not impossible, to measure the success achieved in persuading the aircraft industry to appoint personnel managers or the results achieved by these officers when appointed. An indication of the interest shown in the matter by contractors was the enthusiastic reception accorded to the leaflets issued by the P.E.B., and the attendance at the training and refresher courses run for personnel managers. A summer school arranged by the P.E.B. at Nottingham in September 1944 was attended by 134 senior personnel officers from some of the largest M.A.P. contractors in eleven different regions. The majority of these officers were from firms which had

¹ Compare the reply of the managing director of one of the leading armament firms to a suggestion by the P.E.B. that personnel management at factories for which he was responsible could be improved: 'I do not quite understand the reference to "personnel management". I object to the word "management" and I do not have a personnel manager in my works. I do not see how anyone who is not responsible for production in any way can "manage". We do however have supervisors or superintendents dealing with welfare matters.'

not considered a personnel department necessary before 1942. The pressure of the Ministry through letters and personal visits had also done much to raise the status of the personnel manager and the standards of record keeping. Moreover it seemed as if the improvements made might become permanent as the Government's use of persuasion rather than compulsion had enabled firms to move at their own pace, judging and consolidating the new methods as they were introduced.

On the other hand the accepted tests of good personnel management—the percentage of absenteeism and the rate of turnover of labour—did not, for the aircraft or for the munitions industries as a whole, show any significant improvement between 1942 and 1945;¹ only in some individual factories did the percentages fall. It can well be argued however that, since war strain was cumulative, the very steadiness of these figures in the latter years of the war was a tribute to the work of personnel managers. The influence of personnel managers was not, of course, confined to individual problems of absenteeism and wastage. They played a direct rôle in improving the physical conditions of the workers in and outside the factories and in improving co-operation between managements and men.²

(iii)

The Shipyards and the Royal Dockyards

Unlike the M.A.P., the Admiralty had no specialist regional staff to promote personnel management, but it did co-operate with the Factory Inspectorate in advising contractors on the organisation of a personnel management department and in bringing pressure to bear on them to set one up. The Admiralty's chief initiative in this field was in the shipyards; in the spring of 1942 it was agreed between the Ministry of Labour and the Admiralty that the chief responsibility for extending personnel management in the shipyards should rest with the Admiralty.

Personnel managers, and even welfare supervisors, were almost unknown in the shipyards between the wars. When the introduction of personnel managers in shipyards was first discussed in 1942, only one or two shipbuilding firms had personnel managers. One reason for this was no doubt that the industry employed very few women. Moreover during the slump there had been no money to spend on what might be regarded as a luxury; for when labour could be so easily hired and fired one incentive to managing it carefully was

¹ Indeed in 1945 absenteeism showed some increase; see p. 277 below.

² See pp. 232-42 above and Chapter XII below.

lacking. One shipbuilding firm that was a pioneer in the appointment of women welfare officers in 1942 attributed her success in reducing absenteeism to the fact that she put the fear of God into the women. This may have been both necessary and true; but it was a novel description of a welfare officer's functions and illustrated the point of view of some firms. On the other hand, it is true that shipyard managers often knew many of their workpeople personally and to that extent personnel management was less necessary. For the majority of private yards employed only between 1,000 and 2,000 workers and the management had sometimes been in the same family for generations.

The Shipbuilding Employers' Federation remained throughout the war opposed to the appointment of personnel managers proper in the shipyards. The Confederation of Shipbuilding and Engineering Unions, on the other hand, was anxious to see personnel managers appointed. But since the initiative rested with the firms they were not employed on an extensive scale.

The issue was first discussed in March 1942 at a meeting in Glasgow between representatives of government departments and the industry to consider methods of reducing absenteeism in local yards. The discussion on the extension of personnel management in the shipyards was, however, inconclusive and no further progress was made in discussion with the industry as a whole on the Clyde, although the District Shipyard Controller was able to persuade certain individual firms to appoint personnel managers. The Admiralty and the Ministry of Labour, however, made a joint approach to the industry at national level, and urged the employment of personnel managers at meetings of the Central Consultative Committee in June and November 1942.

By this time some progress had been made in persuading individual firms to appoint welfare officers, but the number which had appointed personnel managers in the true sense was small.¹ And at the Central Consultative Committee in January 1943 the employers' representatives submitted that the adoption of a centralised labour management department in shipyards was as a general rule neither desirable nor possible. In the first place the employers claimed that in the majority of the larger firms a personnel department was already in existence; but the peculiar difficulties and complexities of shipyard organisation had to be taken into account. The employers held that it was not possible to withdraw any of the functions exercised by the yard manager and they admitted that in many cases the duties of personnel management were divided between a number

¹ In June 1942 the Admiralty issued a circular to its regional officials describing in detail the functions of a labour management department.

of people. Modern labour management, however, consisted largely in just this centralisation of responsibility for all labour questions which the shipbuilders could not accept; and under pressure of work shipyard managers sometimes delegated their functions on some labour matters to clerks who were not qualified for the work. The employers also argued that men to be appointed as personnel managers in the shipyards must have experience of shipyard work. When, however, the Ministry of Labour suggested that existing staff should be seconded for training in personnel management at emergency courses, the Shipbuilding Employers' Federation replied that this was not practicable owing to the shortage of managerial staff. The number of personnel managers employed in the shipyards, therefore, was not large.

In Admiralty establishments, as in private shipyards, more welfare officers than personnel managers were appointed during the war. Welfare officers were appointed in the dockyards and in other Admiralty establishments in 1941-42, following representations by the Ministry of Labour on the need for such officers. The salaries offered were comparatively low and some of the welfare supervisors appointed were upgraded from junior positions in the dockyards. For example, at Sheerness in April 1942 an inspector of pattern-makers was appointed welfare supervisor for men, the Ministry of Labour having previously opposed an Admiralty suggestion that the safety officer should add the duties of welfare supervisor to his existing ones, with an additional allowance of £25 a year. Subsequently however salaries were improved; and the Head of Welfare Section kept dockyard welfare officers supplied with current literature on industrial welfare and personnel management and in other ways assisted them in their work.

The duties of these officers were, however, largely confined to welfare questions, such as housing and transport, advice on the running of canteens and individual case work. Even in the field of welfare many matters, such as heating, lighting, etc., were dealt with by each dockyard department individually. The work of the welfare officers did not normally include the employment functions which belonged to personnel management. These were left, in the dockyards, to various departmental officers in the main departments (e.g. constructional, engineering and electrical) and, in other establishments, to the establishment officers. Some welfare questions apart, the functions of a personnel management department were thus shared out in the dockyards among the more-or-less autonomous departments; for the Admiralty thought that it would be almost impossible to relate the functions of a dockyard personnel manager to those of the departmental managers. A factory inspector who in the summer of 1942 visited Chatham found, for example,

that new workers were engaged by senior foremen, and a man put off in one department of the dockyard would go to the employment exchange to be re-engaged by another. But in some dockyards there was more centralisation than in others—at Devonport the Woman Welfare Supervisor engaged all the women workers required and interviewed them before passing them on to the departments.

In general, however, the functions of personnel management were decentralised. This was not in accordance with accepted practice. Moreover the deputy managers who usually undertook the work had limited time to give to it and had no special training in personnel management. During 1942 the Ministry of Labour raised the question of personnel management in Admiralty establishments and the existing arrangements were reconsidered by the Admiralty. A report was submitted by the Director of Labour to the Board of Admiralty recommending the setting up of personnel departments, with staff with similar qualifications and salaries to the labour management staffs in R.O.Fs, in all Admiralty establishments except the dockyards. In the dockyards it was proposed that a small personnel department should take over the work of the existing welfare supervisors and co-ordinate the labour and welfare work carried out in the departments, gradually taking over such functions as were seen, in the light of experience, to be best handled centrally.

Opinion at Admiralty headquarters and in the establishments on these proposals was, however, divided.¹ In view of this the Board referred the question in December 1943 to a departmental committee which, owing to pressure of work in connection with the invasion of Europe, was not set up until October 1944 so that its recommendations referred to the post-war period. In a report, which was accepted by the Board of Admiralty, the committee concluded that the major dockyards were too large, and the industrial character of the various departments was too various, for it to be possible for a single labour manager to deal with the whole yard.² In the meantime, however, in some other establishments personnel questions were increasingly centralised and at the R.N. Torpedo Factory at Greenock a labour manager was appointed with similar functions to the labour managers in R.O.Fs.

The Select Committee on Estimates, which made an investigation in the dockyards in 1951, was not convinced by the Admiralty's arguments against the appointment of a single personnel manager

¹ They were supported, for example, by the Director of Armament Supplies and by the Admiral Superintendent, Devonport, but opposed by Director of Dockyards and Civil Establishments Branch.

² It recommended, however, the appointment of a personnel officer to the staff of Director of Dockyards, to co-ordinate the work undertaken departmentally in the dockyards, and the standardisation of personnel records. For the action taken on the report see *Eighth and Ninth Report from the Select Committee on Estimates, 1950-51*, pp. xxiv-xxv.

for each dockyard.¹ It is probably true to say that lack of an agreed and comprehensive policy on personnel management prevented this work in Admiralty establishments from reaching the same high standard as in the R.O.Fs.

(iv)

The Royal Ordnance Factories

For at least a year after the outbreak of war, however, the standard of personnel management in the R.O.Fs was unsatisfactory.² In September 1940 the Ministry of Labour drew attention to the low status and limited functions of the labour officers in the R.O.Fs. These officers were given insufficient authority, and their efforts to assist in the selection and allocation of labour were regarded as an intrusion. Their inferior status was reflected in their salaries which compared unfavourably with those paid by private firms and were too low to attract good recruits. The Factory Inspectorate believed that the deficiencies in welfare arrangements in R.O.Fs were due in the main to the poor quality of the welfare officers appointed. The salaries offered to women labour officers were particularly low, whereas the majority of experienced personnel managers were women and the most pressing need for skilled personnel management was in the new filling factories which employed large numbers of women workers. In October 1940, however, the salaries of women labour officers in provincial factories were increased from a maximum of £300 to a maximum of £450 a year.³

In the winter of 1940-41 a more fundamental approach to the problem of status was made by the appointment of administrative officers of manager status, at salaries of £700-775 a year, to assist the superintendents in dealing with welfare and certain other questions, such as A.R.P. and factory protection and police. At the same time the Women's Labour Superintendent at Woolwich was transferred to headquarters to deal with the welfare of women; and in Sep-

¹ *Ibid.* The evidence of the dockyard welfare officers provided numerous illustrations of the disadvantages arising from lack of co-ordinated personnel management policy within individual yards; cf. questions 2515-2570, 3272-3378.

² The history of the development of labour management in the R.O.Fs is closely linked with that of the development of headquarters machinery for dealing with labour welfare and utilisation, described on pp. 235-6 above.

³ Before that date women labour officers in provincial factories were offered £275 a year, or £300 if the factory had more than 10,000 employees, and their assistants £150. The corresponding rates for men were £400 and £250-300; higher rates were paid at Woolwich. In October 1940 salaries of women labour officers were increased to £300-400 according to the size of the factory and a special rate of £450 was authorised for certain large and difficult factories such as Chorley, Risley and Swynnerton; assistants' salaries were raised correspondingly.

tember 1941 an experienced labour manager was appointed to the Director-General of Ordnance Factories' staff as Director of Ordnance Factories (Labour). This official later resigned; and, though the Ordnance Factory Department naturally continued to have staff concerned with labour matters, the main responsibility for the oversight of personnel management passed to the Chief Labour Management Officer who was appointed in May 1942 to the staff of the Labour Department of the secretariat.¹ His deputy was an experienced woman personnel manager. The Chief Labour Management Officer was assisted by area labour managers, who helped in advising, and co-ordinating the work of, officials in the factories. The central Labour Department could not easily deal directly with each of the 40-50 R.O.Fs and area labour managers were also necessary to work with Ministry of Labour regional staff, for that Ministry's organisation was highly decentralised.

Changes had meanwhile been made at factory level. Experience showed that the factories needed officers specialising in labour management work alone. Treasury agreement was obtained in September 1941 to the establishment of labour manager posts at a salary of £700-750 a year.² Labour managers were, of course, subordinate to the superintendents of factories, though they received, through the superintendents, instruction and advice from the Chief Labour Management Officer and the area staff.³

The Ministry of Supply shared with outside industry the problem of finding suitable men and women for labour management posts. In November 1941 the Ministry started a six weeks' training course of its own for untrained assistants and Ministry staff were also released to take the courses organised by the universities. Lack of knowledge and experience was comparatively easily remedied given candidates of the right quality. In February 1945, however, the Labour Management Department in the Ministry of Supply pointed out that the unwillingness of production staff to give full recognition and support to labour management departments in some of the engineering R.O.Fs could be more easily overcome if the departments' staff were of a better calibre.

The difficulties in developing labour management were for historical reasons greatest in the engineering factories. In general, however, in the years from 1942 onwards the standard of personnel management in the R.O.Fs was high. The labour managers' work covered a very wide field and their status was as high as that accorded

¹ For the gradual centralisation of responsibility for labour questions in this Department, see pp. 235-7 above.

² In a few of the smaller engineering factories the combined posts of administrative and labour manager remained; but in most factories the administrative officer posts were regraded to factory defence officer at a lower salary for new entrants.

³ See p. 238 above.

by the best practice in outside industry. From its inception in 1941 the Labour Management Department laid great stress on taking labour fully into the confidence of management and 'making use of the initiative that comes from below'. A circular issued to labour managers in June 1942 pointed out that the stage of rapid recruitment, when it was impossible to develop the community spirit in the factories, was ending and that labour managers were faced with 'the interesting and important stage of consolidation, when factory traditions and reputations' could be built up. Labour managers took full advantage of their opportunities and shared with other officials the credit for the high standard of physical welfare and the close co-operation between managements and workers which existed in the R.O.Fs.

The strength of this co-operation was severely tested by the problems of redundancy which occupied labour management staffs towards the end of, and after, the war. At R.O.F. Aycliffe (Yorks.) departures reached a peak of over 1,000 a week and even in factories where the reduction in strength did not necessitate any compulsory discharges, programme changes and the reduction from three to two shifts and abolition of overtime necessitated many transfers within the factories. At Swynnerton over 1,000 inter-group transfers were effected within a period of five weeks.

The difficult job of selection and discharge went surprisingly smoothly and the atmosphere in the factories remained friendly.¹ In some R.O.Fs, it is true, the task of selection was made easier because the factories employed large numbers of women workers who were waiting to be allowed to leave. A broad indication of the order in which releases were to be made was given in a White Paper of November 1944.² In the R.O.Fs there was the closest co-operation between factory managements and district trade union officials, Whitley representatives, shop stewards and convenors, who gave considerable help in the compilation of lists of employees to be released or discharged. The managements did their best to assist workers due to be discharged to find other employment. In no case were people discharged on redundancy with less than fourteen days' notice. Labour management departments co-operated with local Ministry of Labour officials in securing the rapid re-absorption in alternative work of redundant workers. For example, Kirkby R.O.F. in Cheshire lent five Labour Department staff to the Ministry of Labour as interviewing officers, and with their help nearly 2,000 employees were interviewed and the majority placed

¹ One R.O.F. reported that in its neighbourhood there was a mass demonstration by workers experiencing redundancy which representatives from the R.O.F. were invited, and refused, to join.

² Cmd. 6568. See also H. M. D. Parker, *op. cit.*, Ch. XVI.

in a remarkably short space of time. In some factories the internal broadcasting system and posters were used to notify vacancies elsewhere; and talks on alternative employment by, for example, representatives of the Women's Land Army were given on factory premises. Individual problems about unemployment benefit, the position of disabled workers, interrupted apprenticeships, reinstatement in former employment, and so on, were legion, and labour management departments became minor Citizens' Advice Bureaux.

Until the summer of 1943 the labour management organisation concentrated nearly all its attention on the R.O.Fs. At a meeting of area labour managers in August 1943, however, it was suggested that increasing attention should be paid to other Ministry of Supply establishments, such as experimental and research establishments and storage depots, and approaches were also made to the regional organisation with offers of assistance in their work with outside industry.

(v)

Absence from Work and Idle Time

Personnel managers devoted a great deal of time to the problem of absenteeism. Even more than the other subjects with which these chapters deal, absence from work was not a self-contained problem. It was one among several of the reactions of individual workers to the web of influences and problems which encircled them in the home and in the factory in war-time; and it could be reduced by improvements over the whole field of industrial relations and welfare, inside and outside the factory. Nevertheless absenteeism was comparatively easily measurable and its effect on output obvious, so that much publicity was given to it throughout the war and much time and effort spent by government departments and by industry in devising special measures to reduce it.

(a) 1939-41: INADEQUATE RECORDS AND SUPERFICIAL JUDGMENTS

In the supply Ministries themselves little serious attention was paid to the problem of absenteeism from the outbreak of war to the end of 1941. In these years headquarters officials and such labour departments as existed in the factories were mainly concerned with recruitment. This was particularly so in the R.O.Fs and other new factories. When the foreman and managers received almost daily surprises in the shape of fresh arrivals and frequent departures, they could not be expected to make a careful distinction between who was 'present' and who was 'absent' and to deal with the culprits. Moreover after

May 1940 extremely long hours were worked and the complications of air raids and dislocated transport were added to existing war-time discomforts, so that few of the managerial staff had the heart to criticise workers who absented themselves.

Absenteeism had in any event a limited effect on production at a time when it was frequently held up through other causes. Accurate information about the idle time which resulted from hold-ups in production was very hard to come by.¹ But there was undoubtedly considerable idle time in the factories in 1940-41. Difficulties in the regular supply of raw materials and machine tools and the inevitable set-backs encountered in starting up a new plant with inexperienced workers and management, as well as the dislocation caused by air-raids,² made waiting time unavoidable. In the aircraft factories changeovers in production, which always led to idle time, were frequent in the early years of the war. Added to these difficulties there was in some establishments, including R.O.Fs, overstaffing to the point of overcrowding. In these circumstances the card games and knitting which helped to pass the time were scarcely culpable—though they proved splendid copy for the press—and a day off now and then could be seen in an almost patriotic light. To the individual worker, apart from those in certain key sections and in particular periods, absence from work appeared a minor misdemeanour.

As production got into its stride, however, absenteeism was seen in a more serious light;³ and when labour strengths had been to some extent built up managements and government departments could more easily turn their attention to it. Adequate records were essential before absenteeism could be tackled satisfactorily. They were needed to reveal how much of it was due to sickness or other genuine causes and how much of it was culpable; to make possible comparisons between firms whose circumstances were comparable; and to enable

¹ Apart from time lost through deliberate slackness on the part of the workers, there were two types of idle time: open and disguised; the former occurred when men were forced to stand idle for lack of materials or components and the latter when they worked slowly on a particular job because they feared that at the end of it there would be no work to do. Managements were often in a position to offer alternative work but this would usually be paid on a time rate basis and be less skilled than the man's normal work. The extent of idle time was very difficult to determine. The M.A.P. collected statistics from the main airframe and engine firms on the extent of open idle time. But these were not always accurate because the existence of idle time was a reflection on a firm's efficiency; moreover, if it came to the Ministry of Labour's knowledge that Ministry might withdraw labour from the firm. It was also difficult to separate fact from fiction in the evidence about idle time put forward by shop stewards and others concerned.

² For a vivid account of the dislocation caused by a direct hit on the Birmingham Small Arms Company's factory at Small Heath in November 1940, see D. M. Ward: *The Other Battle* (1946), Chs. VIII—X.

³ Some complaints of idle time persisted during 1942-43; they were directed particularly at the aircraft factories, where the difficulties of planning quantity production and the dislocation caused by changeovers in types were very great. Cf. *Eighth Report from the Select Committee on National Expenditure*, Session 1941-42, 26th March 1942; and see p. 325 below.

factories to keep efficient track of individual offenders and to prepare evidence for prosecution when that was necessary. The causes of absence were often highly individual, but an analysis of the causes might reveal that a considerable amount of absenteeism had its origin in a simple common cause, such as lack of shopping facilities, which could then be eliminated.

Until 1942 the statistical information available on absenteeism was meagre. In many firms the statistics available covered only a forty-seven hour week; some firms included all absenteeism, others only sickness absenteeism.¹ Such returns as were made by the R.O.Fs were unreliable and not comparable with each other. From September 1940 onwards some figures were collected at the main airframe and some engine firms by resident officers of the Directorate of Aircraft Production. These, however, made no distinction between avoidable and unavoidable absence and at least one large aircraft firm failed to provide any statistics, saying they were not available in the works. In 1941 an effort was made to extend both the scope and the quality of the returns, but still only fifty of the main airframe and engine contractors were covered; and as late as August 1942 a senior official in the M.A.P. could say that it was well established and known to all in the Ministry that the monthly return of man-hours lost was not merely incomplete but dangerously misleading.

Little information was available about the causes of absenteeism in the shipbuilding industry. When a sub-committee of the District Consultative Committee on the Clyde made an enquiry into absenteeism early in 1942 it was found that very few shipbuilding firms kept records distinguishing between absence for genuine causes and deliberate malingering. The firm chosen as the subject of special enquiry possessed comparatively detailed records, but used the crude and quite inaccurate yardstick of regarding as avoidable all time lost in a given period in 1941 in excess of that lost in the same period in 1939. Time lost in the second quarter of 1941 for example was six per cent. compared with three per cent. in the second quarter of 1939.

Since little was known of the true causes of absenteeism, the attitude towards it depended very largely on the observer's point of view, and before long two approaches revealed themselves. Some employers, politicians and, to begin with, some officials implied that a great deal of war-time absenteeism was culpable and regularly used the word absenteeism with a derogatory meaning. This point of view was implicit in the reasoning of the shipbuilding firm referred

¹ Cf. Industrial Health Research Board, *Hours of Work, Lost Time and Labour Wastage* (1942), p. 2.

to above. In discussions in M.A.P. it was often assumed that absenteeism was not in any measure due to conditions in the factories or to inadequate transport or day nursery facilities. It was accepted that responsibility rested entirely with the individual workman and that only disciplinary action or measures to curtail Sunday working and limit high earnings were called for. Similar views prevailed elsewhere. In fact the Clyde Committee already referred to, which consisted of Ministry of Labour and trade union officials, found absenteeism and bad time-keeping highest among the younger workers and condemned their irresponsibility and excuses—one of the most frequent was the evacuation of their mothers. The Committee saw the remedy in stronger discipline, the setting up of special tribunals and in propaganda.

The disciplining of some offenders was clearly necessary; but the Admiralty Welfare Officer put forward on this occasion the other point of view about the treatment of absenteeism when he emphasised the need for the appointment of personnel managers in the shipyards and better welfare supervision for younger workers.¹ This dual approach to the problem, with the Ministry of Labour, supported increasingly by the supply Ministries, as the strongest advocate of better conditions, and the employers' organisations as advocates of better discipline, recurred to some extent in the policy discussions throughout the war. Since disciplinary measures were until 1942 unsatisfactory² and conditions of work were never perfect it was natural for each side to emphasise the failings of the other and for each to overstate its case.

A compromise was, however, found as early as the spring of 1941 in the provisions of the Essential Work Orders. These not only made it impossible for workers to leave or to be dismissed without the permission of the national service officers but gave these officers, in consultation with committees set up for the purpose in the shipyards and, later, in the factories, powers to issue directions to persistent absentees and latecomers; defiance of these directions made the offenders liable to prosecution. The restrictions on freedom of movement and provisions for disciplinary action were, however, counter-balanced by the provision that before a factory was scheduled conditions of work had to conform to certain standards laid down by the Ministry of Labour.

This provision of the Essential Work Order helped to remove some

¹ Cf. C. H. Northcott, *op. cit.*, pp. 80 ff. He quotes the Chief Inspector of Factories, who wrote in his *Annual Report* for 1941: 'To understand the problem of absenteeism it is necessary to appreciate the tremendous sacrifices made by such a large proportion of the workers in accepting what amounts to a destruction of their home life. . . . The matters dealt with under any "welfare" effort become very trivial when compared with a person's home life.'

² See p. 283 below.

of the causes of absenteeism in the factories. Outside criticism also acted as a spur to positive action on the matter. Press criticisms of the amount of absenteeism in R.O.Fs were frequent towards the end of 1940 and in 1941 and in the course of 1941 the Select Committee on National Expenditure took both the Ministry of Supply and M.A.P. to task for the amount of absenteeism in the R.O.Fs and the aircraft factories and for their lack of attention to the problem.¹

(b) 1942-45: A MORE DETAILED APPROACH

During 1942, absenteeism ceased to be a subject which was ignored or which simply 'appalled'. Close attention was given to it by the Ministry of Labour and the supply Ministries at headquarters and in the regions and by managements in private industry and government establishments alike. For example, early in 1942 joint investigations by Ministry of Labour and M.A.P. officials were made into the position at some twenty aircraft factories. While these investigations were limited in their results, they established that absenteeism was the symptom not of one sickness but of several and that several types of treatment were necessary. In particular a strong recommendation was made that welfare and personnel managers should be appointed in firms to investigate absence and to keep accurate records.

The statistical information available was subsequently improved. From June 1942 onwards accurate and detailed records were kept by the R.O.Fs. At the end of 1942 the M.A.P. extended the scope of its absenteeism returns to cover some 300-400 firms; but the decision of the Ministry not to ask for figures of planned man-hours made impossible the calculation of percentages of absenteeism and any accurate comparisons between firms. Only the Ministry of Labour had powers, under the Essential Work Order, to compel firms to provide full information; and in May 1943 it was agreed in inter-departmental discussions that the Ministry should use its powers to obtain from firms in the munitions and other selected industries returns on absenteeism based on a standard form of record.² In practice, however, the Ministry of Labour did not compel firms to provide these returns. It approached firms which were likely to have adequate records, and firms which could not provide the information required were excused from making any return. The sample, which initially covered some 120,000 workers, was therefore strongly biased in favour of firms with good labour management.

¹ *Fifteenth, Seventeenth and Twenty-first Reports from the Select Committee on National Expenditure*, Session 1940-41, May, July and August 1941.

² In September 1942 the Ministry of Labour had issued to firms in the munitions industries a pamphlet on *The Problem of Absenteeism* which recommended this form of record.

Information about absenteeism in the shipyards remained even more incomplete. Thanks mainly to the importunity of local Admiralty officials some fifteen Clydeside yards had by the end of 1942 adopted a card index system of recording absenteeism, similar to, though not identical with, that recommended by the Ministry of Labour.¹ A number of firms on the North-East coast also made returns on absenteeism to their employers' association and to the Admiralty in 1944. These were chiefly to support their contention that absenteeism made regular overtime and Sunday working uneconomic² and, although the Admiralty would have liked them to continue, they were discontinued in December 1944. There was, moreover, some doubt about the accuracy both of the Clyde and North-East coast returns.³

No other shipbuilding or repairing districts possessed comprehensive absenteeism statistics, although of course some individual firms kept their own records in a systematic way. In August 1944 the Admiralty agreed to a proposal by the Lord President's Committee that, as a preliminary to action to reduce absenteeism in the shipyards, it should co-operate with the Ministry of Labour in extending to the shipbuilding industry generally the return made by many engineering, and by a handful of shipbuilding, firms.

The Shipbuilding Employers' Federation was, however, opposed to this suggestion. A similar proposal was made at the Central Consultative Committee as early as February 1942, when the employers argued that the keeping of detailed records would require more clerical staff than the firms could provide or the results would justify, though they agreed to consider the use of a card index system for cases reported to Yard Committees.⁴

In 1944 further objections were made to the proposed system of recording absenteeism. Many ship repairing firms opposed its intro-

¹ In contrast to the Ministry of Labour return the Kardex system used on the Clyde did not analyse the causes—sickness, leave, etc.—of legitimate absence and it did not include late arrival; on the other hand, unlike the Ministry of Labour form, it distinguished between adult male workers and youths and boys.

² See p. 312 below.

³ When the Clyde Shipbuilders' Association produced a different set of figures, showing higher absenteeism, to support their demand for the abolition of regular Sunday work it was suggested by the Association that in their returns to the District Shipyard Controller the firms tried to put a good face on the amount of absenteeism in their respective yards. Nor were the firms' returns to the D.S.C. strictly comparable with each other, although the Control arranged them in order of merit and circulated them to firms and to Yard Committees in order to create rivalry. On the North-East coast the Controller's office had to insist on the exclusion from the list of absentees in ten firms of over 400 workers who had been absent for more than three months, the majority on sick leave, but 140 for reasons unknown.

⁴ Director of Dockyards also rejected the system of interview and record recommended by the Ministry of Labour as unsuitable for the dockyards and involving too much time. The experience of a Clyde firm was, however, that the more efficient card index system of keeping track of absentees took up little more time than the firm's original, less systematic, methods.

duction because their workers were scattered over a wide area and it was therefore difficult to interview returning absentees, although some repairing firms found it worth while. The Shipbuilding Employers' Federation also opposed the adoption of the Ministry of Labour return because it was not comparable with the records already kept by the Clyde firms. The Federation argued, further, that, because of the particular character of the shipbuilding industry and of divergences in practice between new and repair work, the returns would be of little value for comparative purposes either between shipbuilding and other industries or between individual yards. For example, absenteeism on new work, where many men were piece workers, was considerably higher than among the time workers on repair work, where, however, considerably more time was lost than on new construction through slacking at work. The Admiralty was bound to accept this argument; and though it wished to see the shipbuilding firms keep detailed and standard records of absenteeism, it felt unable to compel them to do so at that stage in the war.

An analysis of the returns made to the Ministry of Labour showed that absenteeism did not noticeably decrease between 1943-45, in spite of the increased attention paid to it. But neither did it increase—until 1945—in spite of cumulative strain and the long period of waiting for D-Day, which helped to produce a crop of short strikes and go-slow movements.¹ In considering the results of the Ministry of Labour enquiry it must be remembered that the firms making returns were those with the best developed personnel management departments;² returns from a wider sample of firms might have revealed a higher average rate of absenteeism. Moreover it was always difficult to be sure that figures from individual firms were comparable.³ The results of the Ministry's enquiry showed that on an average for all firms making returns absence from work among men fluctuated in 1943-44 between about six and eight per cent. of man-hours worked and among women between about twelve and fifteen per cent.; it increased somewhat in the early months of 1945. There

¹ See pp. 395-6 below.

² See p. 275 above.

³ Different firms, for example, had differing views as to what constituted a reasonable excuse; and it was not easy to obtain accurate and uniform figures of planned hours. Moreover the figures were not strictly comparable over a period because they were collected from a widening circle of firms, mostly in the munitions industries but also in road transport, textiles, laundries, etc.

The nature of the statistics makes it difficult to compare the position in the shipbuilding industry. As presented to District Shipyard Controller the Clyde figures were supposed to include only avoidable absenteeism, but unavoidable absenteeism was only gradually excluded from them. This alone may account for a drop in the amount of absenteeism between 1942-43. Avoidable absenteeism among men during normal hours was, according to the returns, 3·2 per cent. of man-hours worked in June 1942 compared with 2·3 per cent. in June 1943 and 3·8 per cent. in December 1942 compared with 3·1 per cent. in December of the following year.

was, however, a wide variation in the extent of absenteeism between firms.

Absence from work in all sections of industry was thus about twice as high among women as among men, and was higher among married than among single women. Both for men and women certified sickness¹ accounted for about one-half the total man-hours lost, and all unavoidable absence for about three-quarters. In reality of course there were many borderline cases between avoidable and unavoidable absenteeism. The figures showed a seasonal trend with high absenteeism in midsummer and midwinter, attributable to sickness in winter and the fact that workers absented themselves before and after holiday periods more than at other times.

One other fact which came out strongly in more detailed enquiries was that the causes of absence were often highly individual. There was, for example, the gentleman interviewed by investigators in an aircraft factory who complained of indigestion; his foreman, however, said he was a gipsy and went poaching, but was a very good worker. The Industrial Health Research Board was invited by the Ministry of Supply in August 1942 to make an investigation of the individual case histories of a representative group of workers at R.O.F. Bridgend, and concluded that 'the main causes of absenteeism do not recur regularly. There is a need for personal study of causes of absenteeism and an individual method of treatment'.

(c) ABSENTEEISM IN THE R.O.F.s

This advice was closely followed by the labour management departments of the R.O.Fs. Their efforts to combat absenteeism were very thorough and merit particular attention as an indication of the problems which arose in industry generally and of the best practice in dealing with them.

The extent of absenteeism in the R.O.Fs varied very widely according to the type of factory concerned. At Woolwich Arsenal, for instance, the amount of absenteeism was low, but in some of the filling R.O.Fs in remote areas it was unquestionably high. The returns made by all R.O.Fs to the Ministry of Supply showed higher average rates of absenteeism than the average rates revealed by the Ministry of Labour enquiry, quoted above; but the two sets of figures were not comparable. This was partly because conditions in the two groups of factories were different—shift working for example was far more extensively practised in the R.O.Fs than in private industry and many R.O.F. employees had very long journeys to work; moreover, the two sets of statistics were compiled on a different basis. In 1943-44 absenteeism in all the R.O.Fs fluctuated between seven

¹ In order to prevent abuses the Ministry of Labour and the British Medical Association agreed late in the war on a revised, more precise, form of certificate.

and ten per cent. for men and fifteen and twenty-one per cent. for women. In the first half of 1945, when absenteeism in the trade factories among both men and women workers rose somewhat, absenteeism among women in the R.O.Fs was at least held at approximately the same level as before. At all times absenteeism was particularly high in the filling factories with their many women workers.¹

In a report of July 1942 the Select Committee on National Expenditure criticised the high rate of absenteeism among men and women in all types of R.O.Fs. In the last week of May only three among all the factories had an absentee rate for women lower than ten per cent. of man-hours worked and at four factories, all engaged in filling, the percentage was higher than twenty per cent. And, continued the Committee, although this problem had been considered in previous Committee reports, 'no serious attention has been given to it in Royal Ordnance Factories by the Ministry of Supply'.²

Conditions in the R.O.Fs in the early war years had, however, been very difficult,³ and by the time the Committee's report was published its criticisms were somewhat out of date. The Ministry of Supply Labour Committee, formed in April 1942, had treated absenteeism as one of its main problems and in June set on foot a reliable system of record keeping in the Ministry's establishments. In the factories it was becoming generally accepted that the interviewing on return of every individual absentee was an essential first step in the control of absenteeism.

The Select Committee, however, made the valid point that too many authorities in the Ministry—the Labour Management organisation, the Chief Medical Officer, the Director of Planning and the Director of Public Relations—had been concerned with the problem of absenteeism. To end this confusion the labour departments in the factories, acting under the superintendents, were given sole authority. As the Minister told the House of Commons,

Headquarters can guide policy in these matters. They can examine the causes and formulate remedies. They can initiate

¹ In the first five months of 1943 absenteeism in the R.O.Fs as a percentage of man-hours worked was as follows:

| 1943 | Men | | | | Women | | | |
|----------|---------------|---------|-------------|--------------|---------------|---------|-------------|--------------|
| | All Factories | Filling | Explo-sives | Engineer-ing | All Factories | Filling | Explo-sives | Engineer-ing |
| January | 10.2 | 11.1 | 8.2 | 10.2 | 21.7 | 23.1 | 19.8 | 20.4 |
| February | 9.3 | 10.0 | 7.5 | 9.4 | 19.8 | 21.1 | 17.9 | 18.6 |
| March | 8.9 | 9.5 | 6.8 | 9.0 | 18.4 | 19.5 | 16.5 | 17.5 |
| April | 7.8 | 8.2 | 6.2 | 8.0 | 17.4 | 18.4 | 15.3 | 16.7 |
| May | 7.4 | 8.0 | 6.0 | 7.5 | 17.7 | 17.7 | 14.4 | 15.9 |

² *Eleventh Report*, Session 1941-42, *op. cit.*, paras. 42-5.

³ Cf. Minister of Supply, H. of C. Deb., Vol. 382, Col. 1078-1080, 5th August 1942.

ideas and they can effect interchange of experiences. They can organise a steadier flow of work—and that is very important. Headquarters can do all these things but it is in the factory itself that the problem must be effectively tackled in the end.¹

A fortnight after the debate in the House on the Committee's report a comprehensive circular on policy and procedure was sent to all production departments, superintendents and labour departments. The speed of this action and the comprehensive approach, which required little subsequent modification, showed that the Ministry was not unprepared.

The interrogation of returning absentees proved the biggest problem of organisation, but with an increase in labour department staffs this interviewing was carried out satisfactorily. Those who were persistently absent without excuse were given a series of gradual warnings, culminating in arraignment before factory committees and the national service officer, who could in the last resort prosecute them.² But the labour departments did not wait for absentees to return before enquiring into the reasons for their absence. In most factories workers who were absent more than three or four days without notifying the factory were sent letters by the labour departments enquiring why they were away. If no satisfactory reply was received a district visitor was asked to call personally on the worker in question. The district visitor system, which in August 1942 operated only in a few filling factories, had been extended to twenty-two factories by April 1943, and by November 1943 all but six of the forty-two R.O.Fs were employing district visitors. Their work consisted as much in establishing the facts about absence from work as in discouraging unnecessary absence among individual employees.

Particular care was taken in the selection of men and women for this work. For, unless tactfully made, enquiries at the homes of the workers by relative strangers could easily have led to resentment. People with 'missions' were therefore avoided and the qualities sought for were kindness, tact, common sense and, if possible, some local standing. The visitors were given short training courses in the layout, production methods and administration of the factory. The combination of careful selection and training of district visitors was effective and in general the workers raised no serious objections to their activities.³ By June 1943, 101 district visitors were attached to R.O.Fs and they were making some 15,000 visits a month. At its peak the number of district visitors rose to 130, undertaking some 20,000 visits a month. Few absentees could claim that they 'didn't

¹ Cf. Minister of Supply, H. of C. Deb., Vol. 382, Col. 1079-1080, 5th August 1942.

² Cf. p. 283 below.

³ The shop stewards at Woolwich, however, refused to agree to the operation of the scheme.

know they were needed'. The system of district visitors was by no means an entirely new one, but it had never before been operated by an industrial undertaking on such a scale.

The experience of the labour departments in dealing with absentees proved how complex the problem was and countered easy generalisations that there was a single cause or a few chief causes of absence, such as 'idleness', 'high wages' or 'long hours'. Nevertheless their enquiries obviously revealed a number of common causes of absence, arising from circumstances both inside and outside the factory. These circumstances—morale, earnings, hours of work, factory environment, accident hazards, on the one hand, housing, transport, day nursery provision, shopping facilities, on the other—comprised nearly the whole of war-time labour problems, some of which are dealt with elsewhere in this book. A few of the reasons why some of the workers in the R.O.Fs—and in other factories—were particularly prone to absenteeism may, however, be mentioned here.

A number of R.O.Fs were located as a matter of policy in the 'special' or 'depressed' areas. The men and women recruited to these factories had been through long spells of unemployment; and malnutrition was common amongst both young and old. It was no easy task to convince these workers after consecutive weeks, months, or years of idleness that one or two days' absence from work was of great importance; and absence through sickness was bound to be high.

At some R.O.Fs married women represented an important proportion of the labour strength. For example, at R.O.F. Spennymoor in County Durham about seventy-five per cent. of the employees were married women, many with husbands in the mines. At R.O.F. Aycliffe in the same county eighty-five per cent. of the production strength were women; some sixty per cent. of these women were married, many with young children to care for. The average age of the women in this factory was thirty-four years but well in excess of 1,000 were over fifty years of age. Since much of the labour was drawn from the mining villages, the women's husbands usually worked in the local pits. Domestic responsibilities were heavy because clothes needed constant washing; nor did the colliery shifts coincide with those at the R.O.F.

The fact that a large proportion of the workers in the R.O.Fs had been directed there under the Essential Work Order—and the proportion grew as the war went on—increased the amount of absenteeism. The resentment of the 'conscripts' at being forced to work in a factory and to live in strange surroundings away from their homes and families and accustomed amusements¹ often found expression

¹ Cf. p. 250 fn. 3.

in a day off from work. The subsequent interview with the Labour Manager or District Visitor was an opportunity to let off steam. A friendly welcome in the hostel and factory helped to remove this resentment, but could never dispel the air of unreality and apparent pointlessness in trying to adapt yourself to a locality which you intended to leave at the first opportunity and to become efficient at a job you would never have to do again. Many directed workers lived only for the 'long weekends' about once every three weeks, and holidays. Their timekeeping and work were good but their interest concentrated on the next opportunity to get home. Absences on the days following long weekends and holidays were high among this group of workers.¹

An allied problem was the lack of tradition in the majority of R.O.Fs which made discipline more difficult and weakened the workers' sense of responsibility. The fact that employees knew that with peace they would be dispersed to all corners of the country did not encourage a strong sense of community; moreover, when the individual worker was one among, say, 10,000 it was difficult to expect him to accept any large share of individual responsibility. The emphasis in the first two and a half years of the war on labour supply and recruitment with scant attention paid to the reception, well-being and utilisation of the fresh entrants made a difficult problem worse.

Late in 1941, however, carefully thought out reception and training schemes for new entrants were introduced in some filling factories and a full-time Director of Training was appointed. Similar schemes were later introduced in other establishments where it was warranted by the rate of recruitment, and the newcomer was made to feel from the start that he or she had an important part to play in the factory.² Further, injured and sick workers returning to work were helped to regain their confidence or develop new skills.³ Separate shops, or sections of a shop, where workers were employed under medical supervision on specially selected jobs, were established in six of the larger factories late in 1943. The machines and operations were sometimes adjusted to assist in the workers' rehabilitation. But rehabilitation was successfully carried out in smaller establishments by the intelligent use of existing facilities combined with careful job selection. Such schemes were an earnest to the

¹ Absence in R.O.Fs before and after set holidays was, however, rather lower than in trade firms. This was largely due to the R.O.Fs' rule that workers absent on the day before or after an 'R.O.F. paid holiday' forfeited their 'common time' payment for the holiday.

² Industrial publicity, which was a further means of developing a sense of responsibility for production, is discussed on pp. 368-71 below.

³ The fear and anxiety which resulted from work on explosives accentuated the difficulties of dealing with sickness absenteeism in the R.O.Fs.

workers of the management's concern for them and invited a corresponding loyalty.

When the age grouping, home responsibilities, health and morale of sections of the workers were taken into full consideration, however, the labour departments were compelled to recognise the inevitability of a large proportion of the absence from work. The Ministry therefore insisted that, wherever possible, prior application for leave should be made. This system was welcomed on all sides. It enabled the production departments to make the necessary arrangements in the shops, made it possible for the workers to obtain time off with a free conscience and reduced the number of absences requiring investigation by the labour departments. By October 1943 it was becoming the general practice for workers who expected to be absent to apply for leave.

(d) JOINT COMMITTEES AND DISCIPLINARY MEASURES

As the war progressed, therefore, increasing attention was paid in the R.O.Fs and elsewhere to combating absenteeism by improving conditions of work, by personal interviews with the offenders and by such measures as the extension of shopping facilities or the revision of hours of work. There remained those who persisted in absenting themselves without good cause. Public opinion was brought to bear on these offenders by bringing them before the Factory and Yard Committees established under the Essential Work Orders to deal with absenteeism.¹ The Committees were also part of the machinery for disciplinary action which had to be taken against those who were impervious to public opinion or to the threat of prosecution. This machinery was gradually improved in the course of the war by revisions of the disciplinary clauses of the Orders.

In the shipyards Yard Committees were established under the Shipbuilding Essential Work Order of March 1941. The Order provided for the reference of cases by the shipyard manager to the national service officer who would then, if necessary, refer them back to the Yard Committees for advice before issuing directions. The worker concerned could appeal against these to the Local Appeal Board. If the directions were upheld and the man refused to obey them he could be prosecuted.

This procedure was very slow; and on the Clyde there had been only sixteen convictions under the Shipbuilding Order by the end of January 1942, partly, it is true, because an inadequate number of cases had been brought before the national service officers. The

¹ Other devices were also used. For example, in some factories, including the filling R.O.Fs, workers paid under the incentive bonus schemes were as far as possible grouped in gangs; as the earnings of a gang depended on the work and attendance of its members it was hoped that gang pressure would reduce unnecessary absence.

national service officer was frequently the employment exchange manager and it was clear that men had very little fear of being brought before the clerks who frequently deputised for him in this matter. The position on the Clyde did not much improve until the spring of 1942 when a senior official was appointed to supervise the work of the national service officers.

At this time also, however, both the Shipbuilding and the General Essential Work Orders were revised. Absentee Committees were to be established in the engineering industry, where they had not previously existed; and cases of absenteeism, persistent lateness and indiscipline were to go through the Factory or Yard Committees to the national service officers in the first instance and would not therefore, as had been the case in the shipyards, have to be referred back to these Committees.¹ The Orders were also revised to allow immediate prosecution for absenteeism and lateness without the prior issue of directions; in practice the national service officers usually issued a warning before proceeding to prosecution. Complaints of slowness in the procedure continued but, as a result of the revised procedure and of the activity of the Committees and national service officers, an increasing number of workers were sentenced for absenteeism or bad timekeeping to fine or imprisonment. On the Clyde, for example, while there were only forty-two convictions under the Shipbuilding Order between January and August 1942 by April 1943 they had reached fifty in that month alone.

Powers if not used fell into disrespect, and the prosecution of the worst offenders had a good effect; but prosecution could never be used on a large scale without causing resentment and discontent among the body of workpeople. It was difficult, however, to find an effective summary punishment in time of war. A revision of the General Order in 1941 and of the Shipbuilding Order in 1942² allowed the employer to suspend a man for three days, but this was not the most fitting punishment for the persistent absentee; it also allowed an employer to dismiss a man for serious misconduct, subject to appeal, but this was of equally little value when he could probably get a job in the firm next door—and was perhaps deliberately absenting himself with this end in view. Particular firms and industries devised their own more effective sanctions. In the R.O.Fs a worker returning from absence was placed in a pool of workers paid on time rates and had to wait his turn before going back to the higher earnings on incentive bonus. A suggestion that for every day absent

¹ S.R. & O. 1942, No. 583, Essential Work (General Provisions) Amendment Order 1942, 25th March 1942.

² S.R. & O. 1941, No. 1051, 18th July 1941, Essential Work (General Provisions) (Amendment) Order; S.R. & O. 1942, No. 266, Essential Work (Shipbuilding and Ship-repairing) Order, 1942.

without leave a worker should forfeit a day of his annual paid leave was, however, rejected. But workers absent on the day before or after an R.O.F. paid holiday forfeited their 'common time' payment for the holiday. In some shipyards men were not allowed to work on Sundays unless they had worked a full week; though under this system absenteeism on Mondays tended to rise. The employers' organisations several times urged the setting up of tribunals with powers to exact fines not exceeding £5, on the lines of the Munitions Tribunals of the 1914-18 war; but the Minister of Labour argued that, from the experience of those Tribunals, workmates would pay the fines, and that he was not in any case going to single out one section of the community for special treatment.

The Minister of Labour on his side pressed the employers to make full use of Joint Committees in dealing with absenteeism. But managements were sometimes reluctant to set up these Committees, and, on their part, men were unwilling to serve on committees to discipline their fellow workers. Nevertheless many establishments set up Absentee Committees. Their effectiveness varied with the attitude of the workpeople's representatives and with the speed and nature of the national service officer's action on the cases referred to him. For example the delay of two to three months in bringing prosecution cases which was reported by fourteen R.O.Fs in October 1943 was held to weaken the authority of the Committees; but this could only have had a short term effect as after eighteen months' working all but six of the factories reported that the Committee's recommendations to prosecute were generally accepted sooner or later.

(e) ADMIRALTY ESTABLISHMENTS AND THE ESSENTIAL
WORK ORDER

That the effectiveness of the Committees' work depended on the existence in the background of the sanction of prosecution was illustrated by the experience of the royal dockyards, where this sanction did not exist. Absence without leave in the dockyards was said in 1942 to be less than one per cent. of man-hours worked. This figure was not, however, comparable with any of those quoted above because dockyard employees were allowed twelve days' unpaid leave a year in addition to a week's paid leave and public holidays.

Procedure for dealing with absenteeism and indiscipline in the dockyards differed from that in private industry, chiefly because the dockyards were not scheduled under the Essential Work Order. When the Shipbuilding Order was made in 1941 the Admiralty was very anxious that the dockyards should remain outside the jurisdiction of the local Shipbuilding Controls and that the Dockyard Department should be able to transfer labour at short notice between

yards.¹ It was agreed with the Ministry of Labour that the yards could be scheduled without bringing them in any way under the control of the district shipyard controller; the admiral superintendents were to act as district shipyard controllers for their respective yards. The Ministry of Labour was perfectly willing that the national service officer should be entirely guided by the admiral superintendent, as by the district shipyard controller in private industry, as far as the priority of the work was concerned; but it insisted that the decision on a man's personal ability to move should rest with the national service officer.

The Admiralty accepted this, and the dockyards were about to be scheduled, when the Ministry of Labour asked for an assurance that the Admiralty would observe the provisions of the Order, which could not be made legally binding on government departments, that there should be no dismissal without the permission of the national service officer and that a guaranteed wage should be paid. This assurance the Admiralty was reluctant to give. Moreover in the meantime some misunderstanding made the Admiralty think the Ministry of Labour had gone back on its assurances about inter-dockyard transfers; and in November 1941 the Admiralty decided not to ask for scheduling of the dockyards. It may be noted that the trade unions for their part had no objection to the decision against scheduling and had in fact been apprehensive lest men should be subject to transfer to private industry and thus lose the prospect of establishment.

The Ministry of Labour remained firm in its refusal to grant the privileges of scheduling unless the Admiralty accepted its obligations. Thus, except in rare cases of workers with special knowledge or skill, it would not compel men to enter or remain in dockyard employment. But although the scheduling of the dockyards was considered again both in 1942 and in 1943, when the Admiralty was discussing remedies for absenteeism, the decision against scheduling was never rescinded. It was argued that the Essential Work Order had had the opposite effect on discipline in private industry from that intended—a judgment which took perhaps too little account of the influence of full employment; that the application of the Order to the dockyards would limit the power of the Dockyard Department to send established men abroad, and would tend to transfer the management and control of dockyards from the admiral superintendents to Ministry of Labour officials and make disciplinary measures subject to a Yard Committee. The dockyards were therefore never scheduled, although certain other Admiralty establishments were.

Thus the only punishments available in the dockyards for absence

¹ See pp. 112-15 above.

without leave and indiscipline were suspension, discharge and deprivation of overtime. Discharge was a very effective sanction on established personnel, but the worst offenders were unestablished workers, particularly labourers; in their case suspension and discharge were largely ineffective because they could often get as good or better jobs elsewhere. In 1943 the Admiralty proposed to give the admiral superintendents powers to fine men, the proceeds to go to a local charity, but the trade unions objected, countering with a proposal to give Joint Committees powers to deal with absenteeism and indiscipline, as Yard Committees did in private industry.

The Admiralty agreed that such a Committee should be established experimentally at Rosyth.¹ The heads of departments at Rosyth opposed the proposal on the grounds that it reflected on their capacity to maintain discipline; they also complained of the growing tendency for the trade union side to attempt to obtain more and more control of the management. But they were reminded by the Admiralty of the Government's policy to encourage joint consultation, and the Committee was set up. It had, however, little effect in reducing absenteeism among the worst offenders; they treated the Committee with contempt, chiefly, as the Admiralty had foreseen, because it lacked the ultimate sanction available to Yard Committees in private yards of reporting persistent offenders to the national service officers for prosecution. The Committee had been chiefly useful in helping those absentees who needed assistance rather than punishment—which was really the job of a personnel manager—but at too great a sacrifice of the members' time to be worth while. Similar committees were not, therefore, established in other yards.

¹ It was a small Committee of four under the chairmanship of the Admiral Superintendent; the two trade union representatives were nominated because of experience in private industry that representatives who took a firm stand against offenders sometimes failed to secure re-election. At a later date the one Yard Committee gave place to Departmental Committees.

CHAPTER X

HOURS OF WORK

(i)

Introductory

BEFORE THE WAR the normal weekly hours of work were determined by voluntary collective agreements between organisations of employers and workpeople or by statutory orders under the Trade Boards Acts. The collective agreements and orders did not as a rule impose a limitation on the number of hours to be worked, but in a small number of cases restrictions were placed on the duration of overtime working. The hours of women and young persons were limited by the Factories Act. The normal hours were usually exceeded in war-time, when the need for maximum production became of overriding importance in determining hours of work. In the early years of the war hours of work were often very long; and those responsible could be criticised for ignoring the experience of the First World War that beyond a certain point long hours of work led to fatigue and sickness and tended to reduce rather than to increase output. Nevertheless this point was very difficult to determine with precision even for any one factory; and conditions varied very widely from factory to factory and from one section of the munitions industries to another. The government departments concerned therefore hesitated to lay down any hard and fast rules about the hours to be worked in munitions factories. They did of course use their influence to secure the recognition of maximum limits to the number of hours worked; but hours were eventually reduced to more reasonable levels largely as a result of the experience of the individual firms.

Before the war, as has been said, the normal hours of work in government-owned establishments and in the establishments of contractors were determined by agreements between the employers and the trade unions or by statutory orders and in the case of women and young persons by the Factories Act. The agreement affecting the majority of establishments was that between the engineering trade unions and the Engineering Employers' Federation. This laid down forty-seven hours as the length of the normal working week; there was extra payment for overtime and a limit of thirty hours on the amount of overtime that a worker could be called upon to work in

any one month. This gave a maximum working week of fifty-four and a half hours. In practice, however, workers were very reluctant to work overtime while there was unemployment in the industry.

This agreement was the compromise outcome of a struggle between the trade unions and the employers' organisations in 1918 and 1919. Before the First World War hours of work in the industry were fifty-one per week and upwards and the unions had long been claiming an eight-hour day on the grounds that the existing hours were physically exhausting. The employers were probably more willing by the end of the war to grant this claim because of their experience that the adoption of recommendations made by the Health of Munitions Workers Committee to shorten hours did improve output. When in 1934 the engineering unions opened negotiations for a forty-hour week, however, their claim was based on quite different grounds: productivity per worker, they argued, had increased since 1918 and hours should, therefore, be lessened without reductions in wages. The claim was in any case unsuccessful.

With isolated exceptions statutory limitation of hours of work applied only to those of women and young persons. The Factories Act of 1937 forbade the employment of women for more than forty-eight hours a week and their employment on night shift.¹ The hours of young persons under sixteen years were limited to forty-four per week and of those aged sixteen and seventeen years to forty-eight per week. Night work for these persons was also forbidden, except for boys over sixteen in certain industries employing continuous processes.

Considerations of the effects of hours of work on the health and well-being of the workers had played a large part in determining the wording of the clauses in the 1937 Factories Act relating to the hours of women and young persons. The Act, however, was not preceded by any large scale investigation into the optimum hours that could be worked by such persons without undue fatigue or lowering of output per hour, and the fact that a large number of employees in these classes worked in conjunction with men tended to fix their maximum hours close to those worked by the men under the trade union agreements.

After the outbreak of war in 1939 other considerations overshadowed, though they did not replace, the trade union agreements and the provisions of the Factories Act in determining hours of work. The wording of these was left more or less intact but in practice the working week was lengthened for all classes of workers. As in

¹ Overtime was, however, allowed for women and young persons over sixteen up to 100 hours in a calendar year for the *factory* (i.e. not usually for an individual), spread over not more than twenty-five weeks; the Factory Inspector was to be notified of overtime working in advance and all overtime was to be recorded.

peace-time, technical considerations—such as the particular shift system in operation and the shortage of skilled maintenance men and setters—naturally had considerable influence in determining hours of work. For example, the hours of work of process workers in the filling factories ceased to be a problem after 1941 when the three shift system was introduced and the working week was automatically restricted to forty-four hours; and hours of work in the shipyards in winter were limited by black-out regulations.

The most obvious and important new factor in determining hours was the need for vastly increased production. But the lengthening of hours which this entailed brought an inevitable reaction, and attention was turned to the effect of these hours on the health, absenteeism and the rate of output of the workers. A certain number of enquiries were made in the course of the war in an effort to determine scientifically the optimum working week in any given process, that is to say the number of hours which would give the highest possible output over a long period. As it proved such calculations could not be made. It was possible only to reach a general agreement that hours above a certain maximum, which could be roughly determined, did not lead to an increase, and could well lead to a fall, in output.

Before such limits were generally accepted, many workers exhausted themselves working very long hours. Nevertheless there was at all times a tendency for individual operatives to fix for themselves shorter hours of work than those actually planned. Many piece workers, for example, preferred to work intensively for a comparatively short day. Thus it was the experience of some shipyards when shipwrights went over from time to piece work in 1943 that they were less willing to work overtime but that their output increased. Similarly many young and active riveters often worked very fast and did a good week's work in forty-seven hours. One squad in a London repairing yard never did any overtime but averaged 5,000 rivets a week, a very high figure. The working hours of riveters were also of course influenced by the arduous and exposed nature of their work; and a high proportion of the more elderly riveters, particularly those who had been long unemployed, could not stand the strain of working for more than forty-seven hours even though their output during this period was not high.¹ Most employers took it for granted that some or all of their riveters worked a short week; in 1944 the Clyde District Consultative Committee agreed that, although working hours were officially longer, a forty-seven hour week was a sufficient

¹ This was no new problem; the experience of the 1914-18 war was exactly similar. In March 1915 fifty per cent. of the ironworkers in firms federated to the Shipbuilding Employers' Federation worked less than a forty-five hour week, and though excessive drinking and high earnings were partly to blame, factory inspectors could also find legitimate reasons for the short working week. See also p. 312 below.

strain for riveters, and discussed excluding them from absenteeism returns.

Women with domestic responsibilities also tended to fix their own hours of work. In 1942 an enquiry was made into hours of work in a group of aircraft factories where scheduled hours for both men and women were between fifty-five and sixty, but a large number of workers, particularly women, in fact worked only forty-seven hours a week.¹

Hours of work in war-time, then, were determined by the need for greater production and this in itself very soon compelled attention to the effect of long hours on output; individual workers had in any case their own views on the number of hours they could reasonably be expected to work. On the other hand the number of hours worked was also strongly influenced by the relationship between hours and earnings, and other workers were tempted to work long hours by the prospect of higher earnings. In the early years of the war, for example, some employers offered more overtime than production demands warranted in order to attract labour. More important, however, was the reluctance of some workers to agree to a reduction in long hours, once fixed, because of the loss of earnings involved.

Before the war it was the employers who decided whether overtime, within the limits set by the trade union agreements, should be worked or not, although it was open to the workers to bring forward any cases of overtime they wished to have discussed. But during the war overtime became the accepted practice and consultations between employers, trade unions and government departments on hours of work therefore amounted to settling the extent of regular overtime working; overtime beyond this amount was still left to the employers' discretion. Overtime rates were naturally paid for all hours worked beyond the normal shift and at week-ends; and when the government and employers wished to reduce hours of work in the second half of the war the first reaction of many workers was concern at the threat to their earnings rather than relief at the prospect of a shorter working week. The workers also thought that they now had the right to be consulted about the extent of overtime working. By 1944, however, their opposition to shorter hours had materially decreased.² In any case in 1944-45 the employers, including the Ministry of Supply, strongly reasserted their managerial right to determine hours of work within the framework of the agreements and to decide whether overtime was necessary or not.

In general hours of work were settled at factory level and did not necessarily follow government pronouncements. Both the Ministry of

¹ It was commonly believed in one factory that overtime beyond that fixed by the engineering agreement could not be enforced.

² Cf. *Annual Report of the Chief Inspector of Factories for the Year 1944*, pp. 27-8.

Labour and the supply departments did, it is true, give guidance to industry and this must have had considerable effect, but they did not give a decisive lead. Nor indeed would it have been easy for them to do so. For the evidence on hours of work and output was incomplete and unsatisfactory and to base a definite policy on such unstable foundations would have involved risks of loss of output that were not justified.¹ Moreover within a single industry like ship-building or aircraft manufacture, and still more within the munitions industries as a whole, practices and processes varied so widely that it was felt to be unwise to lay down hard and fast rules. In consequence, the Ministry of Labour and the production departments had to be content with general recommendations about maximum hours. Even in the case of women and young persons whose hours were subject to control by the Factory Inspectorate the Ministry of Labour was sometimes forced to allow exceptions to the stipulated maxima. And while the Factory Inspectorate was tireless in advocating shorter hours for all classes of workers during the years after 1940, managements were convinced of the need for reductions not so much by these exhortations as by 'their own observations of the real facts throughout the hard war years'.² Even the official policy of Ministry of Supply headquarters on the maximum hours to be worked in its establishments was often little more than a description of the practices already in operation in the majority of the R.O.Fs.

Policy towards hours of work went through three phases during the war. In the early period, in 1940 and into 1941, production considerations were paramount and hours became very long. But when in mid-1940 the Minister of Labour drew attention to the danger of very long hours his was a voice crying in the wilderness. The volume of criticism of the long hours worked increased, however, and the fallacy of working them became increasingly apparent during 1941-42 so that in 1943-44 they tended, with the support, and sometimes owing to the pressure, of the Ministry of Labour and the production departments, to fall to lower levels. In 1944-45, with the prospect of the return to peace-time competition, employers became more sensitive to the cost of overtime working; and the Government was anxious to see a gradual reduction in hours to ensure a smooth transition from war to peace conditions. It was these considerations, combined with falling production programmes and the shortage of fuel, which brought about a gradual return to pre-war hours in 1944-45 rather than a desire further to reduce hours and fatigue in the interests of output.

¹ Little evidence was acquired on other problems such as the length of night shifts and the optimum number of turns, the productivity of a five as compared with a five-and-a-half day week, etc.

² *Annual Report of the Chief Inspector of Factories, op. cit.*, p. 27.

These developments may be illustrated by discussing in more detail the policies pursued by the Ministry of Labour and the supply Ministries in their dealings with the munitions industries. Particular reference will be made to the policy followed by the Ministry of Supply in its own establishments and to that of the Admiralty towards hours of work in the shipbuilding industry.

(ii)

The Engineering and Explosives Industries

(a) 1939-40: LONG HOURS THE BADGE OF PATRIOTISM

In the engineering industry the restrictions on the hours worked by women and young persons were relaxed at the outbreak of war. By a procedure agreed upon before war broke out, Service and supply departments could, if necessary, authorise their contractors to employ women up to a maximum of sixty hours a week, subject to confirmation by the Home Office Factory Inspectorate. Women and young persons over sixteen could in special cases be allowed to work at night. This temporary arrangement was replaced before the end of 1939 by a system of Emergency Orders under which individual establishments had to apply to the factory inspector for permission to work overtime which was only granted, subject to Home Office approval, when the inspector was satisfied that it was necessary and that conditions of work were satisfactory. Under these Orders maximum hours for women and young people over sixteen rarely exceeded fifty-seven and were often fifty-four or less. For boys under sixteen the maximum was usually forty-seven hours. In November a General Order was made covering various classes of light engineering and metal work and empowering factory inspectors to authorise hours up to fifty-seven without reference to the Home Office.

On the outbreak of war the engineering agreement restricting overtime to thirty hours a month was tacitly waived and informal agreements to work longer hours were made in the shops.¹ At the same time the cost of overtime rates, particularly at weekends, ceased to be as strong a deterrent to employers as it had been in peace-time; indeed overtime and Sunday work were used by some as an inducement to workers to join their employ. The production departments for their part encouraged longer hours of work. For example, the Air Ministry had proposed in its plans for war potential

¹ There was some objection by the unions in 1941 to the enforcement of overtime under the disciplinary clauses of the Essential Work Order above the agreed thirty hours. But this was because they felt a trade union principle to be involved, not because they objected in practice to the working of additional overtime. These objections were overcome.

that hours of work in the aircraft industry should be increased to sixty-three to sixty-five a week. The effect of these hours on productivity was not ignored, but trained labour was scarce and it was argued that those who did know the job would, at least to begin with, have to be worked as long as possible. No definite hours of work were of course actually recommended to the industry as a whole,¹ though local production officials presumably encouraged long hours.

In the winter of 1939-40 hours of work for men in the engineering and shipbuilding industries were long. Evidence before the Select Committee on National Expenditure showed average hours of work in a group of engineering factories of sixty a week with variations from five and a half hours a week overtime in one factory to twenty-two in another.² Factory inspectors found that up to seventy hours a week were by no means uncommon and ship repairing yards in particular were working up to eighty and ninety hours a week.

Thus some men had already been working long hours when in May 1940 France was defeated and the British Expeditionary Force was withdrawn from the Continent. In face of the imperative need for maximum output little heed was paid in the midsummer of 1940 to the formalities required by Emergency Orders. All hours were worked by men, women, young persons and employers alike. Aircraft firms, for example, were told to concentrate on certain items and work all hours necessary. The additional costs incurred would be repaid to them. In mid-1940 investigators of the Industrial Health Research Board visited the engineering R.O.Fs Woolwich Arsenal, Birtley (Co. Durham) and Nottingham. Since Dunkirk these had been working ten or twelve hour shifts, seven days a week; and though many workers in fact took time off, sometimes arranging a rota system among themselves, there were definite signs of fatigue. The Ministry of Labour complained that the management at Woolwich Arsenal was rather obsessed with the idea that the best way to get output was long hours for everybody.

(b) 1940-43: EFFORTS TO LIMIT HOURS OF WORK

Very soon, however, attempts were made to reintroduce some control over hours of work. In June 1940 a beginning was made in re-establishing control of the hours of work of women and young persons with a new General Emergency Order covering all types of engineering and shipbuilding work. This allowed women and young persons over sixteen to work with overtime up to sixty hours a week and young persons under sixteen up to forty-eight hours. These hours were long enough; and the problem of the long hours worked by men remained untouched. Evidence of their undesirability was not

¹ But cf. p. 32 fn. 1 above.

² *Third Report from the Select Committee on National Expenditure, Session 1940-41, para. 12.*

lacking. The experience of the war of 1914-18, documented in the published researches of the Health of Munitions Workers Committee, showed clearly that when long hours were worked over an extended period output tended to decline. Investigations by the Industrial Health Research Board in the summer of 1940 pointed to the same conclusion.¹

In July, therefore, the Minister of Labour, following a lead by the Engineering Employers' Federation to its members, proposed in the Production Council—a committee of the War Cabinet—that, pending the provision of additional labour, hours of work for both men and women should be limited to sixty a week, with regular rest days. This advice was reproduced in a pamphlet, *Hours of Work and Maximum Output*, circulated to industry. In mid-1941 the Industrial Health Research Board suggested that hours for women workers should not exceed fifty-five; and by September 1943 the departments concerned had accepted maxima of fifty-five hours for men and fifty for women as desirable. Thus the maximum hours proposed for both men and women were revised downwards in the course of the war. This was not only because it became increasingly clear that long hours were unprofitable but also, it could be argued, because the strain of war-time work was cumulative; hours which were just tolerable in 1941 were felt by 1943 to be too long.

It was, however, for reasons described below, often some time after these various maxima had received general approval that action was taken by the supply departments to press their adoption in industry; and it was still longer before they were generally adopted there. Thus although the supply Ministries had agreed in July 1940 that hours in excess of sixty a week were undesirable, in July 1942 the Select Committee on National Expenditure could still report that in two-thirds of the engineering R.O.Fs hours of work for men exceeded sixty a week, and in three factories reached seventy.²

In 1941-42 the hours of work of women were also still long and frequently exceeded the fifty-five hour week which the Industrial Health Research Board had recommended as a maximum for women workers. In the autumn of 1941 complaints were made by trade unions of the strain put on women by twelve hour shifts in the aircraft factories, and an enquiry in one hundred and sixty aircraft factories showed that the planned hours for nearly half the women in them were between fifty-eight and sixty a week. In 1942 hours of work of women still often exceeded fifty-five both in the engineering R.O.Fs and in outside industry. By the end of that year overtime for women had been extended under the General Emergency Order,

¹ See *Hours of Work, Lost Time and Labour Wastage* (published 1942).

² *Eleventh Report from the Select Committee on National Expenditure, Session 1941-42, op. cit.*, para. 46.

beyond the amount allowed by the Factories Act, in over 13,000 factories; and in about half of these the hours allowed were between fifty-five and sixty.

Maintenance and managerial staffs from foremen to works managers worked—inevitably in their case—the longest hours of all; and air raids, which sometimes led to a rearrangement and shortening of hours for production workers, greatly increased their burden of responsibility. When in March 1941 the Ministry of Supply agreed to the Ministry of Labour's proposal that workers should have one weekly day in seven or eight off, the Director-General of Ordnance Factories was bound to point out that for maintenance staffs this weekly day off would in many cases remain largely an aspiration.

The Select Committee on National Expenditure thought that the Government should give a clear lead to industry to reduce these long hours. It also criticised the lack of co-ordination of the policies of the various departments concerned with hours worked in industry and recommended that the Ministry of Labour should be responsible for supervising hours of work and securing greater uniformity of hours throughout the country.¹

The Minister of Labour's pamphlet urging firms not to work over sixty hours a week had in fact been agreed with his colleagues. Yet the Select Committee could fairly claim that on occasions the supply departments acted without consultation with the Ministry of Labour or in apparent contradiction to previously agreed policies. For example, in January 1941 the Minister of Aircraft Production (Lord Beaverbrook) sent a telegram to 129 contractors asking for an assurance that work would in future continue at their factories throughout Sundays so that maximum output was obtained. Later, when this telegram was criticised by the Minister of Labour, the Minister of Aircraft Production defended his policy on the grounds that he had asked that machines should be kept in continuous production. It was for the Minister of Labour to ensure that individual workers obtained the necessary days off. Nevertheless no attempt was made to explain to contractors that the telegram did not mean what it appeared to mean.

In 1940 and into 1941 it is true to say that the supply departments had no clear policy on hours of work; but they had a very clear policy on the need for maximum production. Thereafter it became increasingly clear to them that the two factors were related.

In November 1941, in reply to the criticisms of the Select Committee on National Expenditure, the government departments concerned accepted the recommendation made by the Industrial Health Research Board in June 1941 that weekly hours of work should not

¹ *Third Report from the Select Committee on National Expenditure, Session 1940-41, op. cit., para. 16.*

over an extended period exceed sixty for men and fifty-five for women. They also endorsed the view that under war conditions government departments should assume greater responsibility for hours of work in the factories of government contractors and that the supply departments should secure the agreement of the Ministry of Labour before issuing advice or instructions to firms.¹

It inevitably took time, however, before the views of headquarters staff became fully accepted among those responsible for production at all levels. Thus while the Ministry of Supply was reducing hours of work in the R.O.Fs in 1942 some of its production departments were urging the Ministry's private contractors to work longer hours, and it was not until the beginning of 1943 that this inconsistency was brought to an end. Moreover, when the supply departments were convinced of the need to reduce hours they were hampered in giving a clear lead by the risk of opposition from the men and by the lack of scientific evidence on optimum hours, and of accurate information on hours actually worked.

For example, already in March 1941 the Minister of Labour had secured the agreement of his colleagues to the need for a weekly day off, or one day in eight in the case of certain shift systems. The M.A.P. in May proposed to give its contractors a definite lead in the matter and to tell them that work should only continue on Sundays in order to overcome bottlenecks or delays resulting from unbalanced production.² This 'clear lead' did not however materialise, chiefly because of the risk of opposition from the men. There was not only the question of loss of earnings. Sunday working, once resorted to in exceptional emergencies, had become a badge of patriotism, and its discontinuance required tactful handling, especially when shop stewards were holding meetings urging all aid to Russia. In June 1941, therefore, the M.A.P. issued a circular to its contractors pointing out only that the Minister considered it desirable that Sunday work should be restricted. In December 1941 it was decided that the issue of more precise instructions should be re-considered in three months' time.

This time limit passed unnoticed and no further action was taken save an enquiry in March 1942 to discover what effect the general circular had had. It showed that Sunday work was still very prevalent in the industry; in September 1942 it was estimated that one-third of M.A.P. factories were working on Sundays. No further specific efforts were made by the Ministry to reduce Sunday working,

¹ *Twenty-fifth Report from the Select Committee on National Expenditure, Session 1940-41, 11th November 1941, replies to recommendations 3 and 4.*

² While the Admiralty promised its support, the Ministry of Supply was unwilling to issue a circular in such terms to its contractors. It was thought that Sunday working was in any case less extensive in factories working for the Ministry of Supply than in aircraft firms.

apart from efforts to reduce hours of work generally, but the Ministry's earlier advice to firms was reinforced by its officials in personal dealings with them. At a meeting of representatives of both sides of the industry in September 1943 the Minister replied to objections from the men that no Sunday work meant loss of earnings; he said that they must remember that double time was fixed on Sundays to prevent and not to encourage Sunday work and that he shared that view.

Similar difficulties met the Ministry of Supply in reducing hours of work in its own establishments. The Ministry tackled first the hours of work of women. In April 1942 the average hours worked by women in the twenty-five R.O.Fs in production on the three shift system were in every case under fifty-five per week. But in the seventeen R.O.Fs on a two shift basis (sixteen engineering and one filling) the average hours fixed for women were fifty-five and over in fourteen establishments. The longest hours were worked at R.S.A.F. Enfield (sixty-one and a quarter), R.O.F. Nottingham (fifty-nine and a quarter) and the Royal Arsenal, Woolwich (fifty-nine and a quarter). The Ministry of Supply Labour Committee resolved in June 1942, after consultation with the Ministry's production departments, that the maximum hours of work for women should be fifty-five (this figure to exclude meal, but to include rest, periods) with a satisfactory week-end break of at least twenty-four hours fixed with due regard to the shopping facilities available. While there was no ban on Sunday work, the break was if possible to be arranged to include the whole or part of Sunday.

It proved, however, more difficult to reduce hours than it had been to lengthen them. While the managements of factories were often fully sympathetic to the suggested reduction in hours of work, the workpeople through their various Works Councils and Production Committees put forward considerable opposition, and suggested that there should be adjustments in wages to compensate for loss of earnings through the proposed reductions in hours. Further it was clear that the hours of work of men would have to be reduced with those of women in many factories where one set of workers depended on the other.

In view of these difficulties the Ministry pursued a cautious policy both in reducing hours of work in the R.O.Fs and in advising private contractors to reduce theirs. In August 1942 the Minister informed the House of Commons¹ that twelve R.O.Fs—only two less than in April—were employing women more than fifty-five, and men more than sixty, hours a week but added that 'a reduction to these standards [maximum of fifty-five and sixty for women and men] will be

¹ H. of C. Deb., Vol. 382, Col. 1081, 5th August, 1942.

achieved, I hope, . . . within the next three months'. By October 1942 the Ministry of Supply could report to the Select Committee on National Expenditure that the exceptions to the maximum hours had been reduced to four and by March 1943 all R.O.Fs except one (R.O.F. Poole) were below the maxima. It was not until the beginning of 1943 that the Ministry took action with regard to its contractors. A circular was then issued to all its production departments and to regional controllers informing them that the maximum of sixty hours a week for men and fifty-five for women should be applied as far as possible in all trade factories working for the Ministry of Supply.¹

As the Ministry of Labour pointed out, however, it had recommended the maximum hours laid down in this circular some two years earlier and in the meantime circumstances had considerably changed. The organisation of production had become more efficient and the tempo of work speeded up; a larger number of women and youths were employed on munitions; and the number of employees with duties outside working hours, such as Civil Defence, Home Guard, voluntary military training for youths and domestic responsibilities had increased. Added to these changes was the fact that war strain on individuals tended to be cumulative as the workers had little opportunity to obtain a complete break at holiday times. The Ministry of Supply saw the force of this argument and in the same week as its circular was issued to regional controllers laying down the maxima of sixty hours a week for men and fifty-five for women, the official in charge of labour questions foresaw that it would not be long before revised instructions had to be sent out.

Where reduction in working hours could be clearly related to improved efficiency the Ministry of Supply was prepared—as an employer of labour—to take action without expecting a lead from the Ministry of Labour. Steps to investigate this problem of hours of work in relation to output had been under discussion throughout the second half of 1942 and in December of that year the Industrial Health Research Board had, at the invitation of the Ministry of Supply, started to collect data on the problem at selected R.O.Fs. Hours of work, absence from work and output were measured for seventeen groups of workers in three factories and for one group in each of four factories for four weeks before and six weeks after a reduction in the weekly work period was made. The report by the Board, submitted in a preliminary form in June 1943, did not,

¹ No direct instructions or guidance were given to contractors, for it was felt that the regional controllers and officers in the production departments could secure a reduction in hours of work through their personal contacts with the firms. They would also take action on reports from the Ministry of Labour of contractors who were working exceptionally long hours.

however, throw a clear light on the problem.¹ For it proved impossible to isolate the effect of changes in working hours on output from the effect of other influences, such as changes in design or layout. Nevertheless the investigation shewed that an increase in hourly output did take place in fifteen out of the twenty-one groups studied; and this confirmed rather than disproved the contention that the reduction of comparatively long hours of work tended to be followed by increases in hourly output.

Since these conclusions were, however, tentative and incomplete, the Ministry of Supply was obliged to continue to rely on empirical opinions as to maximum hours and to pursue an *ad hoc* policy. Discussion on maximum hours of work continued in the first half of 1943 and in May the R.O.F. Industrial Labour Committee² was asked to report on hours of work of all employees in engineering establishments and to make recommendations. This report was submitted in August and in the same month a questionnaire covering all aspects of hours of work was issued to the officials concerned at headquarters, in the regions and in the Ministry's establishments. The views expressed in the replies to the questionnaire and in the report of the R.O.F. Industrial Labour Committee were not unanimous. This was hardly to be expected as the opinions expressed were those of specialists viewing the problem from their own necessarily limited experience and knowledge, but the differences were instructive. Thus whereas the Industrial Labour Committee could find no evidence to show that existing hours in engineering R.O.Fs were unduly long, the Chief Medical Officer thought there was sufficient evidence to suggest that fatigue existed amongst the operatives in these factories. He pointed to the comparative statistics of absenteeism due to sickness in explosive and filling factories—at which the hours averaged forty-seven and a half and forty-three and a half per week respectively—and in engineering R.O.Fs;³ these shewed that the sickness rate was almost twice as high in engineering as in filling and explosive R.O.Fs.

The Industrial Labour Committee made the cautious recommendation that a further slight reduction in hours might be made provided the production programmes were not hindered. But almost

¹ The results were published by the Industrial Health Research Board under the title *A Study in Variations in Output* in June 1944 (H.M.S.O.).

² See p. 417 below.

³ In the forty-four weeks between 22nd August 1942 and 19th June 1943, the days lost per worker due to certified sickness varied between the three types of factories as follows:

| | |
|---------------------------------|----------------|
| Filling factories | Males — 7.8 |
| | Females — 14.9 |
| Explosive factories | Males — 6.8 |
| | Females — 16.8 |
| Engineering factories | Males — 14.6 |
| | Females — 26.6 |

all the replies to the questionnaire about hours of work confirmed the view that hours should be reduced. It was agreed that as production was now organised more rhythmically and the demand for output was slightly less urgent, some reduction was possible. The majority of the regional controllers expressed the view that fifty-five hours a week for men and fifty for women should be the maxima; the superintendents of engineering R.O.Fs agreed that the hours of women could be dropped to fifty-two or fifty hours a week without appreciable loss of production, and of the thirty-two trade factories working for the Ministry of Supply which were consulted the majority endorsed these maxima.¹

The area labour managers and many R.O.F. superintendents suggested also that if and when hours were reduced a five day week should be introduced in government establishments. The arguments in favour were many. A five day week would give the workers free time when the shops were open, it would considerably ease the burden of the working women with household responsibilities, it would save transport, and it would face realistically the fact that absenteeism on Saturday mornings was normally high. On the other hand it was clear that the introduction of a five day week in Ministry of Supply establishments would have repercussions throughout the munitions industries. And there were arguments against its introduction: it was thought that a five day week would lead workers to think that production requirements were no longer urgent; that it would have a bad effect on public opinion, particularly in America and Russia, and that the armed forces fighting on a seven day week would not view the change at all favourably. But the strongest argument, and the argument which led to the rejection of the five day week, was that any decision on this issue during the war would prejudice the discussions started before the war between the trade unions and employers in the engineering industry on the forty hour week.

Towards the end of 1943 the Ministry of Supply decided to enforce maxima of fifty-five hours a week for men and fifty for women and to abolish Sunday working in all the R.O.Fs. Indeed in September 1943 at a meeting of the Lord President's Committee the representatives of all the supply departments had agreed on the desirability of establishing these maxima in the munitions industries generally; and at this meeting the Minister of Supply expressed the view that regular Sunday working should be abolished. The Ministry of Supply realised that this could only be done with the goodwill

¹ One of the most important proposals made as a result of these enquiries was to cut down the number of shifts on the night turn in a number of the engineering R.O.Fs in which both men and women on night shift were working longer hours than the day shift.

and consent of the unions and workpeople concerned. Early in November, therefore, officials of the trade unions were told informally of the new policy. Later in the month, after overtime had been discussed at a meeting of the Ministry of Supply Joint Industrial Council, a memorandum was sent to the trade union side explaining in detail the effect of the proposed alterations. To bring male workers within the maximum of fifty-five hours reductions had to be made in only seven R.O.Fs and to bring women within the maximum of fifty hours reductions were needed in nine establishments. Of the total number of workers engaged in the twenty-four engineering R.O.Fs (the only establishments seriously affected by the reductions) only thirty-three per cent. of the males and twenty-eight per cent. of the females were at that time working longer hours than the suggested maxima.

The trade union side had, as was expected, some misgivings about these proposals because of the loss of earnings involved, and they proposed that the reductions should be achieved by introducing normal working throughout the week and confining overtime to Sundays. In this way the double time payment for work on Sundays would have compensated for loss of pay through the total reduction in hours worked. The Ministry could not accept this suggestion. Sunday working had been opposed by both trade unions and employers in peace-time, and to encourage Sunday work at this late stage of the war would, it was thought, be completely wrong. The Ministry did, however, accept another suggestion made by the trade union side, that the reductions should be spaced out so that they coincided with the introduction of the pay-as-you-earn income tax scheme in April 1944. This arrangement prevented hardship to individual workers who might have been called upon to pay heavy income tax arising from previous high earnings out of a reduced pay packet.

Having informed the trade unions of the proposed change of policy and having answered their suggestions, the Ministry did not feel bound to wait for formal agreement on its Joint Industrial Council before taking action. Overtime working was considered a 'managerial' question and the reduction or increase of such working was, within limits, considered the prerogative of management. Therefore in January 1944, to the surprise of some of the trade union side, a memorandum was sent to all R.O.Fs giving the details of the new maximum hours of work and stating that Sunday working must be discontinued as far as possible; no schemes introducing Sunday working instead of Saturday working or weekday overtime were to be introduced. In addition to the new maxima for men and women, the memorandum laid down maximum hours of forty-four and forty-eight respectively for young persons between fourteen to sixteen and

sixteen to eighteen years. These it may be noticed were lower than the maxima of forty-eight and fifty-two hours agreed by the Ministry of Labour and the supply departments in January 1944, after consultations with industry following on the publication of the White Paper on Youth Registration.¹

This new instruction on hours of work in the R.O.Fs affected only eight of the forty-two factories. The remainder were already working the shorter hours. This practice by headquarters of following rather than leading reduced the difficulties of securing national agreement with trade unions and also avoided rigidity in the conduct of individual establishments. Where reductions were still necessary their detailed application was discussed with the representatives of the workers and, if desired, with the district officials of the trade unions concerned. With only two exceptions the changeover was effected smoothly. Some difficulties arose at Blackpole (Worcs.) and Fazakerley (Lancs.), but following full local and national discussions the trade union claim for compensatory wage increases at these establishments was dropped.² Within six months, that is by June 1944, all the R.O.Fs had standard hours for men and women within the maxima.

The Ministry of Supply clearly thought it wise in shaping its centralised policy on hours of work in the R.O.Fs to have a close regard to developments in the factories themselves. It was not surprising, then, that all the supply departments were still more reluctant to give emphatic instructions on the subject to their contractors. The departments notified their headquarters and regional staff of the maximum hours which they had agreed in September 1943 to be desirable for men, women and young persons; but no specific instructions were issued to contractors on the subject. The Ministry of Aircraft Production, for example, thought that it was difficult to lay down hard and fast rules in view of the great diversity of conditions in the aircraft industry. A departmental instruction issued in December 1943 stated that, some special reason apart,

¹ *Youth Registration in 1942*, Cmd. 6446. The Ministry of Supply would like to have seen the lower limits generally applied but, since the other departments felt this to be impracticable, fell into line so far as agency and contractors' establishments were concerned.

² These establishments were working a mixed system of three shifts for women and two shifts for men. The hours of the women workers were, before the new policy, below fifty per week, but those of the men were sixty per week at Blackpole and fifty-six per week at Fazakerley. In order to reduce the hours worked by the men and—in the case of Fazakerley—because production requirements no longer necessitated three shift working, it was proposed to end this mixed shift system and put both men and women on two shifts averaging fifty hours for men and women at Blackpole, and fifty-three hours for men and fifty for women at Fazakerley. This change meant for the women workers an increase in the number of hours per week yet a reduction in the payment for overtime hours, and the trade unions claimed that the women would be working longer hours for less wages. This claim was technically correct, but the Ministry claimed, as events proved correctly, that the increased opportunity for piece work earnings due to the longer shifts would offset the lower overtime payments and lead to higher average earnings for the week's work.

normal weekly working hours should not exceed fifty-five for men and fifty-two and a half for women and young persons. No officer of the department was to put forward any contrary views in discussions with firms or otherwise. In fact these new maxima had already been increasingly adopted in industry. Factory inspectors reported a widespread reduction in planned hours during 1943, with a tendency towards fifty to fifty-two a week for women and young persons. Shortage of labour, however, kept hours in the aircraft industry high in the first half of 1943 and force of habit seems to have kept them high in some factories even when these were abundantly supplied with labour in the second half of the year.

(c) 1944-45: TOWARDS A RETURN TO PEACE-TIME CONDITIONS

By D-Day the second stage in the reduction of hours in munitions factories had been completed. From no limit at the time of Dunkirk, the limits of fifty-five hours a week for men and fifty for women, the elimination of Sunday work and new limits on the hours of young workers had been accepted by the departments and were increasingly operative in industry. Average hours worked were indeed below these figures.¹ The third stage in the reduction of hours followed the success of the landings in Normandy and the subsequent break-through. Total production requirements fell. In September 1944, for example, the Ordnance Factory Department recommended that in view of programme requirements for 1945, two shift engineering R.O.Fs should revert immediately to a standard forty-seven hour week on the day and night shift.

The desirability of a further reduction in hours of work in the munitions industries was also raised by the Ministry of Labour in the same month at the interdepartmental Labour Co-ordinating Committee. In a memorandum for consideration by the Committee, the Ministry of Labour suggested that when programme cuts occurred at particular establishments the weekly hours should be reduced to forty-seven a week and that supply departments should inform their contractors that it was the desire of the Government that hours should be reduced to fifty a week at once and to forty-seven as soon as possible. In support of these proposals the Ministry pointed to the strain on the workers of five years of overtime, and to the fact that programmes were falling. The Ministry wanted to see a gradual reduction in hours to ease the transition from war to peace conditions; this would minimise the risk of unrest which might result from an abrupt drop in hours and consequent fall in earnings.

¹ See Table 17. Figures for other sections of the munitions industries are given in *Ministry of Labour Gazette*, August 1944, February and August 1945 and February 1946.

Table 17: Average Hours worked in Certain Industries, 1944-45

| | Males 21 and over | Youths and Boys | Women 18 and over | Girls | All Classes of Workers |
|--|-------------------------|-----------------------|-------------------------|-------|------------------------------|
| General Engineering | | | | | |
| 1944 January . . . | 53·8 | 48·1 | 46·4 | 45·6 | 51·2 |
| July . . . | 51·3 | 46·9 | 45·2 | 44·7 | 49·3 |
| 1945 January . . . | 49·7 | 45·4 | 43·4 | 43·2 | 47·7 |
| July . . . | 49·4 | 45·5 | 43·6 | 43·3 | 47·8 |
| Motor Vehicles, Cycles and Aircraft | | | | | |
| 1944 January . . . | 52·8 | 47·4 | 47·4 | 45·9 | 50·7 |
| July . . . | 50·5 | 46·2 | 46·0 | 44·8 | 48·8 |
| 1945 January . . . | 48 | 44·8 | 43·8 | 42·9 | 46·6 |
| July . . . | 47·7 | 45·0 | 43·7 | 42·6 | 46·6 |
| Shipbuilding | | | | | |
| 1944 January . . . | 54·6 | 47·7 | 46·5 | — | 53·3 |
| July . . . | 53·5 | 47·4 | 44·8 | — | 52·2 |
| 1945 January . . . | 50·0 | 44·8 | 43·4 | 41·7 | 49·1 |
| July . . . | 51·6 | 45·9 | 44·8 | 43·4 | 50·6 |

Source: Ministry of Labour and National Service

Neither the proposal of the Ordnance Factory Department nor that of the Ministry of Labour received full support. Such a general reduction in hours publicly announced would, it was thought, lead to misunderstandings in those sections of industry where production requirements were still urgent, for example, certain filling factories, transport, mines and work for the Admiralty. It was thought that workers in factories which suffered programme cuts should be released and put in other employment rather than be asked to work shorter hours. At the same time, however, it was agreed that there would be factories where programme cuts made a reduction in hours imperative.

Such factories soon became the rule rather than the exception. In October the official side gave notice to the Ministry of Supply's Joint Industrial Council that it would soon be necessary on production grounds to end overtime on both day and night shifts at four engineering R.O.Fs and that similar action might be necessary at three other establishments. The trade unions accepted this subject to the usual local discussions and, in the following seven months up to VE-Day, hours were reduced to forty-seven in the majority of establishments. Private contractors adopted a similar policy of reducing hours and by June 1945 the engineering industry was with very few exceptions working a forty-seven hours week or—in the case of three shift factories—less than forty-seven hours.

(iii)

The Shipbuilding Industry

The Admiralty intervened somewhat more in the fixing of hours worked in the shipbuilding industry than did either the Admiralty or the other two supply departments in the hours worked by their engineering contractors. This was partly because the industry was comparatively homogeneous, even though conditions varied widely as between new and repair work and between time and piece workers; partly because the 'cost-plus' system was extensively used in repair contracts, so that loss of output through excessive hours was clearly reflected in the cost of work. Moreover, headquarters labour officials and the district shipyard controllers in particular, working with Ministry of Labour officials in the Shipyard Labour Controls,¹ were so intimately concerned with shipbuilding labour problems that they were inevitably drawn into the industry's discussions on hours of work.

Hours of work in the shipbuilding industry were regulated by national agreements of 1923 and 1924 except in a few ship repairing districts where there were local agreements on the matter. The normal working week in peace-time was forty-seven hours. Until 1941 hours were extended in a piecemeal way, though not, as will be seen, without some attempt at intervention by the Admiralty. At the suggestion of the Admiralty the Shipbuilding Employers' Federation and the Confederation of Shipbuilding and Engineering Unions met in 1941 and agreed in general terms on the amount of overtime desirable, leaving the detailed arrangements to be made locally. The procedure adopted varied in different districts; in some, as on the Clyde, agreement was reached between the local employers' association and the Confederation District Committee in consultation with the district shipyard controller, in others at the District Consultative Committee of which the district shipyard controller was chairman.² In some of the repair districts no definite hours were in fact laid down. The Admiralty naturally preferred to see a satisfactory agreement reached, perhaps in consultation with itself, between both sides of the industry. In cases of dispute, however, the trade unions in particular tended to look to the Admiralty as arbiter; and on a few occasions, when the two sides failed to agree, or declined to follow what the Admiralty regarded as a reasonable lead, the Admiralty did intervene more directly.

¹ See pp. 105-6 above.

² In no case were these agreements formal documents signed by both sides; and, in spite of the practice which grew up in the war of consulting the unions to arrange for regular overtime working, the employers reserved their right in principle to determine whether overtime working was necessary.

On the whole, both the Shipbuilding Employers' Federation and the Admiralty seem to have been conscious from an early date in the war of the dangers of excessive hours—they were perhaps more sensitive than the engineering employers or the new supply Ministries to the question of overtime costs. For various reasons, however, practice in the industry frequently failed to conform to the ideal.

For example, as early as September 1940 the Admiralty issued a Fleet Order to all shore establishments pointing out the danger of excessive overtime and ordering that all concerned should be informed that Sunday working in shipbuilding and ship repairing was to be discontinued except for essential or urgent work. It was not easy to enforce these instructions. For one thing workers were increasingly scarce and the yards worked on Sundays in order to attract labour. For another, although the Fleet Order had been intended to cover all shipbuilding work, the officials responsible for merchant building did not press the policy of no Sunday work as hard as those on the naval side, and the Ministry of Shipping never in fact accepted the policy at all, so that men were only taken off naval work on Sundays in order to work on merchant building or repairs. In the third place the approach of winter and the need for strict black-out in view of heavy bombing so limited weekday hours that Sunday work became necessary on all shipbuilding and repair work; the instructions were therefore deliberately countermanded in October.

In the winter of 1940-41 most of the shipbuilding districts worked a seven day week, though some provided for an occasional Sunday off and in Scotland one Sunday in four was regularly free. As the war went on progress was made with blacking out the shops and openings and hatches of ships and lighting relaxations allowed some work to be done in the open during black-out. But it was rarely practicable to employ the full complement of a yard during black-out hours, and to employ some men without others might unbalance the work.¹ The Admiralty, with some misgivings, accepted the fact that a considerable amount of Sunday work was necessary in winter, both to obtain the necessary output and to give the men reasonable earnings; and until the winter of 1944-45 most districts worked three Sundays in four from November to February, making a minimum working week of some fifty-three hours.

During 1941 there was, as has been seen, considerable inter-departmental discussion on the undesirability of Sunday working,

¹ In 1940 the Ministry of Home Security issued instructions severely restricting lights in shipyards during black-out hours. In the summer of 1941, following interdepartmental discussions, the Ministry agreed to considerable relaxations on the North-West coast between 7.30 a.m. and 6 p.m., thus enabling a full daylight shift to be worked in winter. In 1942 this relaxation was extended to the North-East coast. An approved system of lighting allowed work to continue during the black-out in all dry docks; in the winter of 1942-43 it was said that up to 75 per cent. of the labour force in S. Wales could be employed on evening overtime.

and the Admiralty agreed that it was necessary to limit it as far as possible. When the question of summer hours was due to be discussed in the districts, the Contract Labour Department decided to consult with the Ministry of Labour and other Admiralty departments and advise district shipyard controllers about maximum hours and Sunday work in summer. No enquiries were attempted in the shipbuilding industry to determine the maximum or optimum working week. Discussion on working hours was based on such enquiries in the engineering industry or, more reliably, on the experience of the shipbuilding firms.

On this occasion the Contract Labour Department put forward as a maximum a figure of sixty to sixty-five hours a week and proposed that there should be no Sunday work. The Director of Merchant Building pointed out, however, that as early as March 1941 the Shipbuilding Employers' Federation had suggested to firms that over a lengthy period maximum production was likely to be obtained from a working week of between fifty-six to sixty hours, and both he, the Controller of Merchant Shipbuilding and Repairs and the employers' representatives on the Central Consultative Committee favoured this lower maximum. The employers added the warning that instructions to district shipyard controllers should not lay down hard and fast rules in view of the widely varying conditions, for example between piece and time workers in the various trades.

The circular as finally drafted proposed that in their discussions with industry district shipyard controllers should keep in mind an average week of sixty hours (excluding Sundays) as the possible maximum and that Sunday work should be restricted to such essential maintenance work as could not well be done at other times and to special occasions to meet exceptional emergencies. Before this circular was sent out, however, the industry on the Clyde had agreed to work alternate Sundays in summer, and, to avoid interference with this arrangement, a saving clause was added that care should be taken to pay due regard to any arrangement made or under consideration between both sides of the industry. As one local official remarked, the men by now regarded Sunday working in summer as well as in winter as the butter on their bread; and summer working arrangements similar to those on the Clyde, providing for a minimum working week of some sixty hours, were made in other districts and continued until the summer of 1944.

Seven day working in itself constituted a strain, even though hours in the winter were relatively short. Indeed it was believed that productive effort was higher in summer than in winter in spite of considerably longer hours, because of longer rest breaks and easier daylight travelling. But the hours referred to above were minimum standard hours and a large number of individuals were called on to

work longer, particularly in the repair districts. In some of these, like London and East Anglia and Cardiff, there were not in fact any definite local agreements about hours of work. In the spring of 1941 many repair workers were said to be working eighty hours a week; and on Merseyside the standard hours agreed remained excessively high until 1943.

The repairs side of the industry created special difficulties because the flow of work was bound to be somewhat uneven and there was great pressure to have it fully manned, particularly when a ship had to be finished to sail in convoy or to carry troops. The difficulties were increased by the concentration of such work in the West Coast ports. In the spring of 1941 losses and damage from the U-boat attacks reached a dangerously high peak. In order to speed up the turn round of merchant ships, and at the same time to reduce the long hours of many repair workers, it was decided at the Battle of the Atlantic Committee of the War Cabinet in May 1941 that some merchant repair work, particularly in the West Coast ports, should be manned on a double shift.¹ In May 1941 district shipyard controllers on the Clyde, Merseyside and the North-East coast were told that a double daylight shift should be introduced on all work on merchant ships under repair which governed the clearing of a dry dock or the return of the vessel to service.

Labour for this purpose was not available from outside the industry and it was proposed to transfer it from naval new construction. Such transfers of labour were, however, difficult in areas predominantly engaged on merchant repair work, such as Merseyside. Moreover, transfers from naval work of the basic trades chiefly needed on repair work would throw men in the finishing trades out of work and result in their being permanently lost to the industry. Many employers, also, were lukewarm to the idea of double shifts, partly because of the reorganisation involved and the shortage of supervisory staff, partly because of the opposition of the men. The workers feared there would be transport difficulties arising from the awkward starting and stopping times; they objected to the risk of being away from home during air raids, and above all to the loss of earnings. In the spring of 1941 a national agreement was reached on the hours to be worked and the rates applicable.² But workers

¹ In general the shipbuilding industry had a surplus of capacity in relation to its skilled labour force and the introduction of a universal two shift system was never seriously contemplated, though it was discussed in the Admiralty in the spring of 1941. Apart from shortage of labour and the objections of both sides, it would in any case have been difficult to work two shifts in the winter because of the black-out.

² The men were to work fifty and a half hours weekly on the first shift and forty-five on the second, but to be paid on each the equivalent of sixty-four hours plain time rate because certain periods of the shift and, of course, Sundays, were to be paid at overtime rates.

on the Clyde, where the scheme was first launched, refused to honour it and demanded higher rates. Apart from these practical difficulties in introducing a two shift system there emerged in certain districts in the spring of 1941 a capacity shortage which made a full two shift system impossible. Certain bottleneck machines and cranes were already being worked round the clock and to extend two shift working would only have disorganised production.

In the result the proposal to introduce double day shifts was never implemented. On Merseyside and the North-East coast there was some two shift working on particularly urgent jobs. On the Clyde there were no double day shifts, but six firms were working a night shift in July 1941. In South Wales both sides of the industry strongly opposed the introduction of shifts and no progress was made. In some of the East Coast ports there was of course, as the Admiralty recognised, insufficient work to justify a double shift. In February 1942 the Admiralty reported that the amount of shift working in the shipyards was negligible and confined to exceptionally urgent work.

On Merseyside the greater part of the industry continued to work regularly every Sunday in the summer of 1942; this made a week of seventy and a half hours, apart from additional overtime. The local Warship Production Superintendent and the District Shipyard Controller were convinced that these hours were too long and had been pressing the matter on the attention of the Admiralty since 1940. Long hours led to overstrain, though, as was to be expected, the practice grew up of having two-hour lunch breaks; coupled with the cost-plus system and time working prevalent on repair work and the shortage of supervisory staff, Sunday working also led to some slacking and absenteeism. The Warship Production Superintendent pointed out that the very uneven flow of work naturally demoralised the men. But he also claimed that there was much abuse of Sunday working; it was a temptation to go slow with a job towards the end of the week to make it stretch over Sunday with its double pay.¹ The Superintendent believed that output would be accelerated by the stoppage of Sunday work. It may be noticed that two large firms on the North-West coast worked considerably shorter hours than the average, with no regular Sunday work. At one of these, where they worked piece work on repairs, the management would not increase working hours because of high overtime absenteeism and was well satisfied with the men's work and output.

In 1942, however, understandably perhaps, but illogically, the Regional Director of Merchant Shipbuilding and Repairs and the local Inspector of the Ministry of War Transport could not agree to a

¹ Compare the evidence of a foreman before the Health of Munitions Workers Committee in 1915: 'Sunday work gave six days' output for seven days' work on eight days' pay' (quoted in Industrial Health Research Board, *Hours of Work*, *op. cit.*, p. iii).

substantial reduction in Sunday work on urgent repairs to ships required to sail with convoys, which represented the bulk of the work on Merseyside. The unions, while agreeing that the long hours worked were thoroughly bad—the Boilermakers' Society's delegate even believed that output could be increased by twenty-five per cent. if hours were reduced to a lower level—demanded compensation in higher wages if Sunday working were to be stopped.¹

Having failed to get agreement in 1942 with either side of the industry, the District Shipyard Controller decided in 1943, in consultation with Admiralty headquarters and with the support, on this occasion, of the Director of Merchant Ship Repairs and of the Sea Transport Inspector, to issue instructions to firms that Sunday working was to cease in summer except on really urgent work and with the prior concurrence of the Admiralty production department concerned. As was to be expected, the Confederation of Shipbuilding and Engineering Unions objected strongly, not only to the reduction of Sunday work but to the failure to consult them, and a mass meeting of 5,000 workers sent a protest to the Prime Minister and to the First Lord. Following a meeting at the Admiralty, however, the local representatives of both sides met and agreed that week-end overtime in summer should not exceed two Saturday afternoons and two Sundays a month.

In the last years of the war an attempt was made to abolish systematic overtime in the private shipbuilding industry and to reduce the regular working week to forty-seven to fifty hours. This policy was put forward by the Controller of Merchant Shipbuilding and Repairs in June 1944, just after the Clyde Shipbuilders' Association had abolished all regular weekday overtime, and was approved in principle in the Admiralty. Nevertheless, the Admiralty was somewhat taken aback when in the autumn the employers on the Clyde and the North-East coast, without consulting the Admiralty and without the agreement of the local trade union representatives, abolished all systematic overtime, including regular Sunday work; the employers intended, however, that a considerable amount of overtime working should continue at their discretion.

Shipbuilding employers thought that many workers were suffering from overstrain, but this was not their main motive in reducing hours. The cost of overtime working was great, and particularly so when, as is explained below, work was disorganised by heavy absenteeism. The employers believed that if they could call for overtime only on men who they knew would work they could increase output and reduce costs. Merchant building prices had doubled

¹ Some local union representatives favoured a rota system, with one day in eight free, but it was held to be impracticable on ship repair work and an impossible strain on the supervisory staff to have one-eighth of a trade away each day.

since 1939,¹ and the employers were bound to consider the return of peace-time conditions.

One of the chief purposes of overtime working was to accelerate work which had got temporarily out of step through shortage of skilled labour or material or fittings. During the war, of course, this balancing of work had often to be done by men working overtime above the agreed minimum. But the system of regular overtime worked during the war tended to have the very opposite effect from that described above because of the heavy absenteeism during overtime hours which disorganised the work.

As is explained above, the figures of absenteeism in the shipyards were not entirely reliable.² The trade union representatives questioned the accuracy of statistics put forward by the employers in the discussions which followed the decision to reduce hours of work; but it could not be denied that there were a great many absentees, too many to be effectively disciplined, as the Confederation suggested they should be, by Yard Committees. The employers on Tyne-side claimed that over a period of six weeks in the summer of 1944 thirty-seven per cent. of the men available for Sunday work were unavoidably absent on Sunday or on one or more weekdays in lieu of Sunday and that the average weekly hours actually worked in the industry, including 'bottleneck overtime', were only 46·4 per cent. Specific instances were given, as of the day when half the electrical workers who turned up for overtime at one firm were chargehands or markers off. For reasons given above absenteeism was particularly high among riveters,³ but it was also very high among platers and electricians. Much time was wasted in reforming riveting squads in the absence of some of their members and platers' helpers had to be found alternative work. Absenteeism had so unbalanced trades on the Clyde that the alternative to stopping systematic overtime was to throw some of the forward trades out of work. It is indeed arguable that this out of balance should have been remedied earlier.

Although the Admiralty sympathised with the employers' point of view it regarded their action in abolishing all regular overtime without prior consultation with itself or with the unions as ill timed. For the shipyards had much urgent work in hand for the Far Eastern war; and even if the Admiralty could be certain that the new working arrangements would not in themselves affect production, the employers' action provoked strong resentment among the men which did lead to loss of output. One of the men's main objections was that time workers and less skilled workers—whose absenteeism record was comparatively good—would suffer heavily from the loss of regular

¹ *Lloyd's List and Shipping Gazette*, 31st October 1944.

² See p. 276 above.

³ See p. 290 above.

overtime, for their earnings for a forty-seven hour week would be very low; figures between £3 10s. and £4 10s. a week were mentioned. Moreover, the men resented the unilateral action of the employers. In their view they had during the war built up some claim to consultation not only on hours of work but on the position of the industry in general, both during and after the war. Memories of the inter-war years came quickly to mind; and, as representatives of the Confederation told the First Lord, they regarded the employers' action as the parting of the ways between war and peace production, the first threat to deprive them of the right to be consulted on matters which affected their livelihood as much as the employers'. Lastly, it was only a short time since the Controller of the Navy and the Financial Secretary had met representatives of the industry on the Tyne and pressed for increased effort to meet commitments in the Far Eastern war. The difficulty which the ordinary shipbuilding worker felt in reconciling this request with the employers' action strengthened his resistance to the abolition of regular overtime working.

Workers on the Tyne refused to work any overtime at all and there was a serious threat of a general stoppage and the denouncing of dilution agreements. The situation was easier on the Clyde because of the risk of unemployment as an alternative and because the local overtime agreements specifically reserved the right of employers to determine the amount of overtime to be worked. The Admiralty could not afford the loss of output which would result from the men's refusal to work any overtime, and the consequent difficulty in attracting new recruits. The First Lord twice intervened to persuade the employers to maintain the *status quo* while the question was under negotiation between the two sides. Since winter lighting restrictions were now less severe he also tried to persuade the unions to agree to weekday overtime instead of Sunday work, but without success. Eventually at Central Conference in December an agreement was reached for the Tyne according to which, if overtime or Sunday work was required to ensure balanced production, the employer concerned would consult the Yard Committee and inform it of the need for overtime and explain why it was necessary. Thus the employers gained their point in abolishing systematic overtime but the unions retained a measure of control over its working. Unfortunately there was some doubt locally as to the interpretation of this agreement and in some yards the workers' ban on overtime continued.

In the shipbuilding industry these difficulties in reducing hours of work were confined to the private yards; dockyard employees were not on the whole anxious during the war to work extensive overtime. This was perhaps because the Admiralty never allowed the habit of

Sunday working to become firmly established. After the first year of war when prolonged and unstandardised hours were worked in the dockyards a working week of about fifty-six hours was regarded as the standard desirable and was generally adhered to, and there was no regular Sunday work.¹ A proposal by the management side at Sheerness Yard in the winter of 1942 to work alternate Sundays from November to February in preference to an early morning start in the half light was only reluctantly agreed to by the Admiralty. Moreover, the negotiations revealed a very general reluctance on the part of the employees to work on Sundays.

The hours of work of young people were a special problem in the shipbuilding industry. Under the General Emergency Order of June 1940 young persons of sixteen and over were limited to a sixty hour week and those under sixteen to a forty-eight hour week. Both were to have a weekly day off, although work on a seventh day could be authorised by the factory inspectors to meet an exceptional emergency. In the shipyards, however, Sunday working was essential in winter, and many riveting and plating squads were dependent on the services of apprentices and young persons employed as heaters, catchers, etc. Young persons over and under sixteen continued therefore to work roughly to adult hours, including Sundays, while the Ministry of Labour unwillingly turned a blind eye. An attempt on the Clyde to reinforce the forty-eight hour maximum for those under sixteen caused the boys to threaten strike action. When in March 1944 it was decided to enforce the limit of forty-eight hours for youths under sixteen and to reduce the hours of youths over sixteen to fifty-two the factory inspectors were still instructed 'not to take a stiff line' about shipyards and Admiralty dockyards. By this time, however, district shipyard controllers did not think the suggested reductions would have any serious effect on output and in fact a number of firms had already complied with the proposals made.

¹ Small parties of men in the dockyards maintained a continuous day and night shift, being on duty with meal and rest breaks for a twelve-hour day, with one week in three on ordinary yard time. They were employed on productive work but were also available for emergency repairs and included A.R.P. personnel.

CHAPTER XI

WAGES

(i)

The Background of Government Policy

THE WAGES POLICY pursued by the Government in the rearmament period and during the recent war was strongly influenced by the experience of the war of 1914-18. This was taken to show that government attempts to control wage rates did not achieve their main object of restricting wage increases but merely discredited the constitutional trade union leadership and caused resentment and industrial unrest. Arguing from this experience and from its knowledge of the existing industrial situation, the Ministry of Labour was throughout the period the strongest opponent of government control of wages. Its policy finally prevailed against contrary views put forward chiefly by economists, both in and outside government service, for example by Lord Stamp, Economic Adviser to the Government, in the winter of 1939-40.

The above interpretation of the lessons of the 1914-18 war was not, however, immediately adopted even in the Ministry of Labour, which in 1927 put forward a proposal that in the event of war wage rates should be held at their peace-time level and should afterwards be regularly adjusted by a Central Arbitration Tribunal. Prices and profits were also to be controlled. This proposal reappeared in a Treasury memorandum of 1929 on economic policy in the event of war and was accepted by the Committee of Imperial Defence.¹

Soon afterwards, however, warning voices were raised in the Ministry of Labour against such a policy; though it might have seemed a logical one to the planners in the 1920s, the realities of the situation in the rearmament period were clearly against it; the Government therefore abandoned in 1937 the earlier plans to control wage rates in the event of war. Apart from the difficulty of controlling profits—an essential counterpart to wage control—it was held to be impossible, at any rate in the early stages of war, to interfere directly

¹ See W. K. Hancock and M. M. Gowing, *British War Economy*, in this series (H.M.S.O. 1949), pp. 47-8.

with the trade unions' right to bargain for higher wages and with the normal machinery of industrial negotiation.

At the outbreak of war, therefore, the wages structure in government-controlled establishments and in contractors' works was determined, so far as the Government was concerned, primarily by the Fair Wages Resolution. This Resolution was first carried in the House of Commons in 1891 and was later confirmed and expanded on 10th March 1909 as follows:

The contractor shall, under penalty of a fine or otherwise, pay rates of wages and observe hours of labour not less favourable than those commonly recognised by employers and trade societies (or in the absence of such recognised wages and hours those which in practice prevail among good employers) in the trade and in the district where the work is carried out.

This Resolution applied originally to government contractors, but in March 1912 a poster was displayed in all establishments controlled by the War Office accepting the spirit of the Fair Wages Resolution. As the majority of the workers covered by the Fair Wages Resolution were engaged on engineering or closely related work the wages structure in government establishments and in contractors' works followed closely the structure of wages agreed between employers and unions in the engineering industry—a structure which became increasingly complicated and illogical as the years passed.¹ During the Second World War the trade unions and the employers submitted to the Government proposals for a revision of the Fair Wages Clauses in government contracts but this was delayed until after the war.²

In the period before Dunkirk, the threat of an uncontrolled inflationary movement, with wages chasing prices in a vicious spiral, grew; but efforts by the Government, supported by the employers, to persuade the unions to accept a measure of control were abortive. After the change of Government in May 1940 the Minister without Portfolio (Mr. Arthur Greenwood) put forward a proposal to freeze wages at their existing level for a period of four months; thereafter they were to be reviewed at four-monthly intervals by a Central Arbitration Tribunal. The substance of this proposal was put by the Minister of Labour to the Joint Consultative Committee³ in May 1940, though only as the most drastic of several suggested ways of

¹ See pp. 319–20 and 435–6 below.

² Among the alterations proposed were the addition of clauses providing that an employer should recognise his workers' freedom to join a trade union, and that trade practices given up during the war should be re-established after it. The last proposal was embodied in an Act of Parliament in 1942. The new Fair Wages Resolution was approved by the House of Commons on 14th October 1946 (see *Ministry of Labour and National Service Report for the Years 1939–1946*, Cmd. 7225, 1947, p. 288).

³ An advisory committee representative of both sides of industry.

adjusting the existing system so that wages could be treated on a common basis. Again on this occasion central control was decisively rejected by the trade union representatives, though the employers were divided in their view. The trade unions were determined to retain the existing negotiating machinery, but they did agree to the reference of unsettled disputes to a Central Arbitration Tribunal whose decision would be binding.

This Tribunal was established under Part I of the Conditions of Employment and National Arbitration Order of July 1940.¹ Part III of this Order contained a provision similar in effect to the Fair Wages Resolution but applicable to the whole of industry; it required the observance by all employers of terms and conditions not less favourable than those laid down in agreements between employers and workers in the industry concerned.

If—which is uncertain—Mr. Bevin had been temporarily converted to the need for a centralised control of wages, he soon returned to the traditional Ministry of Labour view. He was perhaps not so much opposed to government interference in wage negotiations—he himself did quite often intervene by putting pressure on one or both sides of industry, although the results of his interference were recorded by the existing machinery. What he seems most strongly to have objected to, if only because it was impossible of achievement, was the pegging of wages. He also argued, in company with Sir William Beveridge, that central control of wages would only be possible if industry were fully socialised, as indeed he proposed in May 1940 that the munitions industries should be.²

After industry had rejected centralised wage control 'the Government built up a wages policy upon twin foundations—first, the trade unions' moderation and sense of responsibility; secondly control of the cost of living'.³ The prices of basic necessities were on the whole successfully stabilised. It was true that the cost of living index did not fully measure the rise in the cost of living since some items of expenditure such as tobacco and entertainments, on which taxation had been deliberately increased, were underweighted in the index. Yet on the whole the price level remained fairly steady and thereby wage increases were checked. It cannot be said however that wages were wholly stabilised. 'When the stabilisation policy was first introduced wage rates had risen six per cent. less than the cost of living; but by the Spring of 1944 they had risen 11 per cent. more than the cost of living.'⁴ Only part of this rise resulted from necessary

¹ S.R. & O. 1940, No. 1305, 18th July 1940. See further pp. 402-3 below.

² See pp. 103-4 above.

³ W. K. Hancock and M. M. Gowing, *op. cit.*, p. 333. In certain industries, for example the railways and coalmining, the Government maintained a closer measure of control over wages, but the existing negotiating machinery was not superseded.

⁴ *Ibid.*, p. 502.

increases in low-paid occupations or could be justified by increased productivity. Set against this, however, as the Chancellor of the Exchequer pointed out, there was peace and goodwill in industry.¹

Thus the existing voluntary machinery for wage negotiation was never set aside. On the other hand there were certain means by which the Government could influence the rates of wages paid and the earnings of workers in the munitions industries. The contracts department of the supply Ministries through fixing of prices possessed a certain measure of control over wages; but it will be shown below that this was potentially greater in theory than in practice it proved to be.²

The contracts departments were, for example, unable to prevent employers from offering high earnings to attract labour. In 1939-40 this practice was a potent factor in forcing up earnings in the munitions industries. In theory the Essential Work Orders made in 1941 should have put a stop to it, for under the Orders workers could only leave their employment with the consent of the national service officer, who would not normally accept low earnings as a reason for their doing so. In practice, however, if low wages were paid in a particular establishment, the workers, assisted by their trade union officials, used many and devious methods to transfer to better paid work, though the real reason for leaving their employment would never be mentioned to the national service officer or to the Appeal Board. Workers thrown on the labour market were, of course, equally attracted by highly paid work and, as has been said,³ the Ministry of Labour was very hesitant to direct them to lower paid work against their will.

The making of the Essential Work Order did not therefore put a complete stop to the raising of wages in order to attract labour. On the other hand, of course, such freedom of movement as remained to workers protected them from being forced to enter or remain in badly paid employment. The Order, however, contained specific safeguards on this point; for it gave the Minister of Labour power to satisfy himself that conditions of work reached a certain standard before scheduling an establishment under the Order. This gave him a sanction to secure increases in wage rates in badly paid industries. In fact even outside the terms of reference provided by the Essential Work Order the Government did intervene in wage negotiations by putting pressure on one or both sides of industry, especially where wages questions appeared to influence very strongly the supply and productivity of labour. For example, in June 1940 the Minister of Labour intervened to secure an important agreement in the engineer-

¹ H. of C. Deb., Vol. 386, Col. 413, 26th January 1943.

² See pp. 321-2 and 326-7 below.

³ See pp. 63-5 above.

ing industry ensuring that skilled toolroom workers on time rates did not earn less than productive workers on piece rates. Later in the year he tried unsuccessfully to persuade the engineering industry to equalise district rates in order to make labour transfers easier.¹

On the whole these interventions had at least a measure of success when the Government tried to raise the earnings of the indubitably underpaid categories of workers, as when the Ministry of Labour and the Ministry of Supply made efforts to raise the minimum wages in the lower paid heavy industries;² or when the Ministry of Labour and the M.A.P. did the same for the wages of women and girls in the radio valve industry. Similarly the Ministry of Labour and the Admiralty had some success in securing an extension of payment by results in the shipbuilding industry. Employers, with an eye to post-war conditions, were naturally reluctant to raise wage rates; but they wanted labour, and in war-time in any case the Government paid the bill.

(ii)

High Earnings in the Midlands

On the other hand, the comparative helplessness of the Government in the face of the men's opposition—the price of industrial peace—was shown in the failure of an attempt by the supply departments to persuade the men in some of the aircraft and engineering factories in the Midlands to accept a reduction in earnings. Earnings in the engineering industry varied very widely, both according to the locality of firms and to the type of production concerned. There were standard time rates in the industry, agreed partly on a district, partly on a national basis;³ but there were also a number of supplementary payments, such as piece work and merit bonuses, which were agreed firm by firm. The tendency for many years had been for these supplementary payments to rise faster than the standard rates and thus to become an increasingly important part of the total earnings of engineering workers.⁴ Owing to the diversity of processes and the rapidity of technological change in the industry piece work prices

¹ See p. 63 above.

² See pp. 162-6 above.

³ See pp. 335-6 below.

⁴ Cf. K. G. J. C. Knowles and T. P. Hill, 'The Structure of Engineering Earnings' in *Bulletin of the Oxford University Institute of Statistics*, September and October 1954, pp. 288-96. The authors quote (p. 296) Mr. J. R. Scott (A.E.U.), who said in 1953 that 'the earning capacities of the workers were determined by the action taken in the individual workshops by the men themselves. . . . It was impossible to make any arrangements with employers, by national or district negotiations, which would iron out the anomalies that existed in regard to the differences of earnings. Our job was to get new high minimums, and once those were obtained the people in the workshops knew how to improve upon those minimums.'

had to be fixed by mutual agreement on a job by job basis. There was an agreement which guaranteed to piece workers earnings not less than a fixed percentage above time rates; but any general control over piece work earnings was impossible and in many factories they rose during the war to very high levels.

In the pre-war years the extent of piece working in the aircraft industry was limited. But even in the rearmament period wages in the industry were high compared with those in general engineering. This was partly because the employers were very selective in their choice of labour. Moreover as the aircraft industry was expanding very rapidly it naturally set the pace in forcing up wages in competition for skilled labour. In addition, before the war some important firms like De Havilland's, Short's, Saunders-Roe and Parnall were not members of the Engineering Employers' Federation and were therefore freer to pay merit and bonus rates above the established basic rate. The relatively high earnings in the aircraft industry could also be explained by the 'sheltered' or 'not for export' nature of the product. They were also partly due to the close links between the aircraft and the well-paid motor industry in the West Midlands. Earnings in the motor and aircraft industries in the Coventry and Birmingham district were particularly high. Engineering earnings in the Coventry district had been well above the average even in the 'twenties'¹ and this advantage was increased during the rearmament and war years largely as a result of the heavy concentration of armament production in this district. Moreover, in pre-war years, when trade union district committees in other areas often imposed a limit on the piece work earnings to be made by their members, it had already become traditional in Coventry for engineering workers to go all out to obtain the highest possible earnings.

Though the Ministry of Labour, in particular, was concerned about high earnings in the rearmament period no serious consideration was given to the question until after war broke out. In the winter of 1939-40 complaints of poaching in the engineering industry increased. Complaints of poaching by aircraft firms led the Air Ministry to set up a departmental committee to enquire into the problem and in March 1940 this was followed up by the appointment of an Inter-departmental Committee on Wages in the Armament Industry. The investigations of this Committee showed that, while before the war piece workers earned on an average a bonus of thirty per cent. above time rates (the engineering agreement ensured a bonus of twenty-five per cent.), by the spring of 1940 bonus

¹ Cf. K. G. J. C. Knowles and T. P. Hill, *op. cit.*, p. 303. The authors were not able to reach a definite conclusion on whether earnings in the West Midlands were high because of the concentration of the motor and aircraft industries there or whether earnings were higher in these sections because of their concentration in the Midlands (see pp. 312-19).

earnings had risen to some forty to fifty per cent. above time rates in most firms; some at least of this increase derived from increased war-time effort. In the new armament factories in the Midlands, however, bonus earnings of 100 per cent. or more were not uncommon. Even in the North-West region, where bonus earnings were usually in the region of forty to fifty per cent., earnings were pushed up by high overtime and merit rates.

Earnings in the aircraft shadow factories in the Midlands, established alongside and managed by motor car firms, were among the highest. The Air Ministry felt vulnerable on this point since it was particularly responsible for these factories and could hardly ask its ordinary contractors to limit earnings while high earnings prevailed in the shadow factories. Moreover the Ministry realised that the influences which normally operated to keep earnings down in commercial undertakings did not operate to the same extent in shadow factories whose managements had no trouble in finding all the money they wanted to pay wages.

The Air Council Committee on Supply took the view that in the existing labour supply situation and in the light of the Government's wages policy, nothing could be done to limit the competitive bidding up of wages. The Inter-departmental Committee made more positive proposals, but they proved to be impracticable. One of the most obvious ways by which to limit poaching was to redistribute the available skilled labour supplies and to speed up dilution. In the political situation existing in the spring of 1940, however, it was impossible for the Ministry of Labour to control the movement of labour, and the Committee was over optimistic in thinking that any great result could come from the alternative which it proposed—the voluntary redistribution of labour between employers under the aegis of the newly constituted Area Boards.¹

The more direct remedy proposed by the Committee was to apply the Fair Wages Clause with a reverse effect. The existing Clause provided that wage rates paid by contractors should be not less favourable than those usually paid in the district. The Committee proposed that there should be a clause in contracts providing that wage rates should be calculated on the basis of those usually paid by federated employers in the district. Such a clause could be effective in an industry like shipbuilding for the employers were highly organised and, within districts, rates were fairly uniform. The Admiralty did in fact step in to prevent shipbuilding firms from paying rates higher than those agreed in the district.

But the proposal could not solve the problem of high earnings in the engineering industry in the Midlands. Indeed the Committee itself realised that it would be difficult to decide if the clause had been

¹ See pp. 39-40 above.

properly observed, that the clause could not be made retrospective to cover existing contracts, and that contractors would not welcome a clause which might prevent their obtaining labour. There was the additional difficulty that firms paying the highest wages were not always those with high labour costs. The Air Supply Board felt that the Committee's proposal was impracticable, though it desired to take some action. The Contracts Directorate drew up draft letters to shadow factory managers and contractors asking them to inform the Air Ministry if and when they found it necessary in order to recruit labour to offer terms and conditions of service more favourable than those normal to the industry or in the district. Managements were to make clear what steps they had taken to avoid this action. The issue of such letters might well have created an awkward situation for, as the Director of Contracts pointed out, it could have faced the Ministry with the difficult alternative of denying a firm labour or officially countenancing high wages. But before the draft letters could be considered by the Air Supply Board the change of Government intervened and the whole political and economic position in the country was altered.

The problem of rising wages, however, remained unsolved. The change of Government made possible control over the movement of labour. In June 1940 the Restriction on Engagement (Engineering) Order was made, making it compulsory to engage labour only through the employment exchanges or recognised trade union channels. In March 1941 the Essential Work (General Provisions) Order further restricted the movement of labour in the engineering and other munitions industries, though, as has been said, it by no means entirely prevented men from transferring to other work in search of higher earnings. In spite of these measures the rising trend of earnings in aircraft and other engineering factories in the Midlands continued. National wage claims and the less formal, but more important, shop level manoeuvres by shop stewards and operatives to push up bonus rates and piece work earnings were both continuous and successful. Earnings in the aircraft factories also rose in 1940-41 through the wider extension of payment by results. This in itself had many advantages. But the rate-fixing staffs of the industry were small and inexperienced; and the problem of rate fixing in the aircraft industry, with the frequent changes in types and numbers of aircraft produced, tested this small staff to the limit and not unnaturally found it wanting.

At best of course high earnings were accompanied by equally high productivity. It was of this situation, and to counteract fears of cuts in piece work prices if earnings were high, that the Minister of Labour was thinking when he frequently said that he did not care what men earned. At worst, as the Select Committee on National Expenditure

was quick to point out, high earnings were one cause of absenteeism and slackness. The Committee held that after a man had earned over 35s. or £2 in a shift or over £12-£15 in a week his interest in increasing his earnings and his output diminished. Moreover although relatively high earnings were desirable in the munitions industries generally in order to attract labour into them, high earnings in the engineering and aircraft industry in the Midlands made it difficult to transfer labour to other areas where it was badly needed. In Coventry itself wages paid for similar work varied widely between factories with consequent difficulties in labour supply to those in which wages were comparatively low. The Select Committee on National Expenditure found early in 1941 that average earnings in aircraft factories were not 'as extravagant as was popularly supposed', but recommended that the M.A.P. should do everything in its power to prevent earnings in different establishments from getting out of step; in other words to attempt to control the rise of both rates and bonus earnings.¹

The problem had not become any easier of solution. The Select Committee itself recognised the dilemma that production might be adversely affected as well by threats to cut prices as by a decision not to cut them. In their reply to the Select Committee in November 1941 the supply departments pointed out that the problem of excessive piece work earnings was constantly under consideration. In general the departments tried to keep them in check by placing as many contracts as possible on a fixed price basis, and where this was not possible by investigation of labour costs which appeared to be high as a result of bad rate fixing. But, in the situation as it had developed, pressure on employers by the contracts departments to reduce wages was not likely to be very effective.

Thus in spite of the objections of both sides to government interference in wage negotiations, some such interference was becoming inevitable. In July 1941 the M.A.P. held discussions with the Engineering Employers' Federation on the subject. The Ministry's representatives suggested that high piece work prices were the main cause of the rise in earnings and urged that the Federation should do all in its power to ensure that the engineering agreement was observed to the full. It will be remembered that this agreement laid down that prices were to be fixed to enable a worker of average ability to earn not less than twenty-five per cent. over his basic time rate. The agreement also laid down that prices mutually agreed could not be altered unless there was a change in the method or material of production or a mistake in calculation, or by mutual agreement.

¹ *Fifteenth Report from the Select Committee on National Expenditure, Session 1940-41, Section 7.*

The employers agreed to take effective action to ensure that the engineering agreement was worked to as far as circumstances permitted, but such a resolution barely touched the fringe of the problem. The agreement had arisen from the unions' demand for minimum standards. The figure of twenty-five per cent. over the basic time rate was therefore intended as a minimum not a maximum; and the provision for refixing prices applied only to exceptions, and not to the general run of prices. The remaining clauses tended to be inoperative. Managements rarely, from self-respect, invoked the 'mistake clause' and while the 'mutual agreement' clause opened a wide range of possibilities it had never been thoroughly explored in peace-time. In a number of cases high earnings were the result not of changed methods of production but of changes in the production conditions. Prices fixed, efficiently or inefficiently, when the flow of materials was irregular, the numbers of jobs required limited and the workers relatively new or inexperienced at the job remained the same when the flow was smooth, numbers increased and the workers had invented and applied numerous gadgets and improvements for speeding production. The engineering agreement as it was operated could make little impression on these circumstances.

New types of aircraft coming into production in the second half of 1941 and early 1942 presented further problems. Were the new prices to be fixed on a 'time and twenty-five per cent.' basis, the minimum of the agreement, or were they to be fixed so as to yield the average bonus being earned on jobs going out of production? In the abstract it appeared that new types were a heaven-sent opportunity to redress the balance in the wages structure, but the engineering employers recognised very clearly the difficulties in such a policy. The trade unions claimed that if, for the sake of example, a worker had been earning 3s. an hour, or time plus 200 per cent., the fact that an aircraft had been modified or a new type introduced was no reason to reduce his earnings to 1s. 3d. an hour, time plus twenty-five per cent., when the energy and effort he would put into the new job would be the same. The solid common sense of this viewpoint proved to be the rock on which the suggestion that the engineering agreement minima should be adhered to foundered. The issue received particular attention in the Coventry area between September 1941 and February 1942, and in negotiation with the trade unions the local Engineering Employers' Federation made an offer to fix new prices on the basis of time plus 100 per cent. This offer was rejected by the trade unions and no overall agreement was reached, but the offer showed how far this section of the industry was removed from the operation of the agreement.

The position was to remain materially the same throughout the war. In mid-1941 the M.A.P. had tried to secure more complete

information about earnings in the industry but without success, since firms professed themselves unable to provide the Ministry with the data required. A more successful review of shadow factories was made in March 1942. This showed that, though taking the country as a whole there did not appear to be undue cause for alarm, the negotiations with the Engineering Employers' Federation, more or less behind the backs of the trade unions, had been completely unsuccessful in solving the problem in the Birmingham and Coventry area. There earnings in both shadow and in some ordinary trade factories were extremely high and tending to increase. The Ministry made a further review in October 1942, before reopening discussions with the employers. This disclosed that not only were excessive bonuses being earned, but also that the difference between the bonuses earned by different workers in the same establishment was very great. No major difference appeared between the ordinary commercial and the shadow factories. The highest bonus earnings were recorded in a motor factory in Coventry where on some jobs a bonus of 581 per cent. was earned with an average throughout the factory of 324 per cent.; and at an airframe shadow factory in Birmingham a bonus of 392 per cent. was earned by some workers with an average throughout the factory of 372 per cent.¹

After this investigation the M.A.P. reopened discussions with the Engineering Employers' Federation on the same lines as before, with the Ministry of Supply now also taking part. In addition, the Secretary of the Federation had informal discussions on the subject with the President of the A.E.U. The results of these discussions were not, however, decisive; and though it was clear that very high bonuses were being earned, it was less certain whether production was suffering as a result.

An investigation by the Production Efficiency Board of certain Coventry firms in March and April 1943 threw some light on this side of the problem. The investigation arose out of a heavy demand from Coventry for additional labour to meet the expanded M.A.P. programme. It revealed that there would be no need for more labour if the existing labour force in Coventry were fully used, and that the chief obstacle to this was the high piece work earnings which prevailed throughout the city. In each factory there was evidence of slackness and lack of discipline. Operators were slow in starting work at the beginning of each shift and after each break, and there was complete stoppage of work from fifteen to thirty minutes before each break. The Board's discussions showed that managements were aware of these weaknesses but felt powerless to remedy them. Trade

¹ The highest earnings per day (excluding overtime allowances) recorded were 90s. 4d. and 54s. 6d. in commercial, and 87s. 1d. and 60s. 8d. in shadow factories. The lowest were 26s. 8d. and 24s. 4d.

union representatives agreed that the weaknesses existed. The root of the problem appeared to be the fixing of times and prices which resulted in high earnings without a correspondingly high effort. On the other hand it is fair to point out that there was no evidence to show that the cost of producing Bristol engines in Coventry—the factories concerned in the investigation were largely engaged on engine production—was higher, either in manpower or money, than that of similar engines produced in other parts of the country. Indeed indications were to the contrary.

The position revealed by the Board's investigation was, however, serious. It was suggested that the exceptional circumstances demanded an exceptional policy and that the Ministers of Aircraft Production and of Labour should make a direct approach to both sides of industry in Coventry. Before a meeting was arranged, however, the local Secretary of the Engineering Employers' Federation in Coventry started taking vigorous steps on the matter of high piece work earnings, countered by equally vigorous opposition from the trade unions; the Minister of Labour therefore decided that the time was inopportune for government intervention.

At one factory in the Coventry/Birmingham area some headway was made in reducing piece work prices. The management asked the workers in a shop where piece work prices were particularly high to accept a reduction of sixty-six per cent. The workers refused this, at first completely, but they later put forward an alternative offer of a one-third reduction. The matter went through procedure and was discussed at works, local and central conferences. In addition the Labour Adviser to the Minister of Aircraft Production interviewed the union representatives in Coventry. At Central Conference a compromise was accepted of a reduction of fifty per cent. in the piece work prices in the shop. The negotiations were lengthy and opposition by the unions strong, but a reduction was accomplished without a strike. However, the very high earnings in this particular shop and the high level of worker-management co-operation in the factory concerned had few parallels elsewhere in the Midlands, and this example of reducing rates by negotiation was not widely followed.

The Contracts Directorate also made further efforts to control earnings through contract price fixing. Following the National Arbitration Tribunal Award No. 326 of March 1943¹ it circulated an instruction stating that time and 27½ per cent. was to be the basis on which labour costs were to be estimated. The previous figure had been time and 50 per cent. The Arbitration Tribunal Award transferred 20s. from the national bonus to the basic rate of engineers;

¹ See p. 348 below.

time and 27½ per cent. at the new rate was equal to time and 40 per cent. at the old, so that the Contracts Directorate's instruction involved a drop of ten per cent. The effect of 'tightening up' by the Contracts Directorate is difficult to judge. The Second Secretary explained to the Committee on Public Accounts in June 1944:

We regard it as our business to see that in fixing prices with a firm we fix prices which are based on reasonable costs, and if the firm has, as we think, fixed its piece rates badly so as not to encourage the maximum production, we should regard that as a ground for giving a lower rate of profit to that firm, on the grounds that it has been to that extent inefficient.¹

The firm therefore had an incentive to fix its rates in accordance with the industrial agreement. It was agreed, however, that for the shadow factories the Ministry had no profit sanction, and the earnings in these tended to set the pace for the professional firms.

All these, however, were no more than mere incursions into a field over which the authority of the Government was very slight. Fundamentally the Ministry had no effective way of controlling earnings in the industry, either through its Contracts Directorate or through veiled or open intervention in negotiations between the two sides of industry. The Ministry's continuous prodding of the Employers' Federation probably had more effect than the action of the Contracts Directorate. In the later years of the war, however, the action of economic and industrial factors independent of government control at least restricted further rises in piece work earnings. By 1943 and 1944 the circumstances which had led to rises in earnings in the earlier years had altered. Improvements in conditions of production, for example, no longer had a marked effect on earnings. The organisation of the shops, storekeeping methods, progressing and tooling and jiggling for aircraft production had reached a relatively high level by 1943. Improvements on individual jobs continued but their effect on piece work earnings was limited compared with that of earlier improvements in organisation. Similarly, experience of production prevented rate-fixing mistakes in the early stages of output of a type or component; full allowance was made for the subsequent stepping-up of output from the few to the many and for the many economies in labour time that this would involve. Nevertheless in June 1944 the Ministry had still to report that, although there had been some improvement, the position in the Midlands remained unsatisfactory.²

¹ Evidence of Sir Lindsay Scott at Meeting of the Committee on Public Accounts, 27th June 1944. Minutes of Proceedings, question 4090.

² *Ibid.* Questions 4091 and 4093. In June 1953 weekly earnings in the Coventry district averaged more than 43s. above those in any other district even though hours worked there were comparatively short (K. G. J. C. Knowles and T. P. Hill, *op. cit.*, pp. 302-5).

(iii)

The Shipbuilding Industry

The problems of the shipyards were different from those of the engineering factories. In the first place earnings in the more homogeneous shipbuilding industry were on the whole more uniform than in engineering. The time workers in the shipbuilding industry, who at the outbreak of war included painters, plumbers, joiners, engineers and many shipwrights, as well as most semi-skilled and unskilled workers, were paid a national rate. There was a repair allowance of 3s. a week—more in certain districts—above the new construction rate.

The ironworking trades in the shipyards were paid by results on new work and in some yards on repair work too. The measurement of repair work was, however, more difficult and ironworkers on repair work were often paid a lieu rate which approximated to a piece work earning. In the ironworking trades piece work earnings were calculated on the basis of fixed price lists, the platers' being agreed on a yard and the riveters' on a district basis. These lists were very detailed—the Tyne and Wear list contained forty-six pages—and were many years old.¹ Advances to piece workers in the shipbuilding industry were given in the form of nationally agreed percentage or lump sum additions to earnings.²

Thus it is true that repair and other allowances caused variations in earnings between districts and yards and within yards as between new and repair work;³ earnings in London and Southampton were exceptionally high. On the other hand the existence of fixed price lists for the important constructional trades made for greater uniformity of earnings than was possible with the method of price fixing employed in engineering.⁴ The system of fixed price lists, however, increased the difficulty of adjusting piece work prices to the technological changes which took place during the war.

Earnings in the shipyards were also in the early years of the war relatively low. During 1941 there was growing dissatisfaction with earnings and unrest in the shipyards, particularly on the Clyde; for other workers in pre-war depressed industries, such as miners and

¹ The introduction of improved methods of work was met by percentage reductions in the fixed prices (see p. 332 below). Special allowances for difficult or dangerous jobs were included in the lists; but frequent *ad hoc* adjustments had to be made in the yards for variations in the quality of materials, the condition of tools, etc.

² See Table 18.

³ For the resultant difficulties in transferring labour see pp. 109–11 above.

⁴ High piece work earnings in the yards building tank landing craft were, however, a problem (see p. 97 above).

Table 18: Wage Advances given in the Shipbuilding and Ship-repairing Industry

| Date, Amount of Advance and how given | Time Workers | | Piece Workers, including Lieu Workers |
|---|-------------------|---------------------|---------------------------------------|
| | Skilled Time Rate | Unskilled Time Rate | |
| Rates, etc. at October 1938 | 68s. | 49s. | Earnings plus 16 per cent. |
| September 1939, 2s. per week to time workers and 4 per cent. to piece workers, by Agreement | 70s. | 51s. | Earnings plus 20 per cent. |
| February 1940, 5s. per week by Agreement | 75s. | 56s. | Earnings plus 20 per cent. + 5s. |
| January 1941, 3s. 6d. per week by N.A.T. award | 78s. 6d. | 59s. 6d. | Earnings plus 20 per cent. + 8s. 6d. |
| December 1941, 5s. per week by N.A.T. award | 83s. 6d. | 64s. 6d. | Earnings plus 20 per cent. + 13s. 6d. |
| December 1942, 6s. per week by Agreement | 89s. 6d. | 70s. 6d. | Earnings plus 20 per cent. + 19s. 6d. |
| March 1944, 4s. per week by N.A.T. award | 93s. 6d. | 74s. 6d. | Earnings plus 20 per cent. + 23s. 6d. |
| May 1945, 4s. 6d. per week by Agreement | 98s. | 79s. | Earnings plus 20 per cent. + 28s. |

Source: Report of a Court of Inquiry into a Dispute between the Shipbuilding Employers' Federation and . . . the Confederation of Shipbuilding and Engineering Unions, Cmd. 9085, 1954, Appendix I.

iron and steel workers, had received increases amounting to 20s. a week since the war began compared with the shipyard workers' 8s. 6d.

In December 1941 the National Arbitration Tribunal made an award of an additional 5s. a week to shipbuilding and engineering workers, which for the time being allayed the discontent. It will be seen from Table 19 that though in 1940 shipbuilding tended to lag behind the other munitions industries, by 1944-45 average earnings were second only to those in motor vehicle and aircraft manufacture. The relative position of shipbuilding workers certainly improved. But their work was often more arduous than in many branches of engineering. There was, too, a wide variation between the earnings

Table 19: Average Earnings for Men (21 and over) in Certain Industries

| | Last Pay Week of Oct. 1938 | W/E 20th July 1940 | W/E 12th July 1941 | W/E 18th July 1942 | First Pay Week of July 1943 | First Pay Week of July 1944 | W/E 21st July 1945 |
|---|---|-----------------------------|-----------------------------|-----------------------------|--|--|-----------------------------|
| | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. |
| Iron puddling, steel smelting, rolling, forging, etc. | 79 11 | 106 2 | 111 5 | 123 3 | 133 1 | 133 10 | 135 0 |
| General engineering and engineers' iron and steel founding | 73 8 | 97 11 | 106 8 | 121 7 | 130 11 | 129 2 | 125 5 |
| Electrical engineering | 74 5 | 106 6 | 107 4 | 123 11 | 131 7 | 132 2 | 129 4 |
| Marine engineering | 75 1 | 101 4 | 108 2 | 118 1 | 132 8 | 128 1 | 124 4 |
| Constructional engineering | 72 0 | 95 8 | 101 8 | 113 11 | 122 0 | 125 3 | 127 0 |
| Motor vehicle, cycle and aircraft (including components) manufacture and repair | 83 1 | 114 11 | 127 5 | 147 5 | 155 10 | 159 11 | 143 4 |
| Shipbuilding and ship-repairing | 70 1 | 103 3 | 116 7 | 127 4 | 143 1 | 144 10 | 145 6 |

Source: Ministry of Labour and National Service.

of time and piece workers.¹ It was the comparatively low earnings of the time workers, together with special difficulties which arose in the boilermaking trades because of the introduction of new methods of work, that were the chief causes of discontent in the war years.

The Ministry of Labour was very anxious to see piece working extended to all trades in the shipbuilding industry. This, it argued, would not only reduce the demand for labour but would also, by making earnings more attractive, simplify the problem of supplying additional labour. When in the spring of 1942 the Admiralty made large demands for additional skilled and unskilled labour, which the Ministry of Labour questioned, the Minister of Production set up a Committee to study the use of labour in the shipyards and, in particular, the possibility of extending payment by results.² The Committee's recommendations on this question were, however, cautious and did not satisfy the Minister of Labour. It recommended the extension of payment by results but deprecated any forcing of the pace.

There were various obstacles to the extension of payment by re-

¹ In a typical week in October 1942 the earnings of adult skilled time workers on new and repair work averaged only 128s. for a 57 hour week, i.e. including overtime and Sunday work; the adult skilled piece workers earned on an average 164s. 6d. for 51 hours; adult unskilled time workers earned 102s. for 58 hours.

² See p. 137 above. The Committee was also to pay special regard to dilution.

sults. The employers put forward a number of objections, such as the difficulty of measuring the work, the shortage of rate-fixing and clerical staff and the danger that piece rates would develop into lieu rates. They pointed out that it was difficult to avoid inequitable terms between different classes of workers and that the extension of piece working on new work would accentuate the difficulties of transferring labour from repair to new work.¹ The Committee of Enquiry emphasised also that confidence between employers and workers was essential if prices were to be satisfactorily negotiated.

The employers were not alone in putting forward objections; some shipbuilding tradesmen were also unwilling to accept payment by results. For example, it was only with difficulty that the Electrical Trades Union was persuaded early in 1943 to relax for the duration of the war its rule against such systems of payment. The Amalgamated Society of Woodworkers in successive ballots set itself steadfastly against payment by results for its members in the shipbuilding industry, so that payment by results among joiners even came to an end in certain yards where it was traditionally worked.²

Trade union opinion, however, was by no means unanimous; and in some cases the impatience of the workers to secure a contract price system in face of delays in agreeing a scheme with the employers led to difficulties. Shipwrights in some yards had a contract price system as early as 1941 and a national agreement on payment by results for shipwrights was made early in 1942. But delay in negotiating a contract price system in one Clydeside yard led to a strike in September 1943 which was joined in sympathy by all the shipwrights on the Clyde and lasted for three weeks. There was also much dissatisfaction among the semi-skilled platers' helpers because their earnings on time rate compared very unfavourably with the piece work earnings of the platers, to which the helpers' efforts contributed. The unions representing the helpers claimed that platers were receiving considerably more than double, and in some cases treble, the wages obtained by helpers, and in one district it was admitted that the platers paid more in income tax than the helpers received in wages.

During 1942-43, however, the Ministry of Labour and the Admiralty persuaded the opponents of payment by results on both sides of the industry to abandon some of their objections. The electricians

¹ The Admiralty accepted the fact that these were serious difficulties but the Ministry of Labour thought the employers magnified them.

² The joiners were not pressed because there was no labour shortage in their trade; but they remained dissatisfied with their earnings compared with those of the piece working trades and asked for a lieu rate; when this was refused in 1943 there was a go-slow movement among joiners on the North-East coast which seriously retarded insulation work on tramp ships being converted to carry meat, and led to the transfer of several ships to Canada for completion.

and the plumbers, for example, withdrew their opposition to piece working. The use of fixed price lists was often impracticable, but in 1942-43 job contract arrangements,¹ which were already on the increase in the industry when the Committee of Enquiry reported in mid-1942, were extended to most of the time working trades.

It is not easy to judge how far the extension of piece working achieved its objects. Where prices were fixed too high there might be little saving of labour and even an increase in absenteeism and refusals to work overtime. But payment by results was of great value in well-organised yards with competent job-contract price fixing. There was evidence for this on the labour supply side in the reduction of demands for, and even in dismissals of, labour. Payment by results was particularly useful in reducing the demand for electricians. The increased earnings which resulted from the extension of payment by results also made it easier to recruit labour to the industry. It may be noted, however, that the ironworkers maintained their lead in earnings over the other trades to the end of the war.²

The fixing of piece work prices could of course be a fruitful source of disagreement, sometimes leading to strikes. A particular wages problem arose during the war as a result of the extension of new methods of work such as hydraulic riveting, prefabrication and welding. The riveters' price lists had been fixed many years before; in one district the list dated from 1884, since when it had been revised only once, on condition there were no advances in price, in 1915. Improvements in the methods of production, such as the introduction of pneumatic riveting, were met by deductions from the established prices. The introduction of welding and prefabrication, on the other hand, took some of the easier work out of the riveters' jobs and left them with the more difficult parts and with fewer straight runs; the existing prices therefore required revision upwards.

To allow for this, percentage increases on established prices were

¹ Under these the employer negotiated with the workers an agreed price for a piece of work and it was then for the workers to complete it as quickly as possible.

² In June 1944 the following figures of average earnings were given by the Admiralty:

| | Boiler-makers | | | Shipwrights | | | Joiners | | | Fitters | | | Electricians | | |
|-----------------------|---------------|----|----|-------------|----|----|---------|----|----|---------|----|----|--------------|----|----|
| | £ | s. | d. | £ | s. | d. | £ | s. | d. | £ | s. | d. | £ | s. | d. |
| Glasgow | 9 | 3 | 2 | 7 | 10 | 3 | 6 | 5 | 9 | 6 | 16 | 1 | 7 | 7 | 11 |
| Birkenhead | 11 | 10 | 3 | 8 | 15 | 9 | 7 | 18 | 3 | 9 | 8 | 6 | 9 | 12 | 2 |
| Cardiff | 10 | 16 | 0 | 11 | 4 | 0 | — | — | — | 7 | 16 | 4 | 8 | 6 | 6 |
| Tyne North | 10 | 10 | 10 | 7 | 2 | 1 | 6 | 3 | 8 | 6 | 13 | 8 | 6 | 14 | 11 |
| Tyne South | 10 | 3 | 8 | 7 | 8 | 3 | 5 | 13 | 3 | 6 | 14 | 6 | 7 | 9 | 8 |
| London | 11 | 4 | 6 | 12 | 5 | 8 | 7 | 7 | 10 | 9 | 11 | 7 | 9 | 15 | 0 |
| Liverpool | 9 | 16 | 5 | 8 | 1 | 5 | 8 | 2 | 9 | 8 | 6 | 1 | 9 | 6 | 3 |
| Southampton | 15 | 6 | 9 | 13 | 12 | 1 | 7 | 16 | 4 | 11 | 4 | 6 | 11 | 7 | 10 |
| (May figures) | | | | | | | | | | | | | | | |

being paid in some yards early in the war; but the whole question had already led to a number of disputes. As early as 1940 the Boilermakers' Society put forward a claim for a guaranteed minimum rate for riveters on merchant vessels on the Clyde. This claim went finally to Central Conference and was referred again to the district to consider items on the piece work price list which did not give a reasonable return. There was, however, no agreement locally and at the end of 1941 another claim for a guaranteed wage was put forward. But in March 1944 when the Boilermakers' Society's Executive was summoned to explain to the Financial Secretary of the Admiralty why its Society's members were so frequently involved in strikes, the difficulties about piece work prices remained unsettled and dissatisfaction on this score was causing a go-slow movement on the Tyne and at Southampton.

Both sides of the industry agreed that there was as yet insufficient experience of the new methods to make a permanent settlement possible; but the employers were naturally unwilling to agree to the principle of a guaranteed time rate in lieu of piece working which the Society wanted as an interim measure. It was said that the question was too technical to be sent to arbitration. The grievances of the shipyard workers were exploited, particularly on the Clyde, by the unofficial shop stewards' movement;¹ but they were not without foundation. The Society's Executive claimed that in some cases riveters found at the end of the week that they had not even earned as much as a time rate wage and were then dependent on the goodwill of their foremen to get their wages made up to a reasonable level; and this fact was confirmed from official sources.²

There was also considerable dissatisfaction with wages among engineering and shipbuilding apprentices; this was particularly strong among apprentices in the time working trades in the shipyards, for in the engineering industry and in the boilermaking trades in the shipyards fourth and fifth year apprentices were often employed on piece work. Even so, of course, their earnings were related to their low basic rates. In 1937 there were widespread stoppages of work among engineering and shipbuilding apprentices in support of a claim for wage increases and for the right to be represented by the trade unions in discussions with employers. Subsequently a procedure was agreed under which district officials of the unions, but not shop stewards, could intervene with the employers on behalf of apprentices. At the same time wage increases were granted and provision made for apprentices' wages to fluctuate in fixed proportion to those of journeymen.

¹ See pp. 399-402 below.

² The riveters in the shipyards were granted a guaranteed wage in 1955.

Nevertheless a sense of grievance persisted and this was increased in the early years of the war when the cost of living rose rapidly and apprentices saw dilutees earning considerably more after a few months in the industry than they themselves earned after several years. Wage rates of apprentices in their fifth year were only 31s. 3d. a week in 1941. Claims for increases were under negotiation between the A.E.U. and the Confederation of Shipbuilding and Engineering Unions and the shipbuilding and engineering employers in the second half of 1940, but the apprentices became impatient of delay in reaching a settlement and early in 1941 a series of stoppages occurred in Scotland, where in mid-March about 6,000 apprentices were on strike. Apprentices at Barrow, Manchester and Rochdale were also involved.

Following the setting up by the Minister of Labour of a Court of Inquiry, agreement was reached rapidly in both the engineering and shipbuilding industries.¹ A fifth year apprentice, previously receiving a basic rate and bonus amounting to 31s. 3d. a week, received something like 46s. under the agreement. In addition in July 1942 the procedure was revised to allow shop stewards to raise with management questions affecting junior workers.²

(iv)

The Royal Ordnance Factories

Different problems arose in the R.O.Fs, and in these factories the Government was best able to influence the development of wages policy. As has been said, wages in government establishments at the outbreak of war were primarily determined by the Fair Wages Resolution.³ Negotiations between the War Office, and later the Ministry of Supply, and the trade unions were concerned with the adjustments necessary to make wage rates conform to changes in outside industry, the fixing of rates for workers in between the skilled and unskilled grades and for those with special skill, and of piece work times and prices. The machinery for conducting these negotiations is described elsewhere.⁴

¹ The new rates were based on the appropriate district rate and national bonus of the fitter on a percentage basis ranging from 25 per cent. at 16 to 60 per cent. at 20. In April 1943 the proportion was increased by 2½ per cent. for all age grades between 16 and 20.

² For texts of agreements see A.E.U. *Agreements Handbook*. A further apprentices strike, affecting chiefly the shipyards on the Tyne and Clyde, in 1944, was not concerned with wage claims but arose from opposition to the coalmining ballot scheme. It was also fostered by Trotskyites.

³ See p. 316 above.

⁴ See pp. 406-18 below.

(a) TOWARDS UNIFORM RATES IN THE ENGINEERING R.O.Fs

The majority of workers employed in War Office establishments were engaged on engineering or closely related work. In 1939 the wages structure in the engineering industry consisted, briefly, of a district basic rate for skilled men negotiated between the local representatives of the employers and the trade unions; a district rate for unskilled workers similarly negotiated though not as widely recognised and operated; and many rates between those of the skilled and the unskilled for semi-skilled workers, sometimes with a district wide recognition, sometimes varying from firm to firm. In each case and throughout the country the basic rate was related to a forty-seven hour week. In addition to the basic rate determined locally there was a national bonus payable to all grades of male workers, first awarded in 1915. These two sums, the basic rate and national bonus, were the foundation of the wages structure in the engineering industry. Bonus times and prices under systems of payment by results and overtime rates were calculated on these rates, the minima in each case being fixed by national agreement. Other special payments were made for particular types of work or grades of skill—such as dirty work or toolmaking and lieu rates for time workers.¹ These were sometimes fixed on a national, but more frequently on a local or establishment, basis.

The trade unions had pressed the Engineering Employers' Federation for greater uniformity in basic rates. District rates, they argued, had been established when the cost of living varied and when union members in the districts were jealous of the right to negotiate wages locally; circumstances had now changed and a more up-to-date approach was needed. The unions' claim, however, was for a levelling-up of rates to the highest in existence and this the employers refused on the grounds that levelling-up would mean a wage increase for some areas and not for others which would give rise to grievances; in any case, they believed, the advantages to be gained by such a step would not outweigh the disadvantages and trouble of adjusting piece work prices and overtime rates. In the five years immediately preceding the outbreak of war, however, national agreements had secured an increasing measure of uniformity in the rates paid to youths, which bore an indirect relationship to those of skilled men; and in October 1939 the two existing schedules of rates for women were amalgamated into one schedule of nation-wide application.

At the outbreak of war the basic rates of the skilled and unskilled workers in the engineering and filling factories corresponded to the

¹ Lieu rates applied to certain classes of workers who would have been working on piece work had it been possible to measure their work; such rates approximated to the average earnings of piece workers of the same grade.

engineering basic rates in the district in which the R.O.F. was situated. They therefore varied: the skilled rate between 45s. and 49s. and the unskilled between 27s. and 33s. Where there was no district rate for unskilled labourers the R.O.Fs paid an average of the varying rates paid in the locality concerned. All workers were paid a bonus of 22s. which corresponded to, but was not identical with, the national bonus paid in the engineering industry. Overtime and piece work rates were similarly based on the national agreements. In explosive R.O.Fs the two main rates were those for maintenance men and for unskilled labourers. The former was a national rate fixed in relation to the rate paid for similar work in the engineering, shipbuilding and chemical industries and was expressed inclusive of bonus. In 1939 it totalled 77s. 6d. for 47 hours. For unskilled labourers the rate was also expressed inclusive of bonus but varied between 53s. and 56s. according to the district rate in the explosives industry. The rates of women and girls in the R.O.Fs are discussed below.¹

The War Office tried to secure uniformity of rates to the very limited extent that was possible in a wages structure largely determined by that of the outside engineering industry. For example, it tried to keep the numbers of different rates in existence as few as possible by paying non-engineering workers, such as building trades craftsmen, the skilled engineering rate. The payment of 'leads'—which were additions to the minimum rates for unskilled and skilled workers and were paid to workers performing work in between these two categories or work of a particularly skilled character—was one of the few elements in the wages structure which could be varied without very close reference to the practice in outside industry. 'Leads' in the old established factories varied, but as new factories came into production after 1935 the War Office seized the opportunity to pay uniform 'leads' in these factories to workers doing similar jobs in different parts of the country.

On the other hand there were factors which added to the complexity of the wages structure in the R.O.Fs. For example, there were variations in the rates paid in the different R.O.Fs in South Wales;² and the rates at the explosives factory at Waltham Abbey were, unlike the rates in other explosives establishments, related to, though they were higher than, the London district engineering rates. In 1939 the London establishments tended to dominate the scene and in these the wages structure was, for historical reasons, less simple than in the newer establishments in the provinces. Though there

¹ See pp. 352-62 below.

² Some rates were determined by reference to those paid in engineering establishments in the immediate vicinity; others by reference to the rates payable in the steel and tinplate industry; and others to the rates agreed between the A.E.U. and the Welsh Engineers' and Founders' Conciliation Board.

was therefore a tendency towards more uniformity in rates in the pre-war years, the general picture remained varied and complex.

The method of fixing wages in R.O.Fs remained substantially the same after the outbreak of war, but changed circumstances had a considerable influence on the wages structure. One of the new circumstances was the growth of the problem. Whereas at the end of 1939 there were ten R.O.Fs in production employing 54,000 workers, in mid-1942, the peak period, there were forty R.O.Fs employing some 300,000. Connected with this growth in numbers was a decline in the relative importance of the London establishments in favour of those in the provinces, and the location of new R.O.Fs in areas where hitherto there had been little or no engineering industry and no established rates. A second change took place in the composition of the labour force. The proportion of fully skilled to semi-skilled workers employed in Ministry of Supply establishments fell, and as part of this change the numbers and proportion of women employed rose steeply. A third change was in the relative importance of government establishments compared with private enterprise. Direct government employment, instead of being an insignificant minority of the total employment in the engineering and allied industries, became an important minority, with the consequence that the wages policy and structure in government establishments could and did influence the position in outside industry.

The fourth change in the circumstances affecting the wages policy and structure in government establishments in war-time was probably the most important. This was the different attitude towards production which the war inevitably brought. In peace-time, though production demands were important, delivery dates were relatively elastic and cost had to be carefully weighed; in war-time, on the other hand, production demands with fixed delivery dates became of paramount importance and the limiting factor was no longer that of cost but of supplies of labour and materials. In pre-war negotiations the predominant criterion had been the 'fairness' of the rates paid in government establishments compared with the practice of outside industry. In war-time, slowly at first, but noticeably after the first two years of war, wages policy was related chiefly to its influence on production and productivity per worker and the degree of scrupulous fairness achieved became of secondary importance.

In general, these developments gave the Ministry of Supply somewhat greater freedom in determining the wages structure in the R.O.Fs, a freedom which it used to secure greater consistency in the wages structure than was achieved in outside industry. The main sections of the wages structure in which experiments were made by the Ministry of Supply without waiting for, or following, developments in outside industry were the basic rate, the methods

and scope of systems of payment by results and the parallel problem of the rates to be paid to day or time workers, and the rates to be paid to women. These problems covered the most important elements in the wages structure and will be dealt with in turn. The discussion of them is complicated by the diversity of geographical practice and a wider difference between the practice and tradition of the engineering, filling and explosive groups of R.O.Fs, but the problems were basically the same in each type of factory.

The outbreak of war intensified the need for transfers of labour so that additional factories could speedily be established and this made the problem of uniformity in basic rates no longer of theoretical, but of severely practical, importance. Skilled men in the older engineering R.O.Fs in London had to be transferred to assist new ones in the provinces into production; many of the men disliked being moved in any case and objected the more when they found their rates would be lower in the new jobs. Similarly, recruitment was slow and difficult in those areas where the local district engineering rate was slow.

These and similar anomalies in the outside engineering industry caused a great deal of trouble to the Ministry of Labour when it tried to transfer skilled workers. In the winter of 1940-41, therefore, the Minister of Labour was trying to secure a national rate in the engineering industry in general; but he was not to succeed.¹ The Ministry of Supply desired to adopt a uniform rate for the R.O.Fs but, since this would have repercussions on conditions in government industrial employment generally, the Ministry in December 1940 brought the matter before the official side of the Engineering Trades Joint Council.² Certain departments raised objections to the proposal,³ but it was eventually accepted by the majority of those concerned. In February 1941 it was agreed with the trade unions that the basic rate of skilled and unskilled men in all engineering and filling R.O.Fs, except in the London area and in South Wales, should be uniform in each grade. At the same time agreement was reached with the two general unions for a uniform national rate for unskilled workers in the explosives factories, where a uniform rate for skilled workers already existed, outside South Wales and the London Area.⁴

¹ See p. 63 above.

² See p. 408 below.

³ The suggestion was strongly opposed by the representatives of the Air Ministry and the War Office as being a departure from the Fair Wages Resolution which, it was claimed, should act in just such a contingency as an automatic safeguard against demands for higher rates. The Air Ministry representative suggested that while the Fair Wages Resolution in its inception had been a protective measure for workpeople, it had also, by long practice, come to be regarded as a protective measure for the Government as an employer.

⁴ In South Wales skilled rates were thereafter to be similar in all three types of R.O.Fs and to be related to decisions by the Welsh Engineers' and Founders' Conciliation Board; but no changes were made in the method of assessment of basic rates in the London

These agreements not only increased uniformity of rates but made the bases of their assessment more definite. As a result changes in the rates were more smoothly and quickly negotiated. Before these agreements were reached, in peace-time and during the first eighteen months of the war, both the trade union and the official side of the Engineering Trades Joint Council used various and sometimes self-contradictory arguments for and against increases in particular rates. If, for example, in presenting a wage claim, the trade unions did not succeed in proving that rates in government establishments were below those of outside industry the unions would then shift their ground and argue that the government should be a model employer and take the lead in wage regulation, not simply follow that of the Engineering Employers' Federation. Government engineering factories did not work for profit and should be in a position to set a standard. The official side for its part would claim that wages in government industrial establishments were governed by Fair Wages principles and not by cost of living movements as such; but when confronted with an agreement in outside industry and a request that rates in government establishments should comply with this agreement the official side could not agree that the Engineering Trades Joint Council met solely to register acceptance of agreements made by other people. After February 1941, by contrast, decisions taken in outside industry on rates and bonus¹ were applied to Ministry of Supply establishments more or less automatically and discussion was confined to such issues as the date of operation. The arguments which had previously been used on basic rates were now transferred to other, and more flexible, parts of the wages structure such as the working of systems of payments by results and rates for women workers.

(b) THE EXTENSION OF PAYMENT BY RESULTS

There was general agreement between the representatives of the Ministry of Supply and the trade unions that in order to increase production increased use should be made in war-time of systems of payment by results. While some of the trade unions, particularly skilled unions, maintained on paper a traditional coolness towards the extension of such systems, in the factories and in the districts little opposition on the point of principle was experienced. Two kinds of difficulties remained. The first were technical. The second were psychological: the effects of the higher earnings of workers employed

area. It was also decided that rates in explosives R.O.Fs should be related only to those in the engineering and chemical (I.C.I.) industries, shipbuilding rates being ignored. The only important change after this date was made in January 1944, when skilled rates in filling factories were related to those in explosives, instead of being the same as in the engineering factories.

¹ For changes in the minimum rates in the engineering industry see Table 20.

under systems of payment by results on the attitude and morale of those groups of workers unable to participate in such systems. These difficulties were clearly interconnected; for success in solving the technical problems increased the dissatisfaction of the smaller number of workers left outside the schemes.

The technical obstacles to the introduction and extension of payment by results among direct production workers were not great. In the engineering R.O.Fs the nature of the work and the extended use of mass production methods made the use of such systems, once the tooling problems were overcome, a relatively simple matter. No complete figures are available of the extent of systems of payment by results among direct production workers in engineering R.O.Fs in war-time, but an indication of the widespread use of such systems in these factories is given by the figures of the pre-war position. In May 1936 the proportion of all industrial employees of the War Office—engaged mainly in engineering establishments—employed under systems of payment by results was sixty-two per cent. This proportion had risen by January 1939 to sixty-seven per cent. There is little doubt that under war conditions the proportion was even higher.

Average piece work balances in the engineering R.O.Fs were very considerably lower than in the motor and aircraft firms in the Midlands. They were sometimes lower and sometimes higher than in trade firms manufacturing the same products. The balances earned varied very widely between the different R.O.Fs, in 1942 from an average of 218 per cent. at Nottingham to 41 per cent. at Spenny-moor (Co. Durham). Many factors influenced the fixing of prices, such as the level of earnings in other factories in the neighbourhood and the difficulty experienced in obtaining labour. Nor was it easy, as an enquiry in 1943 showed, to determine the effect of high piece work balances on labour or total costs.

In explosives R.O.Fs the ban imposed on piece working by the Chase Parr Committee of 1903 was confirmed by the Explosives Committee following an investigation in 1940. But this Committee confined the similar ban in filling factories to certain dangerous operations, and agreed to the introduction of payment by results for process workers in other sections. It could not be introduced, however, until production conditions were suitable; and a system of payment by results fitted to the particular conditions in filling factories had also to be worked out. By the end of 1941 it was considered that production conditions were favourable. A steady flow of explosives and components was at last being produced—for without this any system of payment by results was impossible; the intake of 'green' labour had been reduced and the 90,000 workers recruited since February 1941 were growing accustomed to the work. But on

account of the size, scattered layout and lack of tradition of the filling factories it was almost impossible to secure in them proper supervision and discipline. The Ministry of Supply hoped that piece work would provide the workers with an incentive to self-discipline. It was thought that the introduction of payment by results would raise output by some forty to sixty per cent. without undue risk of accident or fatigue. Such an increase in output was urgently necessary at the end of 1941 for programmed requirements for filled ammunition had risen steeply.

The particular system of payment by results suggested was an incentive bonus on a group fellowship basis. The scheme was evolved on the Bedaux principle. Skilled workers were not concerned with

Table 20: Changes in the Minimum Rates in the Engineering Industry
Skilled Fitter and Labourer

| Date | Amount of Increase | Minimum Time Rate after each Rate | | Minimum Piece Work Standard after each Change | |
|----------------|--|-----------------------------------|---------------|---|---------------|
| | | Skilled Fitter | Labourer | Skilled Fitter | Labourer |
| 1938 | | s. d. 66 0 | s. d. 50 0 | s. d. 75 6 | s. d. 55 6 |
| 5th June 1939 | 2s. per week on National Bonuses . | 68 0 | 52 0 | 77 6 | 57 6 |
| 19th Feb. 1940 | 6s. per week on National Bonuses . | 73 0 | 57 0 | 82 6 | 62 6 |
| 20th Jan. 1941 | 3s. 6d. per week on National Bonuses | 76 6 | 60 6 | 86 0 | 66 0 |
| 10th Dec. 1941 | 5s. per week on National Bonuses . | 81 6 | 65 6 | 91 0 | 71 0 |
| 20th Mar. 1943 | Transference of 20s. from National Bonuses to the basic rates with an addition of 6s. per week on the new National Bonus for time workers. Minimum piece work standard increased from 25 per cent. to 27½ per cent. of basic rates | 87 6 | 71 6 | 97 8 | 77 3 |
| 11th May 1944 | 4s. per week on National Bonuses . | 91 6 | 75 6 | 101 8 | 81 3 |
| 24th Apr. 1945 | 4s. 6d. per week on basic rates . | 96 0 | 80 0 | 107 5 | 87 0 |

Source: Report of a Court of Inquiry into a Dispute between Employers who are Members of the Engineering and Allied Employers' National Federation, and Workmen who are Members of Trade Unions affiliated to the Confederation of Shipbuilding and Engineering Unions, Cmd. 9084, 1954, pp. 8-9.

the scheme and therefore the traditional opposition of the skilled unions to the Bedaux system could be ignored. It was agreed in January 1942 between the Ministry and the National Union of General and Municipal Workers and the Transport and General Workers' Union that 'to provide for increased output in provincial R.O.Fs (filling) to meet present emergencies . . . a system of payment by results in the form of an incentive bonus . . . will be introduced as a temporary measure'. Representatives of the unions then visited the factories to explain the working of the scheme. By the end of 1942 the direct production workers in the majority of the filling R.O.Fs were employed under this system and in February 1943 the Ministry of Supply considered that the time had come to extend it to the agency factories.

This extension of payment by results in engineering and filling R.O.Fs had, however, raised a new problem; for the indirect workers who were excluded from its benefits claimed some form of compensatory payment. As payment by results first became widespread in engineering R.O.Fs it was in these factories that the problem was first raised; but with the extension of the system to filling factories it was inevitable, and indeed foreseen, that a similar problem would arise there. The workers concerned often possessed a high degree of skill and as a direct result were employed on jobs like skilled examination, maintenance, and setting up which were not included in schemes of payment by results. However much the pace at which they had to work to assist production workers was quickened by the introduction of piece work they received no additional payment. Other workers, not necessarily skilled, such as dolly and crane drivers, truck drivers, progress chasers, inspectors and examiners had also to work faster and expected a corresponding increase in their earnings.

Faced with such claims the Ministry resisted in every way possible the payment of an overall sum to all time workers on a compensatory or 'lieu of piece work' basis. The experience in the munitions industry in the war of 1914-18 pointed clearly to the danger of this course. When the Committee on Production in October 1917 had agreed to give certain skilled day workers a $12\frac{1}{2}$ per cent. bonus on their earnings, it was immediately confronted with a demand by other day workers for similar treatment. When this had been conceded, the piece workers found themselves at a disadvantage. They too demanded a bonus and eventually in January 1918 obtained a $7\frac{1}{2}$ per cent. bonus on their earnings. The argument of the piece workers was that in no case does a time worker have to work continuously at the stroke of a piece worker and that the margin between the wages of a time worker and a piece worker, fixed in that period at between 20 and 25 per cent., was a recognition of that fact. If,

therefore, the wages of day workers were increased, the earnings of piece workers should also rise so that the differential between time and piece work earnings would be maintained. The only result of the decision of the Committee on Production to compensate certain day workers was a rise in wages all round. In 1940 the trade unions were not threatening, as in 1914-18, to oppose piece working altogether, and indeed the proportion of piece workers employed had greatly increased, but it was felt that similar wage demands would result from the concession of a lieu payment to time workers.¹

As an alternative, the Ministry attempted to extend systems of payment by results to cover indirect workers. This policy was evolved slowly. Mistakes were made, detours and delays occurred. Agreements in outside industry sometimes made it difficult to apply the policy; and it was unfortunately not always clear to the workers concerned that the bonuses paid to them were dependent on effort and were not lieu payments. On the whole, however, the policy succeeded in its objects of meeting the time workers' demands for higher earnings and increasing their output.

The setters-up in engineering R.O.Fs were the first group of time workers to take part in an indirect system of payment by results. As piece work was widespread in engineering establishments and setters were for the most part men upgraded to the job from machine operating the comparison between the piece workers' earnings and the time rate of the setter was very sharp and personal. In May 1940 agreement was reached between the A.E.U. and the Ministry of Supply that, in addition to their basic rate and bonus, the setters should receive a bonus which would vary with the earnings of the piece workers for whom they set the machines, a bonus, that is, which would vary to some extent with the efficiency of the setters themselves. A top limit on the bonus was agreed at 4d. per hour. The operation of the scheme was not, however, very successful at the start. In September 1940 a report from R.O.F. Dalmuir re-told the familiar tale that after a few weeks the setters-up had asked to be allowed to return to their old jobs at the machine as they could not earn more than 4d. an hour bonus no matter how much the semi-skilled machinists earned. In October 1940, therefore, a new limit of 6d. an hour was agreed. Within a year, however, with improving techniques and a steadier flow of materials and components, the earnings of some piece workers were again above the limit which a setter could earn. The scheme was said to be hampering production

¹ It is difficult to judge accurately whether this fear was justified. The Award No. 326 of the National Arbitration Tribunal (see p. 348 below) gave 6s. to time workers alone, which brought them close to the piece workers' basic rate + 27½ per cent. However, in the very many protests and demands which resulted from this Award no claim was seriously put forward for an increase in the piece workers' percentage because the time workers had received an increase.

as the setters lost any incentive to output beyond this limit. It was clear that the only way to remedy this was to remove the limit altogether, and this was done.

A second group of skilled time workers in engineering R.O.Fs, toolroom workers, were similarly placed on an indirect bonus scheme in June 1940 by the agreement between the Engineering Employers' Federation and the A.E.U.¹ In the spring of 1941 a third group of skilled time workers, maintenance men, in engineering R.O.Fs claimed some form of production bonus. The men were very dissatisfied with their existing conditions and at R.O.F. Cardonald near Glasgow, for example, they refused in March 1941 to work overtime. The Ministry of Supply sympathised with the maintenance mechanics' claim but was not prepared to pay them a bonus in direct proportion to the earnings of the piece workers; for the Ministry believed that once such a scheme was introduced for these workers it would inevitably have to be extended to include all day workers. Six months later dissatisfaction among maintenance men was still widespread and at Nottingham R.O.F. their output was only twenty-five per cent. of what it should have been. It was pointed out in the Ministry of Supply that private industry had developed schemes to remove similar dissatisfaction; and after consultation with the Engineering Employers' Federation, the Ministry put forward an incentive bonus scheme for maintenance mechanics which was accepted by the A.E.U. in November 1941.²

In an effort to avoid claims from other time workers the scheme was limited to certain specified occupations.³ Moreover the scheme was only to operate in piece working establishments; and the proposed bonus would not be a straight bonus depending solely on the earnings of piece workers but would also bear a definite relationship to the number of hours considered to be necessary, at the appropriate stroke, to keep the plant in an adequate state of maintenance; the bonus would increase as the number of workers needed to do this fell. It was intended that the bonus should yield approximately twenty-five per cent. of the basic rate of the men concerned but there was no guarantee of this figure. While the Ministry of Supply did not claim perfection for the scheme, it had at least the merit of ensuring a direct relationship between earnings and output.

In practice the scheme worked fairly well. One cause of dissatisfaction—that the bonus was less than that paid in outside industry to similar grades of workers—was in time removed by various

¹ See pp. 318-19 above.

² No formal agreement was signed and the unions catering for the mates of skilled maintenance men were not consulted.

³ Millwrights and mates, electricians and mates, armature winders, furnace bricklayers and mates, pipe fitters and mates and apprentices in these trades.

increases granted.¹ On the other hand the relationship between the effort of the maintenance men and the bonus payable sometimes went astray. For example, when a factory was changing over to a new type of product—a frequent occurrence in war-time—the earnings of piece workers tended to fall and with them the bonus payable to the maintenance staff; and the fall occurred at the very time when, in the interests of a speedy changeover, the work performed by that staff was greatly increased and acquired special urgency. The disparity between the bonus and the effort at a time of changeover was a fundamental weakness in the scheme and a direct cause of a stoppage of work at R.O.F. Hirwaun in South Wales in January 1945.

Nor could it be claimed that the scheme was very successful in economising in manpower. In February 1945, after the scheme had been in operation for more than three years, the Ministry of Supply could justly claim that it had gone further in bonus payments to maintenance men than outside industry but had to report that the Ministry had been disappointed in the hope that this would reduce the number of such workers employed. All it could claim was that the numbers employed had possibly not increased so much as they might otherwise have done. As this statement was part of a reply to a trade union claim for a higher bonus it may have been unduly pessimistic, but there is certainly little evidence to point to a saving of manpower. Another weakness in the scheme was the relatively complicated method of assessing the bonus; for clear understanding by every worker of the relation of his or her effort to the bonus is essential to any successful scheme of payment by results. In this instance the details were not fully grasped by the trade union officials, who were inclined to negotiate increases in the percentage as a straight claim for a lieu bonus; and as late as February 1945 a union official reported that the men in the factories objected to the scheme because they could not appreciate how their own efforts affected their earnings.

By the end of 1941, therefore, incentive schemes had been introduced for setters, toolmakers and maintenance men in the engineering R.O.Fs. But this only touched the fringe of the problem of incentive schemes for time workers. In December 1941 the trade union side of the Engineering Trades Joint Council put in a claim for a twenty-five per cent. increase in the basic rate for all plain time

¹ To ensure smooth operation the agreement and percentages were to be reviewed every three months. The basic rate was first increased from 49s. to 57s. thus raising the approximate yield of the bonus from 25 per cent. of 49s. to 25 per cent. of 57s. Following the National Arbitration Tribunal Award No. 326, which increased the piece workers' percentage to 27½ per cent., adjustments were made to ensure that the maintenance bonus yielded at least this figure on the higher basic rate. The scheme was also widened to include additional occupations.

workers as a compensation for not being placed on any system of payment by results. This claim for a lieu rate was firmly rejected by the Ministry of Supply, with the strong support of the Engineering Employers' Federation. In the opinion of the Ministry to grant the twenty-five per cent. increase to plain time workers would in no way ensure increased production; it would, moreover, obliterate the difference between piece work and time work, and no conceivable promise by the trade union side to limit repercussions could, in the end, prevent a universal lieu rate applied to time workers from becoming an added factor in the calculation of piece work rates. In view, however, of the strong *prima facie* case of the time workers for increased wages some alternative to a lieu rate had to be devised.

If a lieu rate was to be avoided it was essential to treat the claims of each group of workers *seriatim*. The Ministry of Supply was particularly anxious to deal first, and separately, with the claims of the semi-skilled examiners in filling R.O.Fs. The problem of the earnings of this group of workers was raised sharply at the beginning of 1942 when the incentive bonus scheme for process workers, described above, was introduced into filling factories. While in the past the examiners in these factories had been employed in separate sections, they were being increasingly employed 'in line' with process workers, and it was expected that some eighty per cent. of the examination work would eventually be 'in line' examination. This meant that with the introduction of an incentive bonus for process workers the whole team, including examiners, would quicken their stroke. The process workers at R.O.F. Hereford felt so strongly about the proposal that examiners should work faster but receive no additional reward that they were not prepared to work the incentive bonus system unless the position of inspection people were improved; they were only persuaded to continue working by a promise that the examiners' case would be dealt with immediately.¹ Not only was the problem urgent but the examiners were in a special position because the nature of their work, although it was usually measurable, militated against their being paid by results. There had to be no enticement to an examiner to pass bad work in order to increase his bonus.

At the end of March 1942 the Ministry of Supply and the National Union of General and Municipal Workers and the Transport and General Workers' Union reached agreement on the examiners' claim. The agreement laid down that to 'provide for the extra effort expected from examiners in the production line as a consequence of the prospective incentive bonus scheme as and when applied to process workers', an additional weekly payment would be made to

¹ Another reason for dealing with the examiners' claims quickly and separately was that the Industrial Court had virtually accepted the principle of lieu rates for examiners and, if it were asked to arbitrate on a joint claim by examiners and other time workers, might give a general decision in favour of lieu rates.

those workers 'when commencing to work in concert with process workers on incentive bonus'. Particular care had been taken in the wording of the agreement and the phrase 'in concert with' was recognised as an 'important piece of officialese'. Superintendents were enjoined to give a scrupulously fair interpretation to the agreement and it was hoped that some central control would be kept over the inevitable local casuistry that would arise.

In subsequent months, however, agreements covering inspection staff were made which departed from the principle that additional payments should be made only to time workers whose work was directly, continually and measurably affected by the quicker stroke of piece workers. In September 1942 all skilled inspectors, who were frequently interchanged between time working and piece working establishments, were given a flat additional payment.¹ In October, viewers working for Chief Inspector of Stores and Chief Inspector of Clothing, who were in war-time often employed in contractors' works, were given an increase in their basic rate and a flat additional payment, since they were 'from time to time liable to work on the production line in concert with piece workers'. Meanwhile the semi-skilled examiners were pressing for the extension of their agreement to cover men working in contractors' works, and were also dissatisfied because only one-third of the 15,000 examiners in filling factories were receiving the additional payments. The Ministry for its part had found that the strict operation of the 'in concert with' formula had led to considerable difficulties and thought it would be impossible to apply it to examiners working under different conditions in contractors' works up and down the country. In March 1943 therefore the limitation 'in concert with' was dropped and all examiners in piece working establishments were given flat increases.

By March 1943, therefore, the large majority of examiners employed by the Ministry of Supply were in receipt of additional payments—now to be called examination bonus—which bore no direct relationship to extra effort required of the time worker because he was working in association with piece workers. At the same time the Ministry could still argue that theoretically the bonus was not a lieu payment. Its origin and development supported this argument, as did the fact that the bonus was still given to semi-skilled grades only in piece working establishments.

Meanwhile the claims of other time workers had been receiving attention. After considerable discussion by the official side proposals were submitted to, and agreed by, the trade union side in June 1942, over six months after the claim for a flat 25 per cent. increase to all

¹ This was 15s. for a week of 47 hours for men (12s. for women) who had actually to work 'at the pace and rhythm' of piece workers and 10s. for all other male examiners (8s. for women) whether they were working in association with piece workers or not.

time workers had been tabled. Firstly it was agreed that certain skilled grades, maintenance men, examiners, setters-up and markers-off, should receive not less than 8s. a week over the skilled fitter's rate.¹ Secondly, it was agreed to increase the range of special merit or ability pay for those skilled workers not engaged in maintenance work from up to 10s. above the standard fitter's rate to up to 16s. above this rate. Thirdly it was agreed that markers-out, crane drivers, slingers and truckers working in concert with piece workers should be put on a scheme similar to that for maintenance men described above.

These concessions, however, left many claims outstanding. The trade union side accepted the view that there was no justification for including time workers in time working establishments in any bonus scheme but were very dissatisfied that not all workers in piece working establishments were included. There were no bonus schemes, for example, for maintenance men, storekeepers, magazine attendants or unloading gangs in the filling factories. Moreover there were many anomalies in existing schemes. For example, the trade union side could point to an engineering R.O.F. where of four gangs of heavy slingers, three were included in the incentive bonus schemes as they were working with piece workers, but the fourth gang handling the same jobs were excluded from it as they were working with shrinkers on time work. The unions refused to agree to the extension of the incentive bonus schemes to the agency factories until they were satisfied on these points. In any event the aim which the Ministry had set itself early in 1942 of reducing time working in its establishments to its hard core was still unachieved.

In January 1943 the dissatisfaction of the unions found expression in the renewal of their claim for a 25 per cent. increase in the basic rate of time workers in government establishments. Before agreement on this claim was reached, however, developments in outside industry made it unnecessary for the unions to pursue it further. In September 1942 a claim had been made in outside industry for an increase of 33½ per cent. in the basic rate of plain time workers. This claim was rejected by the employers and went to the National Arbitration Tribunal. The Tribunal's Award, No. 326, of March 1943 transferred 20s. from the national bonus to the basic rate of all workers, gave time workers an increase of 6s. in their national bonus and increased the minimum earning of piece workers from 25 to 27½ per cent. above the basic rate. The interpretation of this award raised many difficulties; and piece workers in outside industry gained very little by it except for the significant, but not financially important, consolidation of the 20s. from the bonus with the basic rate. For Ministry of

¹ This award was dated back to January 1942, the date when a similar agreement had been reached in outside industry.

Supply establishments a sub-committee of the Engineering Trades Joint Council was appointed to work out the details of the application of the award, and increases were given to all those time workers and piece workers directly affected. It had never been specifically agreed that the bonuses of indirect workers were connected, or should vary, with the percentage that straight piece workers were expected to earn over their basic rates. Nevertheless adjustments of the bonus were made in all cases where the yield to these workers was less than $27\frac{1}{2}$ per cent. A generous interpretation of the award gave a similar increase to inspection staff.

The application of this award to plain time workers and its generous interpretation so far as indirect workers on bonus schemes were concerned ended some of the complaints from time workers. There was still dissatisfaction, however, among the skilled maintenance grades and the semi-skilled and unskilled indirect workers in filling R.O.Fs, who remained outside any bonus scheme. In May 1943 the Ministry of Supply produced a provisional incentive bonus scheme for the maintenance men. A threatened strike of maintenance men at Chorley in this month showed the deep feeling on the issue and steps were quickly taken to work out the details of the scheme, which was introduced at R.O.F. Chorley and part of R.O.F. Swynnerton in October 1943. The scheme was similar to, though not identical with, that already existing in engineering R.O.Fs. Within four months of its introduction economies in labour were reported from both factories—at Swynnerton a reduction of sixteen per cent. in the maintenance staff in those zones where the scheme had been applied. From the workers' point of view also the high bonus earned—it averaged 30s. a week at Chorley—was satisfactory. The scheme was therefore introduced in all filling R.O.Fs in March 1945. As with the maintenance scheme in engineering R.O.Fs, however, the method of assessment was difficult to follow and the value of the scheme was correspondingly reduced. It was reported that the union concerned had not displayed any interest in the results of the experiment at Chorley and Swynnerton possibly because, in the absence of complaints, it preferred to leave alone a scheme which it admitted it did not understand.

The provision of some form of incentive bonus to the semi-skilled and unskilled indirect workers in filling R.O.Fs was a far more complicated problem. The Ministry insisted that the work of such grades should be measurable before any bonus could be applied and doubted if in the case, for example, of shifting house attendants or store keepers, this would ever be possible. The unions on the other hand were not worried about measurability: a lieu bonus would suit them, provided it covered all the time workers still excluded from the bonus schemes. However, after careful investigation it was

decided in November 1943 that since most of the work performed by indirect workers was strictly manual it was capable of measurement. Preliminary studies had shown that an incentive bonus scheme was not only possible but necessary; the time workers were working at a low level of effort—something like a thirty operating speed as compared with the seventy operating speed of process workers on incentive bonus. It was also again stressed that an incentive scheme was particularly necessary because of the difficulty of supervision in filling factories, with their size and lack of tradition, under war-time conditions.

Agreement in the Ministry on the introduction of such a scheme was, however, far from unanimous. Its introduction in engineering R.O.Fs was opposed, not only because of the Bedaux principle in the scheme, but because of doubts as to the measurability of the work; the bonus, it was thought, would be tantamount to an increase in the basic rates of time workers. Sir Alexander Ramsay, Director of the Engineering Employers' Federation, who was consulted, expressed a similar view. Some surprise was also shown at a suggestion that the scheme might reduce the number of workers in the grades concerned by nearly one-third; and it was asked why some of this reduction could not be secured without the adoption of the scheme. Against these criticisms could be set the confidence of the experts that the work was measurable; the fact that time workers were a depressed class and had been promised some redress; the opposition of the unions to incentive bonus schemes in agency factories until this redress was given; and finally the shortage of labour in the filling R.O.Fs and the economy in manpower which it was hoped the scheme would achieve.

It was finally agreed that this last factor was of decisive importance and that the scheme should be introduced experimentally in two R.O.Fs and should in any case be limited to the filling factories. The details of the experiment were worked out and submitted to the Treasury in June 1944. The bonus which could be earned by indirect workers was limited to thirty per cent. of their basic rate (compared with bonus earnings of forty-eight per cent. of basic rate by process workers) in order to maintain a gap between the earnings of the two types of workers and thus forestall claims by direct workers. In spite of this and other safeguards the Treasury would not initially accept the scheme; it considered that—however many trimmings were added—the proposal was in effect for a lieu rate and would have repercussions on the whole wages policy of the Government. But assurances from the Ministry as to its experimental nature convinced the Treasury that the scheme could be tried, and in November 1944, a year after it was first broached, the experiment was started at R.O.Fs Chorley and Glascoed.

The scheme did in fact lead to a reduction in the number of indirect workers employed and was also popular with the workers concerned. It was not, however, introduced elsewhere, for the end of the war in Europe was in sight and the Ministry of Supply foresaw that with the end of hostilities it would have difficulty in maintaining incentive bonus schemes even for production workers.

By the end of the war the Ministry's policy on the extension of piece working had transformed the wages structure in its establishments. In 1940 and 1941 the trade unions could say that piece working was less widely used in government establishments than in outside industry, and that there seemed to be a definite reluctance on the part of government departments to introduce it.¹ By 1945 the Ministry of Supply at least had gone further than outside industry—and had been criticised for so doing—in giving as many workers as possible a direct financial interest in increased production and increased productivity.

The various systems had on the whole worked smoothly and had achieved the aims set for them. The inevitable discontent of the time workers had been allayed—sometimes only after long delay—by the introduction of bonus schemes. The schemes had not led to earnings so high or so low as to interfere with the smooth operation of financial incentive and their increased cost in terms of higher earnings had nearly always been married to increased effort by the workers and economy in manpower. Outright lieu rates, with the subsequent claims from piece workers that these were expected to produce, had thus on the whole been avoided. Even in the case of inspection staff where, given acceptance of the principles that their work was not suited to piece work on the one hand but was deserving of increased payment on the other, a lieu rate was almost inevitable, the progress towards this rate was effectively concealed by formulas and deviations and had no repercussions on piece work rates.

Finally, although there is evidence that some of the schemes were not fully understood by the workers, which probably lessened their value as an incentive to increased effort, the Ministry's careful policy on piece work and incentive bonus schemes undoubtedly helped to keep friction and disputes in its establishments to a minimum. For the history of industrial disputes in the engineering and allied industries showed that dissatisfaction with earnings, with piece work systems and, among day workers, with the absence or smallness of compensatory payments were, far and away, the chief causes of such disputes.²

¹ *Monthly Journal of the A.E.U.*, August 1941, Report by Divisional Organiser No. 14.

² The disputes which did occur in Ministry of Supply establishments usually arose from delays in introducing systems promised rather than from dissatisfaction with the wages structure or the working of systems of payment by results as such.

(v)

Women's Wage Rates

Women first entered the engineering and allied industries in significant numbers during the war of 1914-18. Some undertook work previously done by men and obtained men's rates of pay. Others were employed on work similar to that done by women before 1914 and were paid at a lower rate under women's wage schedules fixed by the Ministry of Munitions. The distinction between 'men's' and 'women's' work was not easily drawn, particularly where new processes were concerned.

Under the agreement to restore pre-war practices the deliberate replacement of men by women ceased after the war, and the existence of heavy unemployment for continuous periods between the wars prevented any large scale increase in the numbers of women employed. Nevertheless, under conditions of mass production, processes were continually being broken down and the use of mechanical handling aids increased, so that it became technically possible to employ unskilled women in greater numbers; and in fact the number of women employed in the engineering and allied industries increased, both absolutely and relatively to the number of men, during the inter-war years and stood in July 1939 at about 380,000, nearly 17 per cent. of the total number employed in these industries.¹

The employers held that the great majority of these women were engaged on 'women's' work, but the definition of women's work varied from district to district. In areas where the craft trade unions were particularly strong and unemployment amongst men was high few women were employed and those only on unskilled work. In other areas, notably in the Midlands, where general unemployment was less and the engineering industry was both prosperous and relatively light, women were employed on a fairly wide scale in a number of semi-skilled occupations.

In the first months of the Second World War unemployment among male workers remained relatively high. Between June 1939 and June 1940 the proportion of women to men employed in the engineering and allied, chemicals, explosive and shipbuilding industries increased only from eighteen to twenty per cent. But it was becoming clear that a large increase in the number of women employed in these industries would be necessary if production demands were to be met; and that this increase would only be possible if wage arrangements were satisfactory.

¹ This figure included a very small number employed in shipbuilding. For a comparison of the proportion employed in different sections of the engineering industry see Table 4, p. 80 above.

There was little concern in the subsequent negotiations—until the war was nearing its end—with the principle of equal pay as such. The unions' primary concern was to safeguard men's conditions by seeing that as much work as possible in the industry was classified as men's work and that women doing that work were paid the rate for the job.¹ They were of course also concerned to see adequate rates for women's work, not only in the interests of their women members but also because the employers were continually trying, as new processes were introduced, to extend the range of women's work. Women workers in industry for their part were often dissatisfied with their pay but they were usually concerned to secure improvements in it, not to secure equal pay as such. They seem to have accepted the fact of receiving a lower basic rate than men, though they expected merit bonuses, as attaching to a particular job, to be the same whether the job was done by a man or by a woman.

(a) RATES FOR WOMEN ON 'WOMEN'S' WORK

As has been said, the majority of women employed in the engineering industry in 1939 were engaged on 'women's' work. Their wages were determined, in the main, by the national schedules of women's wages agreed between the Engineering Employers' Federation and the trade unions catering for women in the industry, the Transport and General Workers' Union and the National Union of General and Municipal Workers. In 1939 women's rates were so low as to be unattractive to new entrants and to cause the men considerable concern if the employment of women were to be extended. In June 1939 the national minimum time rate under schedule A was 30s. and under schedule B, operated mainly in the provinces, 26s., compared with the minimum male labourer's rate of 52s. By agreement of October 1939 the two schedules were amalgamated, and with increases awarded then and in May 1940 the rate for women over 21 stood at the latter date at 35s. a week, compared with the male labourer's rate of 57s.

Later in the year the Minister of Labour intervened to secure a higher rate. According to the terms of the dilution agreement of May 1940, referred to below, women fully replacing men on men's work were after a probationary period to receive men's rates, and the Minister of Labour was alarmed at the discrepancy which would then arise between the wages of women on women's and those of

¹ Cf. Evidence given by Ministry of Supply to the Royal Commission on Equal Pay (which was not printed in the Commission's Report): 'The fundamental question whether different wages schedules for men and for women respectively are justified has not been raised as an issue of negotiation. The war-time agreements are directed less to this fundamental question than to the maintenance of the cash value of particular jobs, carried out by men at men's wages before the war, notwithstanding the abnormal extension of the field of women's employment during the war.'

women on men's work. He persuaded the unions to stand out for an increase of 5s., but the case went to the National Arbitration Tribunal which, having regard to an increase recently given to men, awarded the women in February 1941 an increase of 3s. in the national bonus, bringing the rate to 38s. By three subsequent increases the rate of women time workers over 21 was raised to 56s. in August 1944.¹ The labourer's minimum time rate at that date was 75s. 6d.

The Ministry of Supply's policy was to relate the pay of as many women workers in the R.O.Fs as possible to the women's pay scale and to secure satisfactory wages for them by the 'leads' system.² The unions were in the main interested in securing men's rates for as many women as possible, and the categories of women paid under the women's schedule were in fact progressively reduced during the war. Even so, in September 1942, a peak period of employment of women in the R.O.Fs, nearly three-quarters of them came under the women's schedule as performing women's work. This was chiefly owing to the large numbers of women employed in the filling factories where the women's schedule applied.

In addition to the standard minimum rates of pay, all R.O.F. employees engaged on other than purely unskilled operations received ability pay in the form of 'leads'. The Ministry of Supply paid

¹ *Changes in Women's Minimum Time Rates*

| Date | Amount of Increase | Minimum Time Rate after Each Change |
|-----------------------|---|--------------------------------------|
| October 1939 | 2s. per week on national bonus in schedules A and B* | Schedule A 32s.* Schedule B 28s.* |
| December 1939 | Two schedules to be amalgamated ‡ | 32s.* |
| May 1940 | 3s. on national bonus † | 35s. † |
| February 1941 | 3s. on national bonus † | 38s. † |
| November 1941 | 5s. on basic rate* | 43s.* |
| December 1942 | 4s. on basic rate and new time-workers' bonus of 3s.* | 50s.* |
| August 1944 | 4s. on national bonus † 2s. on timeworkers' bonus | 56s. † |

* To women of 18 and over.

† To women of 21 and over.

‡ This was done by raising the basic rate, which was the same in both schedules, from 16 to 20s. and by lowering the national bonus in schedule A to 12s., the same as the existing provincial rate.

² The minimum wages of women workers remunerated on an engineering trade basis in R.O.Fs were adjusted in step with those in outside industry. Workers paid under the women's schedule in the Ministry's filling and explosive factories received higher minimum rates of pay than those quoted above. As from August 1940 and February 1941 respectively they were granted an extra 3s. per week to compensate them for the loss of overtime earnings caused by the change-over from a two- to a three-shift system. The payment for a time of special women's rates to production workers in explosive factories is discussed below, as the arrangement proved to be a transitional step towards granting rates based on men's pay; see pp. 360-1 below.

the minimum lead for any operation however simple which demanded ability, skill or experience above that of the purely unskilled labourer. The maximum rate was authorised for work demanding special ability or carrying special responsibility, and the two intermediate rates were awarded for operations such as simple machine work. Leads for women in filling factories were standardised at 2s., 4s., 6s., and 8s., as compared with the men's rate of 2s., 5s., 7s. 6d. and 10s. until April 1942, when women's leads on all types of work were equalised with those of men.¹

In outside industry such special ability payments varied from factory to factory and were not granted as freely as in the R.O.Fs. In their discussions with the Engineering Employers' Federation before the award of November 1941 the unions argued that the general payment of leads by the Ministry of Supply proved that the Ministry found the standard minimum wage to be inadequate. The Federation therefore suggested that the award should not be applied automatically in government establishments, since the restoration of the disparity might lead to further wage claims in outside industry. The members of the Federation were, however, passing on the full increases to those of their employees who were earning ability rates, and the Ministry of Supply considered that there was no case for withholding the award from its employees. On a later occasion it was the Treasury which expressed doubts about granting increases agreed in outside industry to R.O.F. workers who were already earning more (minimum pay plus leads) than the new rates; but the employing departments pointed out that women had come to expect that their minimum rates would move in sympathy with those in outside industry, and that to withhold the increases would be to risk labour trouble.

(b) RATES FOR WOMEN EMPLOYED UNDER THE DILUTION AGREEMENTS

The Terms of the Agreements

The history of the rates of women workers replacing men was far more complicated. For reasons described above, the general substitution of women for men in the engineering and allied industries was not discussed until May 1940. In that month two separate but almost identical agreements providing for dilution with women workers were made between the Engineering Employers' Federation and the two general workers' unions and between the Federation and the A.E.U.² Agreements between government departments and the unions followed soon afterwards. The Ministry of Supply had indeed

¹ See p. 361 below.

² See pp. 57-60 above and Appendix, p. 441.

within three weeks of the outbreak of war made special arrangements with the local shop stewards for women to start work at Woolwich in replacement of men; and it later substituted women for men on a tentative basis in certain other R.O.Fs. But—and this was of some significance to later events—the Ministry of Supply, in contrast to the Engineering Employers' Federation, did not come to a general agreement with the A.E.U. on dilution with women until November 1941, over a year after it reached agreement with the general workers' unions, and the two agreements were in somewhat different terms.¹

The unions wanted women replacing men to be paid the full men's rates; but the terms finally agreed for private industry—the Ministry of Supply's agreements were similar in principle but were somewhat more flexible—provided for an initial probationary period of thirty-two weeks; during this the women were to be paid on a progressively increasing scale until, if they could do the work without additional supervision or assistance, they were to receive the full men's rates. It was also agreed that there would be no objection to the extended employment of women in establishments where women had not previously been employed on 'work commonly performed by women in the industry'. Such workers were to receive the rate agreed under the women's schedules or that for boys and youths, whichever was the higher.²

The Complexity of the Problem

The question as to what was men's and what was women's work in the engineering industry was so complicated that it was well-nigh impossible to come to any satisfactory national agreement based on a distinction between the two types of work. The difficulties were less serious in the case of skilled work, for all work appropriate to apprentice-trained craftsmen was universally regarded as men's work. The problem was also less complicated in the shipbuilding industry, where few women had been employed before the war and those in a few well defined trades, such as french polishing.

It has been explained that, whereas in the private engineering industry all types of work were covered by agreements in practically identical terms made between the employers and the general workers' unions and the A.E.U., the Ministry of Supply had a different agreement with the A.E.U. covering skilled work. In the R.O.Fs, therefore, there was some difficulty in deciding which agreement should apply; for in these factories, as in outside industry, a large

¹ See p. 58 above.

² Under the Ministry of Supply's agreement with the shop stewards at Woolwich women replacing men were paid the basic rate and bonus fixed by the women's national schedule, but the majority were employed on piece work and received the same piece work prices as the men they replaced.

number of jobs were done sometimes by skilled and sometimes by semi-skilled labour, according to the factory and even according to the shop concerned. Satisfactory arrangements for joint consultation on this matter were, however, made in the factories and no serious differences of opinion arose.

At the time of the signing of the agreement with the A.E.U. the Ministry had no women entitled to 100 per cent. of the skilled men's rate; and in the view of the Ordnance Factory Department it was quite impossible for women to do work normally regarded as requiring a fully skilled mechanic who had served a long apprenticeship. On the other hand there were increasing numbers of male dilutees of limited skill, employed on the simpler parts of a mechanic's work, who were entitled to full mechanics' rates; and as the war progressed some women dilutees became highly skilled and experienced and deserved and expected full rates. Moreover the A.E.U. became increasingly concerned to secure the women full rates, both to satisfy their women members and to protect men's conditions.

Early in 1944 the matter came before the Engineering Trades Joint Council, and the official side agreed that in the fifth year of war some women were bound to be doing work quite as good as that done by male dilutees or even by apprentice-trained craftsmen. Reference was made, for example, to the work of examiners. It was conceded that a somewhat more liberal policy should be adopted, but that the 100 per cent. concession should be limited to individual cases, each one to be considered by the headquarters of the department concerned before the concession was made.

It was the introduction of women workers on semi-skilled work that gave rise to the greatest difficulties. It has already been pointed out that practice as to what was men's and what was women's work varied from district to district and from factory to factory according to the state of employment and the strength of the unions. To take an example arising from special circumstances in the R.O.Fs: government policy had committed the Ministry of Supply between the wars to employ as many ex-service men as possible, with the result that, except in the filling factories, there were few jobs in the R.O.Fs on which women were normally employed. In industry generally the variation in practice was so great that there was a vast field of work which was not clearly identifiable by tradition as either men's or women's.

Moreover, the agreement did not specify what was to happen about new processes for which no precedent existed. New factories, including the R.O.Fs, had been planned and equipped with specially adapted jigs and tools at considerable additional expense so that they could employ women workers, and managements were reluctant to incur the further cost of paying the women full men's rates. The

A.E.U., on the other hand, argued that these new processes had brought work within the capacity of women to an extent undreamt of when the women's schedules were negotiated or even just before the war; and that the wages of men or women employed on these processes should be related to those of the workers they replaced, rather than to those of youths and girls originally brought in to do work of the simplest character. This was the main question at issue in the long dispute over women's wages which arose at the Rolls-Royce Company's factory at Hillington near Glasgow in 1942-43.¹

Apart from these fundamental issues, the agreement was ambiguous in other ways. The question of what constituted 'additional supervision or assistance' was a continual source of friction. Many employers held that a number of women employees did not reach the same output as the men they replaced,² and this view led them to withhold the full men's rate even if the women concerned were, according to the strict letter of the agreement, working without additional supervision or assistance. In any case women workers sometimes needed additional heavy labouring assistance which was unnecessary to their male predecessors. But if this were only occasional the unions felt it was a mere quibble on the employers' part to withhold the full men's rate on this account.

The agreement also created many anomalous and unfair differences between the wages of women workers which were likely to cause much resentment among individual workers and considerable unrest in a factory—even if they did not personally concern the organised men to the same extent as the problems described above. For example, some of the light jobs requiring manual dexterity which women had been accustomed to perform before the war and to which the women's rate was appropriate demanded a much greater degree of skill than some of the heavier unskilled work normally performed by men, which nevertheless qualified for men's rates of pay. Moreover, the work that women could do fully as well as men without additional help was generally of a light and simple type, and it was inequitable that such work should carry a higher rate than heavier or more difficult work where a measure of extra assistance was given.

¹ See pp. 364-6 below.

² There was a considerable field of work requiring dexterity which women indubitably did better than men, but such work was often for this very reason accepted as women's work. The general question of the relative efficiency of men and women workers is a highly controversial subject in which the intervention of prejudice and social custom make it difficult to come at facts (cf. the evidence presented to and the Majority and Minority Reports of the Royal Commission on Equal Pay, Cmd. 6937, 1946). We are concerned here, however, with the opinions on which employers acted; and, granted that women were as efficient as men on the actual job, their absenteeism rate was usually higher than men's owing to their domestic responsibilities. Moreover, overhead expenses were often increased by the additional welfare facilities needed when large numbers of women were employed (cf. F. Zweig, *Women's Life and Labour* (1952), p. 107).

With the situation varying from district to district and an agreement so difficult to interpret it is hard to say to what extent it was adhered to. Certainly there were many occasions when it was clearly broken. In some instances, particularly in new factories where the employers could claim that no work had previously been done by men, women were employed at women's rates on jobs commonly performed elsewhere by men; in other factories where men happened to be employed on work commonly performed by women the unions managed to retain men's rates when women took it over. In any case the agreement itself and the whole situation were unsatisfactory and a cause of much dispute.

The Solution in the R.O.Fs

It will be convenient to deal first with the efforts of the Ministry of Supply to clarify the position in its own establishments, because unlike outside industry the Ministry and the general unions managed to come to a workable arrangement which superseded the agreement of 1940. During discussions with the unions the Ministry of Supply first attempted to find a solution by offering satisfactory women's wages through the application of the 'leads' system and by proposing a workable definition of women's machine jobs.¹ But the formula was flatly rejected by the Transport and General Workers' Union and the National Union of General and Municipal Workers, who were concerned to secure men's rates for as many jobs as possible. They were able to produce more instances of the normal employment of men both in government establishments and in outside industry than the official side could quote of the normal employment of women; and it was clear that insistence on the strict letter of the agreement would have resulted in the concession of full men's rates in a large number of cases, which the Ministry of Supply was most anxious to avoid. The unions had actually tabled formal demands for the payment of men's rates at Enfield and Waltham.

In order to avoid deadlock the Ministry of Supply suggested that the attempt to define particular jobs as 'men's' or 'women's' should be abandoned in favour of the establishment of rates for women on production work in a whole group of factories on the basis of the majority characteristics of the work carried out there. Under the system, which the unions accepted after a series of discussions in May and June 1941, the extent to which men's work or women's work predominated determined whether men's or women's rates were adopted as the group basis. Where men's work predominated, the proportion of the

¹ 'Where an operation is done on a machine which is fully equipped with fixtures for repetition production, the function is women's work if the job is set up by a mechanic or supervisor where he maintains the tools, and provided the operation is within the physical capacity of women.'

men's rate payable was related to the extent to which, in the group as a whole, women carried out the full work of men.

When it came to deciding on group classifications the position of the filling R.O.Fs was regarded as settled, as the unions had always accepted them as a normal sphere for women workers. The grading of the work in the engineering factories, however, gave rise to lengthy discussions. The unions were eventually persuaded to agree to the inclusion in the 'women's' group of the light engineering R.O.Fs producing small arms, small arms ammunition cartridge cases and fuses, since the work was similar to women's pre-war jobs.¹ The shell factories were more difficult to classify because precedents were in conflict and because the introduction of new techniques in the R.O.Fs made it impossible to make valid comparisons with past practice; it was finally decided that women production workers in the shell factories should receive a minimum rate of 46s. a week, the pay received by youths of twenty in outside industry who had done much of the work in the past. In the gun factories the Ministry considered that there was a block of work akin to light engineering for which women's rates would be appropriate, but that other jobs were essentially men's work. To avoid the embarrassment of paying different rates within the same factory one compromise rate was introduced, the full men's basic rate of 32s. per week, plus 23s., which was seventy-five per cent. of the men's bonus, making a total minimum rate of 55s. to which leads were added for semi-skilled work. It was agreed that women replacing men on a few jobs never performed by women before the war—such as crane and truck driving—should be placed outside the group system and paid the full rates, leads and bonus of the men they replaced.

It remained to settle the rates to be paid to women workers replacing men in the explosives R.O.Fs. The unions originally claimed the full men's rates, but the Ministry argued that these were not justified since it doubted if the women would ever be able to do work fully equal to that of men. As usual, too, past practice supplied conflicting precedents: women had not been employed at the R.G.P.F. Waltham before the war where much of the work suited to them had been done by youths; but they had been engaged on some processes in connection with the manufacture of cordite at the Royal Naval Cordite Factory, and one of the large outside firms of explosive manufacturers had also employed them.

The separate claims pending for the R.G.P.F. Waltham and for the remaining explosives factories eventually went to arbitration. The Industrial Court's awards classified certain of the work at Waltham as women's work to be paid a rate (in October 1942, 49s.) related

¹ The women workers in the Royal Small Arms Factory at Enfield were as an exception paid the rates applicable in the gun factories.

to that paid under the women's national schedule; with the exception of a few grades who were paid full men's rates the remainder of the women workers at Waltham and the women employed in the other explosives factories were given a rate (of 53s.) which was eighty per cent. of the men's rate, plus full men's leads.

The two arbitration awards caused considerable unrest in the explosives factories, where women in the same establishment might be on several different rates of pay. Moreover, the difference between the highest and lowest rates was considerably greater than it was when the work was performed by men. Similar differences between women's rates existed in the engineering factories; and there was also considerable dissatisfaction because, particularly in the filling factories, women's leads were lower than men's. The unions regarded leads, quite correctly, as a monetary evaluation of the different degrees of skill required for different jobs, and pointed out that the degree of skill required remained the same whether men or women were employed. They did not, however, attempt to carry the principle of equal pay any further.

These outstanding problems were discussed by the Ministry with the unions in March and April 1942 and a number of new arrangements were made which aimed at securing greater uniformity in women's wages within individual factories. It was agreed that the special women's rate at Waltham should be abolished and that all production workers in the explosives factories, with the exception of certain specific grades who were paid the men's rate, should receive a rate, at that date 57s., equivalent to eighty per cent. of the men's rate. Similarly all manually employed workers in the engineering R.O.Fs, with the exception of the exempted grades, crane drivers, etc., awarded men's rates, were to be paid the rate previously agreed for the particular factory concerned. The Ministry was aware that whilst this policy removed anomalies within factories it created new ones between them; for example mechanics' mates would be paid women's rates in the filling factories and the various percentages of men's rates agreed in the different types of engineering factories; but the Ministry considered that the new arrangements were less likely to lead to discontent than the old.¹ Finally it was agreed that women's leads for semi-skilled work were to be increased to those authorised for men in all cases where the existing women's leads were lower.

This agreement placed women's wage rates in the R.O.Fs on a satisfactory basis for the remainder of the war. Subsequent increases

¹ It may be noticed, however, that early in 1942 the official side of the Joint Co-ordinating Committee, which covered the general conditions of industrial workers in all departments, put forward a memorandum on women's rates which embodied this principle of uniformity within factories at the expense of anomalies in the rates of women employed on the same work in different factories. The trade union side rejected the principle and argued that these anomalies would in their turn lead to discontent.

in the rates of pay for women on men's work depended upon changes in the men's rates. The arrangements in the R.O.Fs marked an important departure from the practice in outside industry by establishing the principle that women taken on to replace men did not automatically receive the full men's rates after a probationary period if they could do the work unaided. Apart from the few special grades outside the group system the Ministry had no women at all eligible for the full rates paid to men on the same jobs, whereas in the private engineering industry thousands of women on the same work proceeded to the full men's rate after 32 weeks. On the other hand some women received higher rates than they would have obtained in private firms. Whereas outside firms paid full rates to women on gun work, compared with the Ministry of Supply which paid the full men's basic rate plus seventy-five per cent. of the bonus, the rates paid to women on shell work were higher in the R.O.Fs than in some private firms, which paid only women's rates. Women workers in the R.O.Fs were also granted leads on a more comprehensive scale than in outside industry.

The great merit of the Ministry's arrangement was its simplicity and finality; moreover, by establishing uniform rates within individual factories it did away with the anomalies and grievances that would have arisen if the 1940 agreement had been applied on a job by job basis; and transfers from one job to another were more easily made. The Ministry looked sceptically on the grading system proposed for outside industry, described below, for the very reason that it involved payment of widely different rates according to the jobs done within each factory—and difficulties did in fact arise on this account.

Developments in Private Industry

The Ministry of Supply's problem, complicated though it was, was simpler than that of the private engineering industry and it was easier for the Ministry than for the engineering employers to come to a settlement with the unions. In the first place the field of employment in the R.O.Fs was smaller; secondly they were specialised factories, some of which would not survive the war, in which war-time practice was less likely to influence future employment policy than it was in private engineering firms.

It was also to the Ministry's advantage that it reached a revised agreement at a comparatively early date in the war. The Ministry, it will be remembered, had two quite separate agreements, made at different times, with the general unions and with the A.E.U. In the spring of 1942, when the Ministry of Supply came to a new agreement with the general unions, who organised the great majority of the semi-skilled and unskilled workers in the R.O.Fs, the A.E.U.

was willing to acquiesce in the revised arrangements made. The Union was not actively concerned in the matter from the women's point of view because it did not yet admit women to membership. Nor was it so seriously concerned as it later became with the extended employment of women as a threat to men's conditions.

When the private employers came to revise their agreement on dilution with women workers in 1942-43, however, the position was somewhat different. Since the employers' agreements with the general unions and with the A.E.U. were made in practically identical terms on the same date, they were bound to secure the agreement of both parties to any proposed revision. The fact that different unions, whose interests might be divergent, were concerned was often a problem to the employing departments and to the engineering employers in the conduct of wage and other negotiations. On this occasion it created considerable difficulties.

As the war progressed the A.E.U. realised the extent to which, by the breakdown of processes, semi-skilled operatives, including many women, were replacing skilled men in the industry;¹ moreover male dilutees, entitled to the full rate unconditionally, were being increasingly replaced by women. In January 1943, therefore, the A.E.U. opened its membership to women and began to press more firmly for full men's rates for all women employed on men's work; it was also anxious to see the rates of women employed on new processes in the industry related to those of men rather than to the women's schedule and eventually demanded the complete abolition of the category of 'women's work'. The policy of the general unions had always been to press for men's rates to the fullest possible extent, but they accepted the existence of some women's work. The interests of the general unions and of the A.E.U. were, therefore, to some extent divergent. The position was further complicated by the fact that the A.E.U. and the general workers' unions were competing with each other for women members and tended for recruitment purposes to outbid each other in securing what they regarded as better terms for them. A settlement satisfactory to all parties was thus the harder to obtain.

In December 1942 the Transport and General Workers' Union and the National Union of General and Municipal Workers reached a provisional agreement with the Engineering Employers' Federation which provided for the superseding of the Women's Relaxation

¹ Cf. Mr. Tanner's Presidential Address to the 25th National Committee of the A.E.U., June 1943; 'The sub-dividing of operations, the vast new types of jiggling and sub-assembly developed during the war cannot fail to leave their mark on future methods of production. These features are in general a move away from the purely craft skill upon which in the past we based ourselves. It is not our business to regret this and there is no sense in doing so; it is our business to take note of it and to devise policies in accordance with it.' One of their tasks was to prevent the exploitation of women as cheap labour. (*Report of Proceedings*, p. 219.)

Agreement of 1940 and the grading of the work of women workers according to the work performed.¹ The agreement could not become operative until it had been accepted by all the parties concerned in the 1940 agreements. The A.E.U. had had the provisional agreement before it, but had not accepted it, when the issue was brought to a head by a dispute in the Rolls-Royce Company's Merlin Engine factory at Hillington near Glasgow. This factory was so planned that the work could be done very largely by unskilled labour, much of which would be female labour. Of the 20,000 workers employed in mid-1943 only a very small nucleus was skilled men; most were men and women with no previous experience of engineering. The proportion of women to men was increasing all the time and women were gradually replacing men on a variety of jobs.²

In May 1942 a dispute had arisen at Hillington over the women's rates of pay. The A.E.U. asked for a Works Conference on the ground that the firm was violating the clause of the Women's Relaxation Agreement providing for men's rates for women employed on work commonly regarded as men's in the industry. This the firm disputed and the matter was under negotiation between the A.E.U. and the employers until July 1943 without agreement being reached. Rolls-Royce had meanwhile been negotiating with the Transport and General Workers' Union on the grading and remuneration of women employees in their Scottish factories and were on the point of submitting proposals based on the provisional agreement of December 1942 when negotiations with the A.E.U. broke down. After the failure to agree the shop stewards at the factory gave notice of their intention to strike and the A.E.U. asked the Minister of Labour to appoint a Court of Inquiry. Although the Court's investigation was directed to Rolls-Royce, Hillington, it was clear that its report would have national significance.

The A.E.U. representative before the Court of Inquiry claimed that the greater part of the work performed by women at Hillington and in the engineering industry generally was work performed by men before the agreement of 1940. The employers were unable to marshal convincing evidence to disprove this, but argued that the work had been specially simplified to enable women to undertake it; a new field of activity had thus been created in the industry since 1940, which was not contemplated by any of the parties to the original agreement and which did not therefore fall within it. The Court of Inquiry held that the Company had not observed the agreement in respect of certain jobs which were clearly men's work; but they inferred that the new provisional agreement of December

¹ Text in *Report by a Court of Inquiry concerning a Dispute at an Engineering Undertaking in Scotland*, Cmd. 6474, 1943, Appendix V.

² *Ibid.*, para. 11.

1942 was a recognition by the unions of the existence of a wide new field of work meriting an intermediate scale of payment between the women's and the men's rates. The A.E.U. representative did not object to the principle of grading women's work provided the rates for it were related to those of men. He agreed that the Company's proposals for a system of grading were practicable and capable of adjustment to form a satisfactory system. The Court therefore suggested that a detailed system of grading should be worked out by the employers and unions in consultation. Rates of remuneration in the higher grades should be related to the men's skilled rate and in the lower to the women's rate, intermediate grades being paid a rate related to adult male rates.

The firm and the unions negotiated on the basis of the Court's recommendation and an agreement for application to the Company's Glasgow factories was signed on 30th October 1943. It provided for four grades of women workers.¹ A joint allocation committee was to classify the jobs in the factory according to the four grades described in the agreement.

Both the report of the Court of Inquiry and the resultant agreement were welcomed in the Ministry of Labour where it was hoped that an agreement on the lines suggested would settle the matter for the nation. But these hopes were short lived. The settlement was rejected by the women workers concerned, who had apparently hoped for a wider application of the rates related to men's rates.

¹ *Grade 1* covered all skilled grades already recognised by the Company as possessing special skill and ability for which they received agreed basic rates in excess of the shop minimum rate for skilled fitters and turners. Women employed as alternative workers in this grade were to be paid as under the terms of Clause 6 of the 1940 agreement.

Grade 2 covered centre lathe, milling, boring, grinding, large combination turret lathe, gear cutters, Blanchard ring grinders, operations where the operative was responsible for the setting of the work and the machines without additional supervision or assistance. These workers were to be paid a basic rate of 45s. or 48s. as appropriate plus 20s., plus 13s. 6d. national bonus. Where they needed additional supervision or assistance, payment was to be adjusted in accordance with the provisions of Clause 5.

Grade 3 constituted heavy borers, heavy grinders, heavy millers, heavy combination turret lathes, and heavy profiling, where the operator did not set up the work or machine. It also covered operators who were capable of operating and were required to operate a variety of different machines, and heavy polishing where close dimensional limits had to be worked to. For this grade the basic rate was to be 37s., plus 20s., plus national bonus 13s. 6d.

Grade 4 constituted workers on medium turret or capstan machines, light combination turret machines, gear cutters, gear grinders and semi-automatics, viewing, heavier assembly work and heavier polishing where close dimensional limits were not necessary. For these workers the basic rate was to be 34s. plus national bonus 22s.

A further sub-grade of grade 4 covered operatives employed on continuous production on small capstan and turret operations, light milling, thread milling, thread grinding, profiling, automatic machine tenders or winders, single operation machinists, light sensitive drilling machines and light simple machining operations, light sub-assembly work, service women, process workers, trimmers and light polishing and fettling. The basic rate for this section was 29s. plus national bonus 22s.

The rates in grade 4 were related to that of the Women's Schedule, under which the basic rate at that date was 25s. The rates in grades 1-3 were related to the men's rate and grades 1 and 2 were subject to registration under the Relaxation of Customs agreement.

They went on strike and were supported by the shop stewards, in spite of the fact that the stewards had taken part in the negotiations leading to the agreement.¹ Altogether about 16,000 men and women stopped work for about a week but they eventually returned in order that the settlement could be reconsidered; by the beginning of December the two sides had concluded an agreement under which each machine was mentioned by name and allotted its appropriate classification. In the main factory at Hillington settlements were reached on most operations but difficulties continued for some time in the subsidiary factories, because the women there claimed to be versatile and not engaged on repetitive work on single-purpose machines. They were dissatisfied with the arrears of pay awarded to them under the agreement, which varied from nothing to £33.

The agreement at Hillington did not, however, foreshadow agreement at national level; and the unions, on the initiative of the A.E.U., afterwards took up a more radical position. The A.E.U. had been pressing the employers to agree to standard rates and a grading scheme for semi-skilled workers for many years, without success. In the provisional agreement of December 1942 the employers appeared to have agreed to such a grading scheme in principle, but the A.E.U. saw the agreement as 'an attempt to set a precedent for semi-skilled grades tied to a discriminating level'.² In the policy subsequently adopted by the A.E.U. the principle of women's work, which was perpetuated in the grading scheme provisionally agreed between the Engineering Employers' Federation and the general workers' unions, was rejected altogether.

The A.E.U. was a powerful force among the unions organising workers in the engineering industry, and at the end of 1943 the two general unions joined the A.E.U. and the E.T.U. in a claim to the employers for work to be graded and paid for irrespective of sex, and particularly for a minimum wage for all adult workers not lower than the male labourer's rate. This proposal was rejected by the employers.³ During 1944 discussions were held between the A.E.U. and the general unions to work out a grading scheme, but in mid-1945—to the surprise of the general unions—the A.E.U. Executive Council put before the National Committee of their union an independent scheme.

The Committee accepted the Executive's proposals, which included the recognition of three main grades of workers in the industry: engineering craftsmen, skilled operators, who were to include the large number of workers in the industry previously described

¹ In some quarters blame for the dispute was laid on the Trotskyites.

² Mr. Tanner in Presidential Address to 25th National Committee of the A.E.U., June 1943, *Report of Proceedings*, p. 219.

³ *Report of Proceedings of the 26th National Committee of the A.E.U.*, June 1944, pp. 142-5.

as semi-skilled, and labourers. There were to be nationally agreed rates for these three grades¹ and for a limited number of grades whose skill was below the skilled operator's but well above the labourer's. Women were to be paid the same rates as men in all these categories and it was 'not proposed to retain the false distinction between work done by men on either the "minimum" (*labourer*) or "standard" (*skilled operator*) categories and that of "work commonly performed by women"'.² A scheme for a new wages structure was subsequently agreed by the A.E.U. and the other unions concerned and placed before the employers; in 1950 the employers met part of the unions' claim by consolidating the basic rate and national bonus of time workers and by increasing the minimum earnings of piece workers to the basic rate plus 45 instead of the existing 27½ per cent.; but so far (1957) no agreement on a grading scheme has been reached.³

In the result, therefore, the existing arrangements under the 1940 women's dilution agreements remained in force for the rest of the war and for many years afterwards. They continued to give rise to considerable discontent, although this was partly allayed by the increase in time workers' rates awarded in August 1944.⁴ For example, at the 1945 Congress of the National Union of General and Municipal Workers complaints were made because the grading scheme agreed between that union and the employers had not been put into effect; it was argued that the stalemate resulting from the more thoroughgoing policy of the A.E.U. had deprived many workers of the concrete benefits they would have obtained if the 1942 agreement had been applied.⁵

¹ The weekly rates proposed were £5 16s., £5 6s. and £4 11s. respectively.

² 'A New Wages Structure', *Monthly Journal of the A.E.U.*, November 1945; cf. J. R. Scott, 'The New Wages Structure', *ibid.*, November and December 1945, February 1946.

³ Cf. *Report of a Court of Inquiry appointed to Inquire into a Dispute between the Engineering and Allied Employers' National Federation and the Confederation of Shipbuilding and Engineering Unions*, Cmd. 7551, 1948; *Report of a Court of Inquiry into a Dispute between Employers who are Members of the Engineering and Allied Employers' National Federation and Workmen who are Members of Trade Unions affiliated to the Confederation of Shipbuilding and Engineering Unions*, Cmd. 9084, 1954; and Ann Tatlow, 'The Underlying Issues of the 1949-50 Engineering Wage Claim' in *The Manchester School*, September 1953. Although the engineering employers have so far rejected the unions' claims they have given considerable attention to the problem of simplifying the wages structure (see Allan Flanders and H. A. Clegg, eds., *The System of Industrial Relations in Great Britain* (1954), p. 249n.).

⁴ See p. 354 fn. 1.

⁵ Cf. Mr. H. Harrison and others quoted in *Report of the Biennial Congress of the National Union of General and Municipal Workers*, June 1945, p. 87.

CHAPTER XII

MORALE AND INDUSTRIAL RELATIONS

(i)

Industrial Publicity

IN 1941, at the request of the Admiralty, Mass Observation investigators paid a short visit to the South Wales ship-repairing yards. They recorded their impression that anyone talking to some people there on both sides of industry could easily think that the real war on hand was against Mr. — of the — Society or against Mr. — of the — Yard. Industrial relations in the ship-repairing industry in this area were more bitter than usual; but in all sections of industry the same conflicts of interest between employers and workers which had existed in peace-time continued in some degree into the war years.

The relations between workers and managements and industrial morale in general were bound to influence the industrial behaviour of workers, their discipline and diligence. In this field full employment had radically altered the situation, even in the rearmament period. As the war developed the peace-time sanction of dismissal as an incentive to high output and good timekeeping became largely ineffective. Other incentives had to be found, and better morale and co-operation in the factories were among them. Good worker-management co-operation and a sense of responsibility for production could serve as substitutes for, and in fact as improvements on, the pre-war discipline of dismissal.

The Government was thus bound to do all in its power to improve industrial relations and morale. Most important, and most difficult, to secure was a direct improvement in worker-management co-operation at shop and yard level. The indirect, but less important, line of approach was to stress through propaganda the importance of the war effort, the relation of the individual worker's effort to the finished product and its use against the enemy and the reasons for hold-ups and delays which, when unexplained, were a cause of much frustration, often vented on the management.

In improving worker-management co-operation and in propaganda the introduction of the Government as a third and independ-

ent party was important in itself. An R.A.F. pilot touring a works, the visit of the district shipyard controller, a naval officer of flag rank, to the Yard Committee, the mass meetings organised between ministers, workers and employers in the shipbuilding and aircraft industries from all over the country, helped, even without their direct intervention in any specific problem or dispute, to take problems out of the field of conflict between employers and workers and put them on a new plane.

In the early years of the war the supply Ministries paid more attention to propaganda than to industrial relations as such. Not surprisingly, little was done in the way of propaganda in the first winter of the war. The first important intervention in this field was inspired by Lord Beaverbrook as Minister of Aircraft Production in the Battle of Britain crisis. His method was to approach the workers directly rather than through trade union officials, shop stewards or managements. By radio, telegrams, posters, speeches and through the newspapers the Minister himself and specially appointed assistants appealed to and thanked the workers for extra efforts. This was an important departure from the traditional Air Ministry policy of non-interference in such matters. Though similar 'go to it' methods were being used by other Ministries, the M.A.P. set the pace both for volume and range. These somewhat spectacular methods of developing the interest of the worker in his job and of making him feel an important cog in the war machine were undoubtedly successful; but the very nature of the methods used made success short lived. Repeated appeals for greater output in different words had limited value. It was more important to ensure that the many problems and difficulties which arose were effectively dealt with by management and workers in co-operation. It was also necessary, as the Minister of Labour was stressing at this time, that hours of work should be reduced, food supplies improved, and adequate welfare facilities provided.

So far as propaganda was concerned M.A.P.'s pioneering work was followed up in 1941 by a more detailed and subtle approach. Chiefly of course it was the events of 1940 which provided the spur to all out effort. The workers tended to lose interest and the number of small stoppages of work increased during the long periods of waiting and comparative inactivity such as in the months before D-Day. It was then that propaganda became particularly important.

A Directorate of Public Relations was organised when M.A.P. was created in 1940, but it was not until midsummer 1941 that a separate branch for industrial propaganda was set up in the Directorate with its own regional officers—usually the representatives of the Emergency Services Organisation who devoted half their time to this work. Between mid-1941 and mid-1942 over 1,000 visits to

factories by pilots were arranged and 200,000 posters and bulletins were dispatched to aircraft factories; in the next two years the activity of the Industrial Publicity Department reached its peak. Similar machinery existed in the Ministry of Supply, where special importance was attached to propaganda in the filling R.O.Fs. In the Admiralty, the Welfare Officer appointed in April 1941 was at first responsible in co-operation with the Press Division for industrial publicity, but in December 1941 a separate Publicity Section of Contract Labour Department was set up.¹ The publicity work of the supply departments was to some extent co-ordinated through the Inter-Departmental Committee on Industrial Publicity, and regional co-ordinating committees were also established. The departments relied on the services of the Ministry of Information for the provision of films, etc., and for the conduct of nation-wide campaigns.

The aims of industrial publicity were broadly two: firstly to enable workers to see how the particular parts and components produced in the factory fitted into the finished product. This helped to overcome the monotony and feeling of uselessness in producing the same part hour after hour and day after day. It was of particular value for women workers and for the many other war-time employees who were unused to factory life and to mechanical equipment. The second aim was to help the workers to realise more directly than was possible through cursory reading of the general press the part that their efforts played in the battle as a whole.

All the recognised media of publicity were used: exhibitions, posters, photographs, leaflets, target and output charts, films. One of the most valuable forms of propaganda was visits by serving officers to the factories and shipyards and these took place on a large scale. Return visits by factory workers to aerodromes, gun stations and even to ships were also made, but to a more limited extent. Ministry of Information speakers and trade union officials also made visits to yards and factories. Stress was always laid on the value of the particular product made there in the conduct of the war. For example, the naval officer commanding a ship would visit the yard where she was built and describe the performance of her engines, guns and electrical equipment in operations against the enemy.

It was thought by the Ministry of Supply that particular care should be taken to keep the workers in filling factories informed about the value of their work to the war effort. Many of these factories were very large, which made it more difficult for the

¹ In 1943 the technical side of industrial publicity was transferred to a new publicity section under the Controller of Naval Information, control of policy remaining with Contract Labour Branch. In 1944 W.R.N.S. officers were appointed in some districts as Works Relations Liaison Officers, to encourage firms to make the best use of the material available.

individual to realise his own significance, and a high proportion of women was employed. Many of the workers had no real interest in the work they were doing, which had no connection with their peacetime occupations and was in any case often monotonous and boring. Nor had the transferred workers any roots in their new surroundings.¹ In 1942 special Works Relations Officers, who maintained a close liaison with the Department of Public Relations at headquarters, were appointed in the filling factories.² It was a difficult task in the larger factories to ensure that every worker, and not merely the curious and inquisitive, learnt something of the production of the factory and its value in the total war effort; but on the whole it was successfully achieved. There can be little doubt that the workers in the majority of the R.O.Fs comprised some of the best and most consistently informed groups of any in the country.

Boredom and monotony in the munitions factories were also overcome by the provision of 'Music While You Work', E.N.S.A. and C.E.M.A. concerts. Such concerts were something to look forward to and made a break in routine; and they were some compensation to shift workers and those in isolated factories for the loss of outside entertainment. Sports and social clubs also provided opportunities for recreation and developed the factory team spirit. R.O.F. superintendents were empowered to use factory land and buildings for recreational schemes and were given a small grant per head of workers employed for the purpose. Some private munitions factories had similar schemes.

(ii)

Industrial Relations

(a) JOINT CONSULTATION ON PRODUCTION QUESTIONS

The Historical Background

No amount of publicity in the factories could compensate for a lack of co-operation between managements and workers. Such co-operation was necessary not only in negotiation of wages and conditions of work but in the wider field of production. In most industries, indeed, the two subjects frequently impinged on each other; in the engineering industry they were linked, for example, through the interest of piece workers in a smooth production flow.

The setting up of Joint Production Committees in the years from 1942 onwards was an important development in the field of joint

¹ Cf. the Mass Observation report, *War Factory* (1943).

² In other establishments, and in the filling factories after March 1944, publicity was the responsibility of the Labour Departments.

consultation on production questions. The origins of workshop machinery for this purpose can be traced to the nineteenth century and more particularly to the First World War.¹ The shop stewards' movement aimed at securing a place in the direction of industry as well as in the negotiation of conditions of work, and opened the way to the development of Works Committees. The Committee on Relations between Employers and Employed, set up by the Government in 1916 under the chairmanship of Mr. J. H. Whitley, recommended the setting up of national and district Joint Industrial Councils and of Works Committees.² This machinery was to deal not only with wages and conditions of work but also with wider issues of welfare, training and production. For example, the Councils and Committees were to provide a means for 'the better utilisation of the practical knowledge and experience of the workpeople'.³ Councils on the Whitley pattern were set up in a number of industries and in government departments and industrial establishments.⁴ By 1926, however, for a variety of causes arising from the industrial depression, nearly half the Joint Industrial Councils and the great majority of the Works Committees set up in the immediate post-war years had ceased to function. Nor, with a few exceptions, did Works Committees under the Whitley system at any time concern themselves with production. Their main preoccupation was with welfare questions, the provision of sports and recreational facilities, etc.

The Whitley machinery was not adopted by many of the well organised industries, including engineering and shipbuilding, partly because adequate negotiating machinery already existed, partly for reasons referred to below. In 1922, however, an agreement⁵ was reached between employers and unions in the engineering industry which permitted the setting up of Works Committees consisting of not more than seven representatives of the management and seven

¹ For a fuller account of the history and working of joint consultation see 'Joint Consultation' by H. A. Clegg and T. E. Chester in Allan Flanders and H. A. Clegg, *op. cit.*

² The Whitley Committee produced five reports between 1916 and 1918 of which Cmd. 8606 dealt with Joint Industrial Councils and Cmd. 9002 with Works Committees; Cmd. 9153 was a summary of its recommendations.

³ A model constitution for Works Committees issued in 1918 by the Ministry of Labour suggested for them a very wide range of functions; (see International Labour Office, *Joint Production Machinery* (1944), Appendix II).

⁴ See pp. 406-18 below.

⁵ For text see International Labour Office Report, *op. cit.*, Appendix I. The agreement followed the national lock-out in 1922 which arose out of the unions' claim to control the introduction of new techniques and the employers' determination to keep the manning of machines and methods of production in their own hands. This dispute was of long standing. On this occasion the agreement set forth the principle that 'the employers have the right to manage their establishments and the Trade Unions have the right to exercise their functions', but these 'rights' were not defined. On the question of which grade of labour should man machines it laid down more specifically that the employer should give ten days' notice to the workers of an intended change. Failing agreement within that time the employers' intentions were to be carried out pending further negotiations and without prejudice to their result.

shop stewards representative of the various classes of workpeople employed in the establishment. Unlike the Whitley Committees these were only intended to serve as a stage in the industry's negotiating procedure. In spite of this agreement, however, the engineering employers showed little eagerness to establish such Works Committees or Works Councils of the Whitley type in the inter-war years. The employers' attitude towards such bodies was influenced by the Committees' origins in the shop stewards' movement during the First World War, and by the employers' concern to safeguard their managerial functions.

The attitude of the employers to workshop committees was decisive. There was not, however, any enthusiasm on the workers' side for joint consultation on production questions, though the motives for opposing it varied in different sections of the trade union movement. There was a strong feeling that the Whitley Committee had made concessions to the workers within carefully prescribed limits which did not give them 'full equality with the employers in determining the general policy of industry'.¹ A minority note signed by the five Socialist members of the Committee, while recognising the value of its recommendations, pointed out that these could not be expected to remove the inevitable conflict of interest between workers and management under 'an economic system primarily governed by motives of private profit'.² The radical shop stewards movement, in particular, whose members aimed either at Guild Socialism, or, more often, at political control on the Russian model, had no use for the Whitley proposals. And the trade union leaders were not anxious to see the establishment of workshop machinery which would enhance the shop stewards' prestige. There was also the knowledge that Works Councils were used by some paternalistic managements as a means of reducing the influence of the trade unions and the question of the right of unorganised workers to representation on these bodies. For their part the rank and file workers in the engineering and shipbuilding industries were not anxious to participate in any committee which would in their view improve production purely to the employer's benefit, nor were they prepared, in times of unemployment, to help work themselves out of a job. Finally, while the more radical members of the engineering unions were in favour of co-operative action by all workers at workshop level and of industrial unionism, many craftsmen were reluctant to take part in discussions or negotiations together with men from other trades and particularly with unskilled workers.

¹ Mr. Arthur Greenwood, who was one of the Secretaries of the Committee, in an article in 1927 quoted in P.E.P. (Political and Economic Planning), *British Trade Unionism* (1948), p. 48.

² *Ibid.*, pp. 46-7.

In the result, therefore, although there were a number of committees in engineering factories representing the shop stewards alone, Works Committees as provided for in the 1922 agreement or of the Whitley type were rare. Discussions between managements and shop stewards were frequent, but were confined to 'bread and butter' questions such as wages and piece work prices and took place only *ad hoc* when some question was in dispute.

In the years following the general strike, however, the trade union leadership in Great Britain pursued a policy of co-operation with the employers at national level, which was exemplified, for example, in the Mond-Turner Conversations. According to this policy, associated with the name of Walter, later Lord, Citrine, it was up to the trade union movement 'to say boldly that not only is it concerned with the prosperity of industry but that it is going to have a voice in the way industry is carried on . . . the unions can use their power to promote and guide the scientific reorganisation of industry'.¹

To further these ends Citrine proposed the establishment of a joint National Industrial Council and of separate Councils for each industry. This policy was, however, opposed by the Communist inspired minority movement, which was particularly strong in the engineering industry, and indeed by many rank and file workers; the A.E.U. in fact censured the T.U.C. for entering into the Mond-Turner Conversations. Discussions between the T.U.C. and the two national employers' organisations² in any case petered out in the early 1930s, and the T.U.C. turned its attention to securing better conditions through political action. But the proposals for joint control of industry in the event of war put forward by the T.U.C. in the spring of 1939³ had something in common with Citrine's scheme of 1927.

War-time Joint Consultation at National and District Level

After the outbreak of war in 1939 the trade unions claimed it as their right to be fully consulted by the Government on problems of economic, social and production policy. A National Joint Advisory Council was established to advise the Minister of Labour and National Service and the Minister of Supply set up a Trade Union Advisory Council in October 1939 which also advised the Air Minister on trade union questions. The trade unions and the employers were also represented on Advisory Committees to the newly constituted Area Boards. Political circumstances militated against

¹ Report by the General Council of the T.U.C. to the 1928 Congress, quoted K. G. J. C. Knowles, *Strikes: a Study in Industrial Conflict* (1952), p. 80.

² The National Confederation of Employers' Organisations and the Federation of British Industries. For these discussions see P.E.P. report, *op. cit.*, pp. 112-13, and H. A. Clegg and T. E. Chester, *op. cit.*, pp. 334-7.

³ See p. 27 fn. 1 above.

close co-operation, whether through formal committees or *ad hoc* meetings, before the change of Government in May 1940; but after the change of Government consultation on labour matters became very close both through various committees and in less formal ways.

Full consultation on more general production questions took longer to achieve. In July 1941 the Minister of Labour in his capacity as Chairman of the Production Executive of the War Cabinet established a Central Production Advisory Committee which took over the functions of the Ministry of Supply's Trade Union Advisory Committee. Then in 1942, following a recommendation of the Committee on Regional Boards,¹ this Committee was superseded by the National Production Advisory Council set up under the chairmanship of the Minister of Production. This Council was, for example, kept informed of programme changes and it advised on the development of the production machinery, including Joint Production Committees. Certain individual trade unionists also did valuable work as members of the Minister of Production's Industrial Panel.² The Ministry of Supply and the Admiralty were also, of course, in touch with the trade unions through the Whitley machinery and, in the case of the Ministry of Supply, the Central Production Committee described below;³ and less formal consultations between the three supply Ministries and trade union representatives were frequent. At regional level trade union representatives were closely concerned with production problems in an executive capacity as members of the reconstituted Regional Boards.⁴

In July 1941 the Minister of Labour set up an Engineering Advisory Panel, representative of both sides of the industry, which held twelve meetings between 1941 and mid-1945. In other industries such as chemicals, iron and steel and shipbuilding joint consultative machinery was set up when 'Ring Fence Schemes' were applied to these industries.

Thus in the shipbuilding industry special consultative machinery at national and district level was established in the spring of 1941.⁵ In the early years of the war there was some discontent among the trade union representatives on the grounds that they were not taken sufficiently into the Admiralty's confidence about production requirements; this discontent found open expression at the Trades Union Congress in 1941⁶ and led to a deputation to the First Lord in March 1942. Part of the unions' complaint was that the Chairman

¹ *Report of the Committee on Regional Boards*, Cmd. 6360, 1942.

² See p. 231 above.

³ See pp. 391 and 406-10 below.

⁴ See p. 55 fn. 1 above.

⁵ See p. 106 above.

⁶ See p. 383 below.

and Vice-Chairman¹ of National Shipbuilders Security Ltd. were members of the Merchant Shipbuilding Control and they proposed that control of merchant shipbuilding should be transferred to a committee representing the Government, workers and employers. This the Admiralty could not accept. In 1942, however, Mr. George, later Viscount, Hall was appointed Financial Secretary to the Admiralty with special responsibility for dealing with labour matters, and the trade unions stressed that after this appointment they had better co-operation with the Admiralty and received more information about programmes.

Joint Production Committees: Their Establishment and Constitution

There remained the vital and much more difficult question of consultation at shop level. It was inevitable that intervention by the Government should be least felt here, where it was most needed. In the rearmament and early war period an unofficial shop stewards' movement developed among some stewards in the engineering and shipbuilding industries. It is described in more detail below.² The movement was in opposition to the official trade union leadership and, though it drew its supporters from many sources by exploiting genuine industrial grievances, it was fostered by the Communist Party and was therefore opposed to the war effort. It was particularly strong in the aircraft industry in the Midlands and in engineering shops and shipyards on the Clyde. Twice in the winter of 1940-41 the shop stewards on the Clyde secured the settlement of strikes through the intervention of men well known in public life, in each case by-passing the constitutional negotiating machinery. The history of these and other disputes showed clearly that the movement drew strength from the tactless and high-handed actions of some foremen and managements and from lack of co-operation between managements and men.

The credit for first suggesting, in November 1940, the general need for workshop machinery to secure better co-operation seems to rest with the Ministry of Labour's Deputy Chief Industrial Commissioner in Scotland as a result of his experience of disputes of this kind.³ His proposal was followed up by the Minister of Labour in the House of Commons in December;⁴ and when the Minister was discussing with the shipbuilding industry early in 1941 the machinery

¹ Sir James Lithgow and Sir Amos Ayre respectively.

² See pp. 399-402 below.

³ Joint Production Committees did, however, arise spontaneously in certain factories in late 1940 and early 1941, Woolwich Arsenal claiming to have established the first. (H. A. Clegg and T. E. Chester, *op. cit.*, p. 338; *Twelfth Report from the Select Committee on Estimates*, 1951-52, p. 25.)

⁴ H. of C. Deb., Vol. 367, Col. 1327, 19th December 1940.

required to deal with its labour problems he suggested that Yard Committees should be set up with all the functions later belonging to Joint Production Committees. Neither side of the industry was enthusiastic about this suggestion. In March 1941, however, the Shipbuilding Employers' Federation and the Confederation of Shipbuilding and Engineering Unions made an agreement to set up Yard Committees to deal with absenteeism and other disciplinary matters, to decide what alternative services men might be expected to perform when there was no work available in their own trade and also to discuss matters of a general character affecting the best use of labour. This gave them a fairly wide brief to discuss production questions and some, but at this stage only a minority, did.

In June 1941 Russia was invaded, and the Communist Party attitude to the war changed overnight. In the second half of 1941 the demand for joint workshop production committees was taken up alike by the trade union leadership and the unofficial movement, which in the '30s had opposed co-operation on production questions. The rank and file workers in the engineering industry also abandoned their objections, though among the older skilled workers some of the prejudice against Works Committees remained.

In June 1941, at the Annual Conferences of the National Union of General and Municipal Workers and of the A.E.U. respectively, Mr. Charles Dukes and Mr. Jack Tanner both referred to the need for joint committees of men and management in every factory and workshop.¹ It was time, said Mr. Tanner, 'that consultation and confidence' (existing at the top) 'was shared and applied equally below in the lower ranks of industry'. It may be noticed that both these speeches were made before the entry of Russia into the war. To this extent it was not true to say that the demand for Joint Production Committees came solely from the Communist Party after the German invasion of Russia, nor that the official trade union leadership only took up the demand for them in order to steal the Communists' thunder. In the following months numerous requests were made in the name of the workers for joint committees in different factories throughout the country, trade union branches urged their executives to take action, and the general campaign was aided and publicised by the Engineering and Allied Trades Shop Stewards' National Council. Its campaign, conducted largely through the pages of *The New Propeller*, culminated in a large conference held in London in October 1941, which demanded the setting up of joint committees on matters of production. It may be noted that the list of factories from which delegates came compared closely with the

¹ *Report of the Biennial Congress of the National Union of General and Municipal Workers, 15th-17th June, 1941, pp. 125-6; Report of Proceedings of the 23rd National Committee of the A.E.U., 16th-23rd June 1941, p. 228.*

list of the main M.A.P. contractors and shadow factories. The aircraft workers were to the fore in this campaign.

Meanwhile the initiative taken by Mr. Tanner and Mr. Dukes had been followed up in July 1941 in a letter from Lord McGowan to the Prime Minister. Imperial Chemical Industries, of which Lord McGowan was Chairman, had some time before the war established Works Councils covering production questions. In his letter Lord McGowan expressed agreement with the idea of joint committees; he added that though there was a risk of their getting into the hands of extremist workers, his experience of the use of such bodies was that they moderated the extremist by giving him a place in the sun, and at the same time weakened his influence amongst other workers because they were taken into the confidence of the management on production questions. Lord McGowan thought that 'the old shibboleth of "managerial functions" was perhaps inappropriate to a total war'.

On the other hand, to many managements the new conception of management involved in Joint Production Committees was unwelcome. The Minister of Labour was from the outset sympathetic to the new movement and the supply Ministries accepted the principle of joint consultation. But for several reasons the Government moved cautiously; it was anxious to avoid giving publicity and influence to the shop stewards' movement;¹ and it believed that wholehearted support from the managerial side was essential to the success of the Committees. The Government had also to consider the strong prejudice which existed, particularly among the older workers and in the more conservative craft unions and districts, against Works Committees which covered all classes of workers, and on which non-union members might be represented.

The Minister of Labour had discussed the question with both sides of industry represented on the Engineering Advisory Panel, but while discussions at national level were proceeding slowly the initiative was seized in September 1941 by the Midland Regional Board. Mainly through the efforts of the Vice-Chairman (a representative of the workers' side) the Board agreed unanimously that it was desirable that machinery should be set up in all works for the mutual interchange of information on production questions, provided that such machinery was divorced from political or wages questions. Suggestions along these lines were sent to the Press and to all employers in the Midland area. The action of the Midland

¹ The M.A.P.'s rather cautious approach to the idea of Joint Production Committees was probably due to the strength of the shop stewards' movement in the aircraft industry and to the frequency with which shop stewards in aircraft factories made appeals to the Ministry over the heads of the managements. Senior officials in the Ministry took the somewhat negative view that the Committees would let off steam in the works, could do no harm and might do good.

Regional Board was made known to the other Regional Boards, but while some took immediate steps to encourage the formation of Production Committees others preferred to await the outcome of national negotiations.

In November 1941 the A.E.U. circulated a report based on a questionnaire to trade unionists employed in war industries which drew attention to the deficiencies in production at that time as seen by the workers, and strongly urged the setting up of Joint Production Committees in the individual factories. In February 1942 the Ministry of Supply and the unions concerned agreed to set up Joint Production Committees in the R.O.Fs.¹ To some extent this agreement forced the private employers' hand; and it was followed in March by an agreement between the Engineering Employers' Federation and the unions, providing for the setting up of Joint Production Committees in establishments employing over 150 workers where satisfactory machinery did not already exist. With some notable exceptions the engineering employers had not taken to this course willingly. They were forced by political circumstances to accept the Committees as a necessary evil.

It was not until the lead had been given by the engineering industry and apparently at the suggestion of the Admiralty, that the two sides of the shipbuilding industry agreed, in July 1942, to use the existing Yard Committees as Joint Production Committees. In the iron and steel industry Joint Production Committees were set up only in certain firms; for both sides of the industry agreed that its ordinary negotiating machinery was adequate to deal with production questions.²

The engineering agreement contained a strong recommendation from the Federation to its federated employers to set up committees, but neither the employers nor the Government were in favour of compulsion, although certain sections of the trade union movement, including the A.E.U., were.³ Co-operation could not be enforced; indeed, in firms where relations were bad the holding of regular joint meetings might well tend to make them worse. The Government's rôle was not, however, a passive one, and the interdepartmental Labour Co-ordinating Committee agreed that the supply departments should be responsible for seeing that establishments working for them adopted some form of joint consultation; the M.A.P., for example, sent out circulars to 1,200 of its contractors urging them to set up Committees. Both the supply Ministries and

¹ For the text of the letter from the Director-General of Ordnance Factories to the unions proposing to set up Committees see International Labour Office Report, *op. cit.*, p. 15n.

² International Labour Office Report, *op. cit.*, p. 89n.

³ *Ibid.*, pp. 90-5.

the Industrial Relations Department of the Ministry of Labour assisted in smoothing out obstacles to the establishment of Committees in individual firms.

Yet beyond ensuring by circulars, reminders and personal visits that contractors established Committees the supply Ministries did not go. This was in contrast, for example, to the Ministry of Fuel and Power, which regarded Pit Production Committees as 'the eyes and ears of the Ministry' and received the fortnightly or monthly minutes of their meetings. This was not in any case possible in the engineering industry as the Engineering Employers' Federation regarded the Committees as purely private and domestic bodies.¹

Nevertheless there was a good deal of informal contact between Ministers and government officials and Joint Production Committees. The Financial Secretary of the Admiralty frequently attended Yard Committee meetings and, already by September 1943, the Minister of Aircraft Production had attended between 150 and 200 Joint Production Committee meetings in the course of his visits to factories. In that month, at the suggestion of the Trades Union Congress, a meeting was held in London of representatives from both the management and workers' side of Joint Production Committees in aircraft factories throughout the country; at this meeting the Minister of Aircraft Production was able to stress the overriding importance of aircraft as an offensive and defensive weapon and to discuss the problems confronting the industry. The M.A.P. Production Efficiency Board and the Labour Complaints Branch of the Directorate of Labour also made a point of interviewing Joint Production Committee members and shop stewards in their investigations into specific problems. And the Committees provided a useful channel through which officials of the supply Ministries could explain to the workers the reasons for production changes and for labour redundancies.²

In the end, Joint Production Committees were set up in a large number of munitions factories. In roughly one-third of the firms circularised by M.A.P. agreement was reached between management and workpeople that the existing joint machinery could be adapted to deal with production problems in the spirit of the agreement. Some 900 firms working for M.A.P. had joint committees of some kind in existence in January 1943, nine months after the agreement was made, and 1,360 by January 1944. By December 1943 there were nearly 4,500 Joint Production or similar Committees

¹ Minutes of the meetings of some sixty of the larger aircraft firms were, however, obtained by M.A.P. in January 1943 and an analysis of these minutes proved of value in revealing how the Committees were progressing and the subjects which were worrying managements and workers.

² See p. 383 below.

known to the Regional Boards in private firms in the engineering and allied industries.¹ Over half of these were in firms with less than 150 employees. In addition there were Joint Production Committees in forty Royal Ordnance Factories and in the great majority of shipbuilding and repairing firms employing more than sixty workers. There was sometimes difficulty in securing the establishment of Committees in non-federated firms not covered by the agreement, but this was usually overcome with the help of the supply Ministries. A problem which frequently arose in these firms was that trade unionists insisted, even when they were in a minority in the works, on adhering to the provision of the agreement that only trade union members should be eligible for election to the Committees.

The problem of non-federated firms and mixed shops was not great in the shipbuilding industry. A more serious problem was the unwillingness of separate trades to co-operate with each other and the fear that Yard Committees would interfere in questions like dilution, which individual unions regarded as their own prerogative. It will be remembered that agreement was reached in 1941 to establish Yard Committees chiefly for the purpose of dealing with absenteeism, and that their functions were later extended to cover production questions. Most of the shipyards had established Yard Committees by April 1942 with the exception of one or two important firms in various districts and of most firms in the South Wales and Bristol Channel area. Here considerable ill feeling existed between the various unions; the Boilermakers' Society and the Shipwrights' Association refused to take part in the formation of Yard Committees and the A.E.U. was lukewarm. Nor were the managements of shipyards in this district anxious to set up Committees. The workers' representatives on the one or two Committees which were formed later resigned, because of bad industrial relations in general and, in one yard, because the management, supported by the Admiralty, refused to allow the Committee to discipline a foreman.

To meet trade union objections to non-union representatives on Joint Production Committees the Ministry of Labour had devised a compromise, which was included in the engineering agreement, that all workers should be eligible to vote in the election of members, but that only trade unionists could stand as candidates.² The Committees consisted of an equal number of representatives of the management and workers. The management provided the chairman and the workers the deputy chairman and there were joint secretaries. Many

¹ Later figures are not available. In 1944 there were 17,720 establishments in the engineering and allied industries of which 7,070 employed 60 or more workers.

² Under the engineering agreement candidates had to be adults with two years' service in the factory concerned. In the Ordnance Factories all workers could vote and the qualifying period of service for candidates was only one year. Workers' representatives were paid at time rates for the time spent in committee.

efficient Committees had sub-committees dealing with welfare, absenteeism, propaganda and canteen management.

No channel of appeal from the Joint Production Committees was laid down in the agreement. The Engineering Employers' Federation pointed out that this was deliberate and reasonable, since the Committees were consultative and advisory and in no way executive. The trade unions, on the other hand, wanted to see problems on which agreement could not be reached in the Joint Production Committee referred to the Regional Boards. Late in 1942 it was agreed by the National Production Advisory Council of the Ministry of Production that the Regional Boards could act as a channel of communication from Joint Production Committees to Ministries and also as courts of appeal in disagreements between the two sides of a Committee. There was, however, a clause that there must be joint agreement by both sides before such a reference could be made.¹ In practice it often happened that when reference was made to the Regional Board the only solution offered was a resolution that the matter should be re-discussed in the firm, and this discouraged the workers' side from using this channel of appeal. Managements for their part preferred to refer any problem direct to the supply Ministry concerned. In any case the employers still had reservations about the right of purely consultative and advisory committees to refer disagreements to higher authority.²

According to the agreement of March 1942 the Committees were 'to consult and advise on matters relating to production . . . in order that maximum output may be obtained from the factory'. Subjects suggested for discussion included maximum utilisation of existing machinery, upkeep of fixtures, jigs and tools, elimination of defective work and waste and the efficient use of safety precautions and devices. But deviation from the fairly specific list of items laid down in the agreement of March 1942 was often found to improve the working of the Committees. Welfare questions were frequently discussed by Joint Production Committees. Most Committees, at one time or another, dealt with rumours, which found in factories a fertile breeding ground and if left unchecked lowered morale.³ Problems of earnings, wages, piece work prices and bonus, though excluded from

¹ Cf. International Labour Office Report, *op. cit.*, pp. 155-60. It was also open to the employers' side of a Committee to refer a question to the Regional Board through the Employers' Federation and for the workers' side to do the same through a trade union or through the trade union District Production Committees set up by the T.U.C. to advise the workers' side in the work of Joint Production Committees.

² The special arrangements for the reference of disputes arising in Joint Production Committees in R.O.Fs to a Central Committee in the Ministry of Supply are discussed on p. 391 below.

³ For example, the workers' representatives on the Joint Production Committee at a London factory reported in April 1944 that a rumour was circulating throughout the works that the Essential Work Order would cease to function in a fortnight's time, and this was promptly killed by the management.

the deliberations of the Joint Production Committees by the agreement of March 1942, were also raised directly or indirectly on many Committees in view of the close connection between wages and production. The A.E.U. could report that where these problems 'had been recognised as a stumbling block to production and placed on the agenda, encouraging results have been achieved' and in a survey of Joint Production Committees conducted by the journal *Business* instances were noted 'where the Joint Production Committee has been tied up from birth with the introduction of piece rates or the bonus system with the happiest results for everybody'.¹ In the analysis made by the M.A.P. of two meetings of Joint Production Committees in each of 63 firms in the aircraft industry, of 1,137 subjects dealt with, 709 covered technical and production questions and 314 welfare, absenteeism, hours and wages (27 only) and 114 procedure and miscellaneous subjects.²

One of the important functions of Production Committees was to provide a channel through which the supply Ministries and managements could explain to workers causes for delays in supplies of materials and fittings and of sudden alterations in priorities. In shops and yards where men were quick to impute the worst motives to the management shortages for which the management was in no way responsible could lead to charges of inefficiency and even of sabotage; and sudden changes in production plans were confusing to workmen who had no idea of the reason for them. For example, at the Trades Union Congress in 1941 a case was quoted of a repair job on the Clyde upon which men worked day and night for some weeks so that it might be finished as early as possible, only to see the ship lying in the river for twenty-one days afterwards, for the good, but apparently insufficiently explained, reason that it was found impossible to use her for the purpose originally intended; as a result other work had been put in hand only at normal tempo. In October 1941, following discussion of this incident at the Central Consultative Committee and a recommendation of the Select Committee on National Expenditure, district shipyard controllers were instructed to ensure that, so far as security considerations allowed, men should be told the reasons for hold-ups and delays.

Joint Production Committees: The Conditions of Success

Though Joint Production Committees whose construction followed the pattern laid down in the agreement were set up in the majority of munitions factories their effectiveness varied very considerably. The Committees influenced production in two main ways: in the first place by the investigation, adoption or rejection of specific

¹ Quoted in International Labour Office Report, *op. cit.*, p. 181.

² The detailed analysis is printed on p. 179 of the International Labour Office Report.

suggestions to improve methods, organisation and conditions of work;¹ in the second place by raising or lowering industrial morale.

The setting up of a Joint Production Committee in a factory did not automatically remove distrust and suspicion between management and workpeople; but to get representatives of the workpeople and management in the same room round a table to discuss production to win the war was a first step in this direction. The workers for their part had to start thinking, often for the first time, in a consistent and constructive fashion about the problems facing the factory, and the management had an opportunity to tap new sources of information and ideas and to obtain opinions on schemes which previously had had only one-sided criticism. Whether the physical act of assembling in the same room was the greatest or smallest achievement of any committee depended on particular circumstances and personalities. If the workers' items on the agenda were mainly criticism of individual foremen, rate fixers and the senior management in general and if the management items were criticisms of the behaviour of the workers, for example, absenteeism, bad time-keeping, leaving machines early, etc., little progress was made. Both government departments and the trade unions believed that to use the Joint Production Committees to discuss individual cases of absenteeism would prejudice their success from the start;² and while it was no doubt convenient to use the existing Yard Committees in the shipyards, which had been set up chiefly to deal with absenteeism, as Joint Production Committees, it was by no means an ideal arrangement. More satisfactory was the practice adopted by some Yard Committees and by many Joint Production Committees in the engineering industry of delegating the question of discipline to a sub-committee.

Many of the Committees were appointed in 1942 in an atmosphere of expectation and enthusiasm. This was greater on the workers' side, but both managers and workers hoped for more than negative results. In maintaining this initial interest both sides had responsibilities. On the management side, a great deal depended on the chairman. Many suggestions made by the workers on particular issues arose from ignorance of the general situation in the factory and were useless; and it was therefore only too easy for the managers to feel irritated or to behave condescendingly, thus destroying all hope of co-operation. When this happened the Committee meetings became a nuisance and waste of time rather than an opportunity. The tact and perseverance of the chairman in avoiding personalities, in ensuring that the workers had sufficient information on which to make constructive suggestions and in continually relating all prob-

¹ See further pp. 434-5 below.

² Cf. International Labour Office Report, *op. cit.*, p. 108.

lems to the need for output went far towards making the Committee alive and productive. The *Joint Production and Engineering Bulletin*, published monthly by the Ministry of Labour and the Ministry of Production, provided information on production problems and helped to bring successful measures taken by Joint Production Committees to the notice of other Committees.

The problem of the agenda and conduct of Joint Production Committee meetings went, however, deeper than this; it was connected with a difference of view as to their function. Managers and workers alike were divided as to whether the Committees should be purely consultative and advisory, as their title implied, or whether they should have executive responsibility. It has been pointed out that the distinction was in practice easily blurred, and that it often seemed as though the Committee as a whole were responsible for action taken by the management as a result of the Committee's discussions.¹ It could, however, be argued that the more efficient was the managerial and technical staff of a factory the less work there was, even of an advisory nature, for a Joint Production Committee to do. On this extreme view the Committees were regarded merely as a channel of communication. A Committee run on this basis had, however, to be very skilfully handled if the workers' representatives were not to feel frustrated.

It was not even certain that the opposite view, carried to its logical conclusion, would strengthen the Committees' powers. It was, for example, suggested by the Chairman of the Shop Stewards' Committee at Chorley R.O.F., in evidence to the Select Committee on Estimates, that one or two of the workers' representatives on the factory's Joint Production Committee should attend the management meetings at which the executive decisions were initially taken. They should be there, he suggested, not as technicians or administrators but to put forward the shop floor point of view.² In fact, of course, many Joint Production Committees dealt very satisfactorily with day to day problems without a thought to these theoretical arguments. But the uncertainty about the Committees' purpose was an underlying cause of frustration, particularly when the two sides of the Committee held opposing views on the matter.

It could, of course, be said that it was the foreman's job to inform managements of the shop floor point of view, and the relationship between the foreman and Joint Production Committees was another problem to be settled. An enquiry by the Engineering Employers' Federation in the summer of 1943 revealed that more opposition to Joint Production Committees came from junior executives than from the top management of firms. If the shop representatives of the

¹ See H. A. Clegg and T. E. Chester, *op. cit.*, pp. 326 and 356-7.

² *Twelfth Report from the Select Committee on Estimates, 1951-52*, p. 44.

management were disregarded through the discussion of complaints and suggestions at committee meetings at which they were not present, ill feeling and disharmony developed. In such an atmosphere tale-telling by foremen about Production Committee members and vice-versa absorbed more energies than co-operation on production. The management representatives had, therefore, to secure support for the Committee from all ranks of the managerial staff. To this end it was important to insist that minor complaints and suggestions should be routed through the shop foreman and that, when major complaints were brought before the Committee, the foreman concerned should attend the meeting; careful explanation to the foremen that the Committees were brought into being to assist co-operation and production and not to undermine the authority of the supervisory staff was also necessary.

Finally, it was the management which was chiefly responsible for the action taken following the deliberations of the Committees, and confidence varied directly with the amount and speed of the action taken. The reference of matters back for 'further consideration' and resolutions 'that the issue be left over until next meeting to see what transpires' were often necessary, but when repeated could rapidly lead to loss of confidence. It was difficult to make rapid decisions, particularly on technical problems. An improved lay-out for the stores, for example, would have reverberations throughout the works and a snap decision was dangerous. But, on the other hand, undue hesitation and endless weighing of the pros and cons might have equally serious results. The management was responsible for steering between these dangers and, by effective thinking aloud and action where possible, for avoiding the impression of stalling and evasion.

On the workers' side this new phase in industrial relations meant the development of an unpaid and almost unheralded army of men and women who devoted their energies both during and after working hours to settling difficulties, answering questions, building morale and increasing production. They were criticised by the managements for the faults of their fellow workers and by their fellow workers for the faults of the management. It was not easy to tackle problems like absenteeism, piece work prices and inefficient supervision and remain popular. On the technical side workers' representatives were not always well equipped for their task and little was done in an organised way to train them for their work. Nor were the results of the time and effort spent quickly seen or invariably good.

Moreover, everyone loves a fight: when there were prospects of the workers' representatives condemning the management roundly, but not necessarily soundly, interest and support on the workers'

side ran high. With the growth of co-operation and the absence of fireworks, interest sometimes declined and counter criticism arose that the representatives had 'sold out to the management'. This could only be met by the fullest reporting back to the workers (within limits imposed by security considerations) of items discussed at the Committee meetings, by the maintenance of close contact between the workers' representatives and the electors to allow full flow of ideas, suggestions and complaints from the shop floor to the conference table and by good relations between the workers' representatives and the shop stewards. There was no simple formula by which these ends could be achieved. Their achievement depended chiefly upon the initiative of the representatives and the readiness of the management to provide facilities. Special notice boards and the use of loud speaker apparatus were the usual means employed for reporting back on items discussed at meetings.

The success of the Committees depended also on their relations with the trade union organisation in the district and the shop. There were few Committees which did not have as a worker representative one or more shop stewards. This, and the fact that elections to the Committees were conducted jointly by the management and the shop stewards, formed the initial link between the trade union machinery and the Committees. A second link, this one outside the factory, was forged by the establishment in 1942, under the general auspices of the T.U.C., of trade union District Production Committees. These consisted of representatives of the local trade unions and assisted the workers' representatives on Joint Production Committees by advice and suggestions.

The relationship between the Committees and shop stewards varied widely from firm to firm within this framework. In some factories, the Committee took the leading part in discussions with the management even of questions of a specifically trade union nature such as wage rates, and the direct rôle of the shop stewards was small. Elsewhere the Committees' discussions were confined almost entirely to strictly technical and production questions, all others being left to the stewards. The former factories were usually badly or recently organised in a trade union sense, and the Joint Production Committee was often the first body to secure a fair degree of collective negotiation and bargaining with the management. In such factories the proportion of shop stewards elected as workers' representatives would be high. The latter were usually well organised factories where the shop stewards had already won a large measure of recognition of their right to negotiate on the conditions of the workers. In these factories the workers' representatives on the Joint Production Committee would be chosen more for their technical ability than as champions of the workers' rights. The scope

of a Committee's activities therefore depended chiefly on the history of joint negotiation in the factory concerned and did not necessarily reflect the amount of support forthcoming from the shop stewards.

Opposition from the shop stewards was fatal to the success of a Joint Production Committee. Such opposition was, however, rare and when it did develop the trade union District Production Committee usually intervened to remove the distrust. Relations usually varied from tolerance to support. The most successful Committees existed in those factories where the trade union organisation was strong, where the stewards actively supported the Committee on the grounds that winning the war was the major consideration, where the workers' representatives on the Committee were technically able, and where the shop stewards met jointly with them to discuss problems and ways and means of carrying out decisions.

Joint Production Committees: Conclusions

Worker-management co-operation had been discussed and planned in 1941-42; these discussions and plans reached fruition in 1942-44, and marked a new phase in industrial relations in the engineering industry. This phase was characterised by two main features. In the first place, the range of subjects discussed between representatives of the workers and the management widened to include production, welfare, absenteeism and almost all aspects of factory life as well as wages. In the second place the principle of regular joint consultation was extended from a relatively small number of some of the larger firms to a majority of firms, large and small, in the industry.

It is not possible to assess the achievements—which could indeed never be fully measured—of Joint Production Committees. Ministers of the supply departments who had first hand experience of the working of the Committees, such as the Minister of Aircraft Production (Sir Stafford Cripps) and the Financial Secretary of the Admiralty (Mr. George Hall), believed that the Committees had, in the words of the former, made 'a significant contribution to the war effort'.¹ In some factories it was possible to point to specific increases in production as a result of the Committees' work. But their success had to be measured by the losses of production avoided as well as by the gains made; there are, however, no records, except possibly in the minutes of Shop Stewards' or Joint Production Committees, which show the number of strikes or the amount of absenteeism there would have been but for the increased co-operation in the workshops. It must, on the other hand, be said that many Committees were not very effective. The movement towards the establishment of

¹ International Labour Office Report, *op. cit.*, pp. 183 and 211.

Joint Production Committees did not usher in a new era in which the conflicts of interest between workers and managements could all be solved by reference to a slide rule or by a few well chosen words. It was also true that the Committees did not alone create closer co-operation between managements and workers; they were only a manifestation of deeper social changes which tended to this end.¹ Nevertheless, by 1945 worker-management co-operation was greater and more widespread, and there was a greater understanding on the part of the workers of the problems of management and by the management of the problems of the workers than had existed in the previous fifty years. In the light of the general determination to win the war, to which the Committees owed their origin, this increase in co-operation was bound to benefit production.

In a judgment of the effectiveness of Joint Production Committees during the war some reference must be made to their post-war history. It will be remembered that the engineering agreement was made only for the duration of the war and, although the unions desired its extension, it has not been renewed. After 1945 a considerable number of the Committees ceased to function. To some extent this was due to the fact that some firms closed down or changed over to other types of production, while there was also a considerable re-shuffling of personnel. Among the losses were those Committees which had never been very firmly established or successful. But when war production, which had given both sides of industry a common purpose, ceased some of the old fears, which were only just under the surface during the war, reappeared. Managements were less willing openly to discuss production plans and methods; and workers were unwilling to co-operate in improving production without the certainty that they would share in the resulting profits. Nevertheless a number of the more effective Committees survived; and in 1947 there was a movement for their revival and extension which met, however, only with mixed success.²

Joint Production Committees in Government Establishments

The terms of the agreement setting up Joint Production Committees in private industry followed closely those of the agreement between the Ministry of Supply and the trade unions, which, as has been seen, pre-dated the employers' agreement. The agreements covering the royal dockyards and other Admiralty establishments were in similar terms. Conditions for the success of the Committees were also the same in all types of factories. The form which the Committees took in government establishments was, however, bound

¹ Cf. H. A. Clegg and T. E. Chester, *op. cit.*, p. 344.

² Cf. H. A. Clegg and T. E. Chester, *op. cit.*, pp. 342-6, P.E.P. Report, *op. cit.*, pp. 137-8 and 164; K. G. J. C. Knowles, *op. cit.*, pp. 82-3.

to differ somewhat from that in private industry, chiefly because of the existence of Whitley Committees in government factories.¹

In the Admiralty it was decided to use the existing Whitley machinery. For the Admiralty Industrial Council, established following the recommendations of the Whitley Committee, and the Yard, Departmental and Shop Committees functioning in the dockyards were already empowered to deal with suggestions for improvement in the methods of work and to investigate circumstances tending to reduce efficiency. In January 1943, however, the Admiralty suggested that owing to pressure of work on Yard Committees in the larger establishments, their functions in connection with production should be delegated to specially established Departmental Joint Production Committees. These were not, however, particularly successful, partly for the same reason as militated against the success of the R.O.F. Committees, discussed below.²

In the R.O.Fs circumstances were different: like the dockyards, the filling factories had Whitley Committees which were already empowered to discuss production questions; but a great many of the women workers employed in these factories were not members of any trade union and were not therefore represented on the Whitley Committees. In many of the engineering R.O.Fs, on the other hand, no Whitley machinery existed,³ nor was it thought desirable to make use of such joint committees of shop stewards and management representatives as existed in these factories. For these reasons separate Joint Production Committees were set up in all the R.O.Fs on similar lines to those established in private industry. All workers were therefore entitled to vote for candidates who had themselves to be trade union members.⁴ In the large filling factories, however, some machinery was needed below the level of the central Joint Production Committee, and it was agreed that in the filling factories the sectional and group Whitley Committees should discuss production questions at separate meetings convened for the purpose.

¹ See pp. 406-18 below.

² After the war the royal dockyards adopted another system under which the dockyard Whitley Committee appointed some of its members to serve as a separate Joint Production Committee. This arrangement too had its drawbacks. (See *Eighth and Ninth Reports from the Select Committee on Estimates*, Session 1951-52.)

³ See pp. 411-18 below.

⁴ See above p. 381 fn. 2. At the meeting of the Ministry of Supply Joint Industrial Council which approved the constitution for Joint Production Committees, the trade union side at first objected in principle to the proposal to allow a vote to workpeople who were not members of a trade union. The chairman, however, pointed out that many of the women workers directed to the R.O.Fs by the Ministry of Labour had no previous experience of industrial employment or of the work of trade unions and that the officials of the unions had had little time or opportunity to explain to them the advantages of trade union membership. He thought it undesirable to preclude all these workers from any say in the election of Joint Production Committee members. The trade union side subsequently withdrew its objection as a *quid pro quo* for a concession by the official side.

Production problems covered by the Committees in the R.O.Fs were similar to those discussed in outside industry but welfare questions were reserved to the Whitley Committees and, like the Whitley Committees,¹ the Joint Production Committees were strictly precluded from discussing wages and other trade questions.

Support for separate Joint Production Committees in the factories was not unanimous. In 1945 the Director-General of Filling Factories pointed out that he had always held, and still held, the view that the Whitley Committees provided adequate machinery for the discussion of production problems and that the dual system was unnecessary and had at times been a nuisance. One difficulty was that, since the welfare and other non-production questions discussed by Joint Production Committees in outside industry were reserved in the filling and explosive R.O.Fs to the Whitley Committees, it was difficult to provide the Joint Production Committees with a sufficiently full agenda to maintain interest in them. As in private industry there was also some doubt in the R.O.Fs about the true purpose of a Joint Production Committee. The Whitley Committee, by contrast, was fairly well established and had clearly defined functions; and the workers' representatives had more self-confidence in dealing with Whitley than with Joint Production Committee business.² For these reasons production questions might have been handled more successfully on the Whitley Committees where they existed.

Like the Committees in private industry the Joint Production Committees in the R.O.Fs had no executive powers and could only make recommendations. But appeal from the Committees to higher authority was simpler than in private industry because the Ministry of Supply was responsible for all the R.O.Fs. In March 1942 a Central Production Committee, representative of the Ministry and the trade unions, was set up under the chairmanship of the Director-General of Ordnance Factories. Questions arising at Joint Production Committee meetings which could not be satisfactorily settled in the factory concerned were referred to the Central Committee, which also received minutes of the meetings of all the Committees and could itself initiate enquiries by headquarters or local staff to ensure that items had been properly dealt with.³

The Central Production Committee also assisted in the establishment of Joint Production Committees in the individual factories. Difficulties in setting up Committees arose chiefly from two causes: first, dislike of the ratio of representation of different classes of

¹ See p. 410 below.

² Cf. *Twelfth Report from the Select Committee on Estimates*, Session 1951-52.

³ The Central Committee was also able to see that experience in the working of the Committees and in the handling of questions common to many factories—which were not numerous—was pooled.

workers fixed by the Central Production Committee;¹ and, second, the hostility and suspicion of the shop stewards. This was sometimes increased because the proposal to establish a Committee arose at a time when working conditions were difficult; for example, at Nottingham there were redundancies. In most factories these difficulties were quickly overcome and, by July 1942, all R.O.Fs had Joint Production Committees except Cardonald, near Glasgow, Leeds and Enfield. A Committee was established at Cardonald at the end of the year. But at Enfield the Shop Stewards' Committee continued to oppose the setting up of a Committee in spite of pressure from A.E.U. headquarters, and proposed instead a 'Workers' Production Enquiry Committee'. As a result no Joint Production Committee was established at Enfield until 1946. Similar difficulties arose at Leeds, where a Committee was finally set up in 1945.

In December 1943, when the Committees had been in operation for some eighteen months, the Central Production Committee recorded its view that they had well fulfilled the purpose for which they were established. They had led to a better relationship between management and workers in general, had increased workers' understanding of the problems of production and provided them with a means of making valuable suggestions. According to the Ministry of Supply's agreement with the trade unions, the agreement itself was terminable one year after the end of the war. At a special meeting of the Ministry's Joint Industrial Council in February 1945, however, it was decided that the agreement should continue in force indefinitely, subject to three months' notice of termination by either side. Joint Production Committees are still (1957) functioning in R.O.Fs.²

(b) STRIKES AND THE NEGOTIATING MACHINERY

The Incidence of Strikes

Though Joint Production Committees did not, and were not expected to, eliminate disagreement between managers and workers, successful Committees had a strong influence in preventing minor disagreements from leading to serious stoppages of work. The number of strikes, the number of workers involved and the working days lost through strikes in the metal, engineering, aircraft and shipbuilding industries between 1914 and 1945 are shown in Table 21. From this it will be seen that the number of working days lost through strikes

¹ In the engineering factories this was in the ratio of four skilled to one unskilled worker, or 8 : 2 in the larger factories; in the filling factories there were to be five representatives of the process workers and five of the maintenance men, inspectors, etc.

² In 1946 complaints from the workers' side of lack of consultation in the changeover from war to peace conditions in the R.O.Fs led to an overhaul of the machinery, particularly of the Central Production Committee.

in these industries increased during the war years 1939-45 compared with the period between 1927-39. The number of days lost increased not only absolutely but in proportion to the numbers employed. But the working days lost were not as high in proportion to the numbers employed as in some other industries, notably in coalmining. Coalmining accounted for approximately one-half of the total working days lost through strikes in 1943, two-thirds in 1944 and one-quarter

Table 21: Stoppages of Work in the Metal, Engineering and Shipbuilding Industries, 1914-45

| Year | Number of Strikes* | Number of Workers Directly and Indirectly Involved* (000) | Number of Working days lost† (000) |
|------|--------------------|---|------------------------------------|
| 1914 | 232 | 51 | 1,308 |
| 1915 | 189 | 46 | 357 |
| 1916 | 105 | 75 | 305 |
| 1917 | 225 | 429 | 3,063 |
| 1918 | 420 | 242 | 1,499 |
| 1919 | 335 | 403 | 12,248 |
| 1920 | 340 | 183 | 3,414 |
| 1921 | 151 | 63 | 4,420 |
| 1922 | 115 | 369 | 17,484 |
| 1923 | 103 | 61 | 5,997 |
| 1924 | 136 | 71 | 1,400 |
| 1925 | 94 | 24 | 184 |
| 1926 | 62 | 14 | 221 |
| 1927 | 69 | 16 | 81 |
| 1928 | 51 | 8 | 60 |
| 1929 | 80 | 39 | 768 |
| 1930 | 70 | 10 | 92 |
| 1931 | 61 | 12 | 99 |
| 1932 | 46 | 4 | 48 |
| 1933 | 68 | 15 | 112 |
| 1934 | 81 | 15 | 160 |
| 1935 | 73 | 17 | 93 |
| 1936 | 148 | 47 | 206 |
| 1937 | 220 | 107 | 778 |
| 1938 | 138 | 44 | 243 |
| 1939 | 181 | 56 | 332 |
| 1940 | 229 | 40 | 163 |
| 1941 | 472 | 154 | 556 |
| 1942 | 476 | 141 | 526 |
| 1943 | 612 | 170 | 635 |
| 1944 | 610 | 194 | 1,048 |
| 1945 | 591 | 123 | 528 |

Source: K. G. J. C. Knowles, *Strikes: a Study in Industrial Conflict* (1952), p. 308, and Ministry of Labour and National Service.

* Relates to strikes beginning in year.

† Relates to strikes in progress during year.

in 1945 compared with figures for engineering and shipbuilding combined of one-third, one-quarter and one-sixth respectively.

A striking feature of the statistics, for which some explanation is given below, was the great increase in the number of strikes with a corresponding decrease in their duration. Between 1927 and 1934 the average yearly number of strikes lasting less than one week was 233, and accounted for some 50 per cent. of the total number of strikes at the beginning of the period rising to 65 per cent. at the end; between 1935 and 1938 the average yearly number lasting less than one week was 593, about 70 per cent. of the total. In 1939 and 1940 the number had risen to some 700-750.¹ Figures for the remaining years of the war are shown in Table 22.

Table 22: *Proportion of Strikes lasting under one Week, 1941-45*

| | No. of Strikes lasting under one Week | Percentage of Total |
|------|---------------------------------------|---------------------|
| 1941 | 1,082 | 86.5 |
| 1942 | 1,147 | 88.0 |
| 1943 | 1,621 | 90.8 |
| 1944 | 1,993 | 90.8 |
| 1945 | 1,980 | 86.3 |

Source: Ministry of Labour and National Service

The great majority of war-time strikes were limited to individual firms or localities. The only important exception was the series of stoppages among apprentices which took place in 1941 in the west of Scotland, Belfast, Barrow and Manchester.²

Not only were strikes shorter but an increasing number of them were unofficial. In war-time, when strikes were made illegal, all of them became unofficial. But already in 1936 more than half the strikes which occurred in the engineering industry were unofficial.³ The deeper causes of this development are discussed below.

Within the munitions industries the highest incidence of strikes in proportion to the labour force employed, both between the wars⁴ and during the war itself, was in the shipbuilding industry. As in coalmining, one of the causes of the poor industrial relations in the shipbuilding industry was the influence of the depression; and it was no accident that the incidence of strikes in the shipyards was highest

¹ K. G. J. C. Knowles, *op. cit.*, p. 313.

² See p. 334 above. Cf. H. Bowley, *Labour Disputes in Wartime*, Royal Economic Society Memorandum, No. 103, October 1945.

³ The Minister of Labour in the House of Commons, 1st July 1937, quoted K. G. J. C. Knowles, *op. cit.*, p. 36.

⁴ *Ibid.*, pp. 171-4 and 199.

in those regions like South Wales and the Clyde,¹ and among those trades, such as the ironworkers, which had been hardest hit by the depression. On the North-East coast other factors to some extent offset the influence of the depression, though there was room for much improvement in industrial relations in the shipbuilding industry there. Arduous and exposed conditions of work in the shipyards were also likely to fray the tempers of those employed in them.

High as was the incidence of strikes between 1939-45 it is important to note that the total average yearly loss of working time through strikes was less than half in the Second World War what it had been in the First.² Politicians and officials had no doubt chiefly this in mind when they emphasised industry's relative freedom from strikes in the Second World War. In fact in 1940 the number of days lost through strikes in progress during the year in industry as a whole was lower than it had ever been since statistics were recorded. When in the summer of 1943 the Admiralty was concerned about the number of illegal strikes which were occurring in the shipbuilding and repairing industries, the Ministry of Labour thought it should be recognised that these had been remarkably free from serious stoppages of work.

On the other hand, valid comparison of the position in the two wars was difficult because circumstances were considerably changed. In the Second World War the political situation was more straightforward, and radical opposition weaker, especially after the entry of Russia into the war in 1941; the Labour Party was in a Coalition Government to which the trade unions had pledged their full support. Moreover, the degree of organisation on both sides of industry and the machinery of negotiation had developed considerably in the inter-war years. It was arguable, therefore, that the strike record of the years 1939-45 should have been better than that of 1914-18.

The incidence of stoppages was strongly influenced by the state of the war. During the Dunkirk period the number of strikes was at a minimum; in the long period of waiting before D-Day, from mid-1943 to March 1944 it was high.³ These nine months, when aircraft production had priority of labour and materials, were months of the most serious disputes in the aircraft industry. Over 730,000

¹ The statistics of stoppages reported were not strictly comparable between districts because some districts, of which the Clyde was one, were more meticulous than others in the recording of short stoppages. The Admiralty aroused the wrath of Clydeside by quoting these statistics as though they were comparable when it made an appeal to the industry in 1943 to reduce the number of illegal strikes, making special reference to the Clyde where, it was claimed, the majority of stoppages had occurred. Nevertheless the position was comparatively bad on the Clyde.

² K. G. J. C. Knowles, *op. cit.*, p. 119.

³ Other factors, such as delays in settling wages claims, may have had some influence. The incidence of stoppages between 1914 and 1918 showed a similar sensitiveness to military events. (See K. G. J. C. Knowles, *op. cit.*, p. 159.)

man-hours were lost in one factory in Scotland in November 1943 and over 500,000 at another in December. As the end of the war approached strikes tended to last longer, and some of the issues over which strikes arose foreshadowed post-war problems. For example, a serious strike in August 1944 in a firm working for M.A.P., which accounted for a loss of 419,000 man-hours, 90 per cent. of the man-hours lost in the aircraft industry during that month, arose on the question of employing women to make textile machinery, the normal product of the firm, while the men continued on aircraft components.

The Causes of Strikes: (i) War-time circumstances: fatigue, full employment and increased piece working

It was obvious that the very fact of the war and the need for high production of armaments provided workers and employers with a common objective which was often lacking in peace-time, and prevented disputes from developing into stoppages of work. On the other hand some of the background causes of strikes were intensified by war-time circumstances. For instance fatigue, which was a factor predisposing to stoppages of work, was greater. There was a continual strain on both workpeople and managements from long hours, intensive and continuous effort, air raids and far from comfortable travelling, and, for some workers, housing conditions. Secondly, in spite of the Government's efforts to educate the trade union movement in the need for wage restraint (perhaps even sometimes as a reaction against such efforts), there were those on the workers' side who urged that war-time, with full employment and the urgent need of continuous production, was the best time for securing wage increases.

General dissatisfaction with wages can be regarded as a background cause of strikes, sometimes leading men to come out on issues themselves unconnected with wages. But wage grievances were also, of course, an important immediate cause of stoppages. An exact analysis of the causes of strikes was difficult to make, but Table 23 gives the Ministry of Labour's analysis according to their principal cause of stoppages occurring during the war years in the engineering, shipbuilding and iron and steel industries. It will be seen that some 60 per cent. of the stoppages of work in the munitions industries in the war years arose over wage disputes, and this figure was the same for industry as a whole.¹ An increasing proportion of the disputes about wage questions concerned piece rates. Already in the period from mid-1935 to December 1937 day to day disputes over piece work prices accounted for nearly one-sixth of the strikes

¹ K. G. J. C. Knowles, *op. cit.*, p. 235. Between 1915 and 1918 over seventy per cent. of stoppages were due to this cause.

involving A.E.U. members.¹ Subsequent years saw a continuous expansion of piece working in the industry. Though piece working had many advantages, the fixing of fair times and prices, particularly under war-time production conditions, was bound to give rise to differences of opinion which could only be settled harmoniously if there was full consultation and good co-operation and confidence between both sides. The difficulties were increased by the inevitable dilution of rate fixers and costing officers.

The Causes of Strikes: (ii) Delays in the Negotiating Procedure

Another important underlying cause of strikes was the delay which often arose in negotiating a settlement of a dispute. The procedure agreements made between the Engineering Employers' Federation and the Shipbuilding Employers' Federation and the trade unions in the engineering and shipbuilding industries were similar though not identical. According to the procedure, if a dispute could not be settled between the adult worker or workers and their foremen, shop stewards were empowered to take it up with the shop manager. Failing settlement at this second stage, the matter was referred to a Works Conference which could be attended by the local officer of the union or unions concerned. If a settlement was not reached, the next stage was a Local Conference between local officers of the employers' association and local officers of the trade union or unions concerned, followed if necessary by a Central Conference between national representatives of both sides. General wage questions were excluded from the procedure and negotiated in *ad hoc* meetings at national level. For the purpose of important agreements and negotiations at national and district level the majority of the unions were linked together in the Confederation of Shipbuilding and Engineering Unions.²

Whether it was stated in agreements or not there was a strong convention in industrial negotiation that there was to be no stoppage of work until procedure was exhausted. By the Conditions of Employment and National Arbitration Order of July 1940, which was made with the agreement of both sides of industry, strikes and lock-outs were made illegal and compulsory arbitration was introduced.³

Both the engineering and the shipbuilding procedure agreements laid down certain time limits for some or all stages of the procedure.

¹ G. D. H. Cole, ed., *British Trade Unionism today* (1939), p. 364.

² The A.E.U. did not join the Confederation until 1945, but between 1942 and 1945 it was linked with the Confederation in the National Engineering Joint Trade Movement which conferred with the employers and sometimes made agreements with them on matters affecting all manual trades.

³ See p. 402 below. The shipbuilding procedure provided for the holding of a General Conference if there was failure to agree at Central Conference. This was presided over by an independent chairman whose function was to try and bring the parties together; but this part of the procedure was in abeyance during the war.

Table 23: Principal Causes of Stoppages of Work, 1941-44, in Engineering, Shipbuilding and Iron and Steel and other Metal Industries

| | Percentage of Stoppages beginning in the Year | | | |
|--|---|-------|-------|-------|
| | 1941 | 1942 | 1943 | 1944 |
| Wage increase questions | 35.4 | 33.8 | 28.8 | 20.8 |
| Wage decrease questions | 3.6 | 5.5 | 8.3 | 7.0 |
| Other wage questions (including piece work) | 24.1 | 25.6 | 23.4 | 30.7 |
| Total, All wage questions | 63.1 | 64.9 | 60.5 | 58.5 |
| Hours of labour | 1.9 | 1.7 | 1.6 | 1.3 |
| Employment of particular classes or persons | 19.1 | 16.4 | 16.7 | 17.7 |
| Other working arrangements, rules and discipline | 11.2 | 13.2 | 16.5 | 16.4 |
| Trade unionism | 4.0 | 2.3 | 3.3 | 4.4 |
| Sympathetic action | 0.7 | 0.6 | 0.6 | 1.5 |
| Other questions | — | 0.9 | 0.8 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Ministry of Labour and National Service

The shipbuilding agreement was the better and more precise of the two in that it laid down time limits for the various stages of discussion in the yards. These time limits did not, however, prevent continuous adjournments and the unions had raised complaints about delays many times in the years before the war. It was inevitable that some negotiations should take a long time, for many parties had to be consulted before claims and counter-offers could be made and accepted; this was particularly so if a number of different unions were concerned in the negotiations. In war-time the difficulties of acting quickly were increased. The same number of union officials—some of them inexperienced because the original holders of their jobs had been seconded to government service—had to cope with a greatly increased trade union membership and a vast increase in problems caused by war-time conditions and changes in the methods of production. Their time was further taken up by attendance at official committees. Employers were heavily overburdened with many production problems which might seem more urgent than industrial negotiations. Though the trade union leaders continued to complain of delays in negotiation,¹ however, some of the delay was probably deliberate on both sides. The employers temporised to avoid refusing

¹ At a conference with the Minister of Aircraft Production in February 1943, officials of the T.U.C. argued that slow-moving procedure was the chief cause of stoppages of work in the engineering industry.

unreasonable claims outright (or in order to delay wage increases) and the union officials, having let impossible claims go forward rather than face a showdown with their members, acquiesced in the resultant delay.

It was true that workers objected more to the final rejection of their claim than to the delay in dealing with it; but the delay in itself was unquestionably frustrating, particularly to the thousands of new workers unused to, and not understanding, the working of the procedure, and made people more ready to take strike action.¹ For example, when a strike involving the loss of 730,000 man-hours arose at an aircraft factory in Scotland in 1943 over the admittedly very complicated question of the rating of women's work, the matter had already been under negotiation for over a year without a settlement.² The shop stewards at another factory gave strike notice on the same issue pointing out that 'they had patiently travelled the long road of negotiation to Central Conference without obtaining satisfaction'. A strike at another aircraft factory, during which 24,500 man-hours were lost, started in May 1943, three months after the shop stewards on 4th February had registered failure to agree on a piece work price; the management had given 12th May as the earliest date when they could arrange a conference on the matter.

The Causes of Strikes: (iii) The Influence of the Unofficial Shop Stewards' Movement

In these cases procedure was so protracted that it was not followed to the end. In many cases procedure was not followed at all beyond, if as far as, Works Conference. This was partly because it was expected to be slow, but also for other reasons. It has already been said that to a certain extent delays in procedure arose through the unwillingness of trade union officials to reject unreasonable claims outright. Recent studies of trade unionism have drawn attention to, and given reasons for, the lack of cohesion between the various levels of the trade union organisation, between the national executive and the officials responsible to it and the active membership in the districts and branches, between the local organisation and the rank and file members in the shops.³ War-time circumstances combined to increase the difficulties of co-ordination. Trade union officials were drawn into close co-operation with the Coalition Government and the employers, and suspicion in the workshops that they had 'sold out to the bosses' was bound to grow. This was the more likely to

¹ Cf. P.E.P. Report, *op. cit.*, p. 171.

² See p. 364 above.

³ Compare P.E.P. Report, *op. cit.*, pp. 21 ff; V. L. Allen, *Power in Trade Unions* (1954); Allan Flanders and H. A. Clegg, *op. cit.*, pp. 165-7; G. D. H. Cole, *An Introduction to Trade Unionism* (1953).

happen in that educational work through which a full explanation of government and trade union policy could be passed down to the rank and file workers had not been extensively developed in the trade union movement in Great Britain.¹ Moreover, as has been said, the number of experienced trade union officials at headquarters and in the districts was reduced by their appointment to government posts. Many district organisers, key links in the chain of organisation, became Labour Supply Inspectors; their successors lacked experience in insisting in the face of resistance on the adoption in individual shops and yards of national policies and agreed procedures; and some of them were regarded as ineffective by observers both inside and outside the trade union movement.² There was also a breakdown in co-operation from the branch end, which became more serious during the war when the genuine difficulties of attending branch meetings increased and the already low attendance at these meetings fell still lower.

The importance of negotiations at the shop level had in any case increased between the wars at the expense of the influence of the trade union branch.³ In war-time the responsibilities and prestige of the shop stewards were bound to grow. Rapid changes in methods of production, new workers, war-time conditions of work, increased piece working all brought many problems requiring quick solution on the spot. In war-time, even more than in peace, shop stewards did a great deal of hard work at considerable sacrifice; and though the influence of the shop stewards was on the whole to make the unions' policies more radical, most stewards were loyal members of their union. War-time conditions, however, assisted those stewards who wished to act independently of their union. Shop stewards were the more likely to do this because there was no proper machinery through which they were linked with the negotiating machinery above the shop level. For, though the stewards were directly represented on the District Committees of the A.E.U., it was not until after the war that they were given representation on those of the Confederation of Shipbuilding and Engineering Unions.

This defect in organisation increased the opportunities for unofficial organisation among shop stewards at district and national level. The shop stewards' movement which developed in the re-armament and war years was fostered and used by the Communist Party and many stewards were Party members or favourably in-

¹ Cf. P.E.P. Report, *op. cit.*, p. 151.

² The position of district organisers was also influenced by the constitution of the union concerned. For example the Boilermakers' Society and the Shipwrights' Association district delegates were elected on a local vote; they therefore tended to be more sensitive to the views of their constituents than those district officers who were elected on a national vote or appointed by the national executive of their union.

³ Cf. G. D. H. Cole, *op. cit.*, pp. 36-7.

clined towards its policies. There had already been signs of an unofficial movement in the aircraft industry in 1936 and workers in the aircraft industry remained to the fore in the unofficial movement which developed in the war—its journal, for example, was named *The New Propeller*. The movement first emerged in war-time on the Clyde in December 1939, and called for an end to the war and militant action to improve wages. Early in 1940 a committee was formed, the so-called West of Scotland Shop Stewards' Consultative Conference, which remained in being throughout the war, in spite of trade union measures to deny it contributions from branch funds. The Conference set up an office in the same building as the district office of the Confederation of Shipbuilding and Engineering Unions.

Early in April 1940 the first meeting of a National Shop Stewards' Council, consisting of some 300 shop stewards, chiefly from the aircraft industry, took place in Birmingham. The meeting made plans to develop the movement on a national basis but this time political aims were not mentioned and the Council concentrated on the strong wage grievances which existed among munitions workers, particularly in the shipbuilding industry.

Though it contained a strong Communist Party element the shop stewards movement on Clydeside prospered because at that time it could exploit contemporary feeling in the yards among many non-Communist workers. The aims of many of the unofficial leaders, as in both wars, might be political, but their power to provoke strife and unrest (when that was their desire) and to secure influence with the rank and file workers depended on the existence in industry of real grievances concerning wages and conditions which the official trade union leadership appeared powerless to remedy. Only occasionally were strikes due wholly to political or irresponsible agitation. In practice the influence of the unofficial shop stewards' movement over the rank and file workers was very limited; this was illustrated by the fact that the number of strikes did not fall but increased after 1941, although they were condemned by the Communist Party.¹

Whether for political or industrial reasons, however, the tendency to ignore the official procedure continued and increased. The growing importance of negotiations at shop level to some extent conduced to quick settlement of disputes; but when a settlement could not be reached it increased the risk of workers acting independently and going on strike before the official procedure was invoked. In 1943 the Clyde Shipbuilders' Association reported that there was a widespread tendency on the part of the workmen to ignore their official delegate and to report disputes through the shop stewards to the Ministry of Labour. Local trade union officials often received their

¹ K. G. J. C. Knowles, *op. cit.*, pp. 39-40 and 50. Cf. *Fifteenth Report from the Select Committee on National Expenditure*, Session 1940-41, 13th May 1941, para. 17.

first notice of a strike not from the shop stewards but from the Ministry of Labour Conciliation Officer or the Employers' Association. Of course responsibility for failure to use procedure was not all on one side. The dilution of managements led to the appointment in supervisory grades of individuals who were not experienced in industrial negotiations. Sometimes procedure was blocked by the refusal of a foreman to allow the men access to the management, or by the refusal of telephone facilities to shop stewards who wanted to get in touch with the district organisers of their trade union.

The Causes of Strikes: (iv) Lack of Co-operation in the Work Place

Many of these background causes of strikes, such as war strain or the slowness of procedure (at any rate beyond shop and yard level), were common to all factories and shipyards. The fact remained that certain shops and yards were very much more prone to strikes than others, an indication that one of the chief causes of strikes was poor co-operation in the work place. From time to time sudden lightning stoppages would occur with almost no apparent provocation in factories and shipyards where industrial relations were particularly harmonious; but the Ministry of Labour pointed out that in the shipbuilding industry, for example, a disproportionately large number of strikes occurred in certain yards.¹ One obvious remedy for strikes lay therefore in such measures, already described, as the promotion of Joint Production Committees and the efforts to extend the appointment of personnel managers.

(c) THE INTERVENTION OF THE GOVERNMENT

During the war the Ministry of Labour continued and extended its normal work of industrial arbitration and conciliation. The supply Ministries were also led by their interest in maintaining continuous production to take an informal part in this work. Strikes and lock-outs were made illegal and compulsory arbitration introduced under the Conditions of Employment and National Arbitration Order of 1940.² Either party to a dispute was entitled to refer it to the Minister of Labour who would refer it to any existing joint machinery suitable for the purpose. If there was failure to agree the dispute was to be referred within twenty-one days to the National Arbitration Tribunal whose decision was binding. The Ministry of Labour, however, was anxious that compulsory arbitration should

¹ Cf. also *Seventeenth Report from the Select Committee on National Expenditure, Session 1941-1942*, 22nd October 1942, para. 18.

² S.R. & O. 1940, No. 1395, 18th July 1940. The existing machinery for voluntary arbitration and conciliation, notably the Industrial Court and Courts of Enquiry and Committees of Investigation, continued in use alongside the National Arbitration Tribunal. (See Ministry of Labour and National Service, *Report for the Years 1939-1946*, Cmd. 7225, pp. 282-7.)

be used only in the very last resort so that the greatest possible measure of authority and responsibility would remain with the organisations concerned on both sides of industry. In all 2,559 cases were referred to the Minister under the Conditions of Employment Order up to the end of 1946, of which some 1,250 were referred to arbitration, 1,060 of them to the National Arbitration Tribunal.¹

No war-time strikes could thus be officially recognised by the trade unions, though a number of them were connived at, if not actually supported, by the unions, particularly at district and branch level.² Strikes became 'unofficial', and, partly because of this Order, tended to be short, token strikes; but it was quite impossible to prevent strikes by legislation or by the subsequent prosecution of offenders. Whatever the law said workers would continue to strike; and indeed it could be argued that a short strike when feelings were running high sometimes helped to relieve tension and to remove grievances which would otherwise have led to continued loss of output through absenteeism or going slow on the job. Moreover, the rights and wrongs of industrial disputes were seldom clear cut. There were many cases in which, though the workers were acting illegally in striking, any just apportionment of blame involved other parties. The Ministry of Labour felt that the acceptance by both sides of industry of the terms of the Order implied that neither would provoke the other to a breach of the law. Proceedings which left a strong sense of grievance among a large body of workers could not fail in the end to be harmful both to industrial relations and to the war effort. Even if the issue were quite clear cut it was impracticable to imprison the whole of a large body of workers and to pick out a selected few as to make martyrs of them.³ 109 cases of prosecution involving 6,281 strikers were brought under war-time regulations between 1940 and the end of the war.

The industrial conciliation officers of the Ministry of Labour of course continued during the war their work of promoting industrial peace. These officers worked to fairly close instructions, designed to secure that their work as a whole and their intervention in disputes strengthened and did not weaken the existing negotiating procedure. A conciliation officer was not to be tempted to secure a quick settlement of an individual dispute at the expense of weakening this procedure, with the risk of more dangerous long-term effects. His function was to see that the parties followed the proper procedure without undue delay and possibly to keep in informal touch with the two sides while negotiations were in progress. He was to initiate

¹ Ministry of Labour Report, *op. cit.*, p. 282.

² In most unions only the national executive could authorise a strike and the issue of strike pay.

³ Sir Lyndon Macassey, quoted K. G. J. C. Knowles, *op. cit.*, p. 118.

discussions under his own auspices only when established procedure had failed to produce a settlement or did not exist. In case of a stoppage of work the conciliation officer used his influence with the appropriate officials of both sides to secure a return to work so that negotiations could continue; that is to say that in the case of unofficial stoppages he would not (save in very exceptional circumstances) contact the workpeople themselves, nor receive deputations from them.¹

More than some other work, the success of industrial conciliation depended on the personality of the conciliation officer, whose quality and influence not unnaturally varied from place to place. The Ministry of Labour took important steps during the course of the war to improve the status and training of its industrial relations staff.

The supply departments for their part were naturally concerned with stoppages of work involving loss of essential production, and their headquarters and regional staff might well hear of actual or pending stoppages of work at an early stage. The main efforts of the supply departments, once they knew of a dispute, were directed to seeing that the existing machinery was brought quickly into operation. In M.A.P. a special drill was developed to inform the Engineering Employers' Federation, the trade unions and the Ministry of Labour Conciliation Department immediately the Ministry had news of a strike in an aircraft factory. Already in 1940-41, however, area officers of the M.A.P., for example, participated directly in efforts to bring disputes to a close; they interviewed shop stewards and sometimes went so far as to address meetings of workers to persuade them to return.

The Ministry of Labour was concerned that intervention by supply department officials without intimate experience of industrial negotiation might do more harm than good, and early in 1942, after discussion at the Labour Co-ordinating Committee, M.A.P. and Ministry of Supply regional controllers were told to avoid direct discussions with either side in matters which might be the subject of difference or dispute. Admiralty officials were expressly excluded, because it was felt that its regional controllers already knew their duty in this matter and that the effect of sending such instructions to district shipyard controllers would be to stop them breaking rules which they broke on occasion to good effect.

As to when and how often it was desirable to break the rules, there was bound in fact to be some disagreement between the Ministry of Labour, whose point of view has already been stated, and the

¹ On one occasion the Deputy Chief Industrial Commissioner for Scotland, having refused to meet the shop stewards interested in a dispute in a Glasgow engineering factory, agreed to receive the District Committee of the A.E.U., on which two Communist members had considerable influence. The Committee arrived accompanied by 100 shop stewards who filled the corridors and staircases of his office building. Three representatives of the stewards were finally received as part of the official delegation.

supply Ministries, thinking chiefly of the shorter-term effects of a strike on urgent war production. It could, of course, also be argued that the Ministry of Labour and the supply departments interpreted the industrial situation differently and that in dealing directly with the shop stewards the M.A.P. was only recognising their growing importance in the trade union organisation.

In the later years of the war M.A.P. continued to use certain members of its headquarters staff to assist in the settlement of disputes in aircraft factories. These were Mr. J. W. Stevenson, Labour Adviser to the Minister, Mr. Frank Chappell of the P.E.B. and Mr. T. W. Gillender of the Special Complaints Branch. The Parliamentary Secretary also intervened in some disputes. In their visits to firms these members of the Ministry frequently interviewed shop stewards and Joint Production Committees as well as managements, and, on occasion, addressed mass meetings of the men to secure the acceptance of a settlement. In fact in April 1944 a senior official could suggest that the policy of avoidance of direct contact with shop stewards and Production Committee representatives laid down in 1942 had been more honoured in the breach than the observance. While this was an exaggeration, it was clear that labour questions could not be handled successfully without some infringement of restrictions which applied to the general but not necessarily to the particular. The M.A.P. officials referred to above were successful in preventing disputes in a number of factories from developing into stoppages of work and in others in securing a quick return to work. Part of their success could be attributed to their intimate knowledge of trade union procedure and industrial agreements and to the fact that they held trade union cards.

A somewhat similar difference of approach, this time between the Ministry of Labour and the Admiralty, was revealed when the District Shipyard Controller on the Clyde attempted to speed up the settlement of disputes. The Deputy Chief Industrial Conciliation Officer in Glasgow was an outstanding personality and his intervention was sought more frequently, and at an earlier stage of disputes, than in other areas where the officers were sometimes less respected. The District Shipyard Controller first suggested that the Conciliation Officer should be given powers to intervene more decisively in disputes, a proposal which the Ministry of Labour could not accept. The Controller then proposed the extension of local arbitration, which was already provided for in the shipbuilding procedure to deal with certain piece work and demarcation disputes;¹ he suggested that in all cases where there had been failure to agree there should be

¹ Cf. Ian Sharp, *Industrial Conciliation and Arbitration in Great Britain* (1950), pp. 132 and 138-9.

Yard or Local Conferences meeting under a neutral chairman. This proposal was discussed on the Clyde and by the Central Consultative Committee, but though local officials of the Confederation of Shipbuilding and Engineering Unions, who wanted their hand strengthened in dealing with shop stewards and men in the yards, were not opposed to the idea, the Clyde Shipbuilders' Association, the Shipbuilding Employers' Federation and national officials of the Confederation opposed it. Suggestions were made that provincial Arbitration Tribunals should be established, but the Ministry of Labour found this impracticable; it did, however, appoint additional Scottish members to the National Tribunal and made arrangements for it to meet in Scotland.

(d) INDUSTRIAL RELATIONS IN GOVERNMENT
ESTABLISHMENTS

Introductory

In general, industrial relations in government establishments both in the R.O.Fs and in the royal dockyards were good. This was sufficiently proved by their comparative freedom from stoppages of work. In the R.O.Fs, which in mid-1943 employed some 270,000, there were only sixteen stoppages of work between mid-1943 and mid-1945. The great majority of these lasted for very short periods and involved only a small number of workpeople.

To what extent industrial relations in government establishments were influenced by the fact of public ownership it is difficult to say. This fact may well have had some bearing on the excellent relations which existed between government officials and the representatives from trade union headquarters on the trade and departmental Joint Councils. Some R.O.F. superintendents believed that 'they were helped in their negotiations by being able to claim that private profit would not accrue from greater exertions of their workpeople'.¹ Sometimes, however, the management were more conscious of the distinction between public and private industry than the workers; the Labour Department in one of the Welsh factories, for example, regarded itself as 'an educational spear-head in the advance towards greater industrial democracy', but pointed out that the factory's recruits from among the unemployed and from private industry did not find it easy to note the fundamental difference between a purely profit enterprise and a national factory. That in many of the R.O.Fs worker-management co-operation was of a high standard may have been due more to the intentions and efficiency of the managerial staff than to the workers' preference for state enterprise.

¹ M. M. Postan, *op. cit.*, p. 432.

Negotiations between the employing departments and the workers were usually conducted through national councils and works committees based on the Whitley pattern. In the majority of the engineering and in one or two of the other types of R.O.Fs, however, the workers refused to accept works councils of the Whitley type. This difference in organisation resulted from differences in the history of the various factories and in the nature of their labour force.

As was to be expected, the skilled workers who formed an important proportion of the staff of the engineering R.O.Fs were strongly organised. Woolwich Arsenal, the oldest of the R.O.Fs, had possessed a vigorous shop stewards' organisation from before the 1914-18 war, and men from Woolwich formed the nucleus of the staff of the new R.O.Fs. Moreover, most of the new engineering factories were situated, and recruited large quantities of labour, in districts with a well established, strongly organised engineering industry. As has been said, in the engineering R.O.Fs the skilled workers rejected the Whitley system and there were some difficulties in securing properly constituted negotiating machinery. Industrial relations in these factories were, however, on the whole good, though perhaps less harmonious than in the filling factories.

The filling R.O.Fs employed large numbers of women unused to factory life who did not intend to remain in it and who were difficult to organise. In the filling factories the management had often to educate the workers' side in the use of the proper procedures for negotiation and consultation. Despite the difficulties of organisation, however, worker-management co-operation in these factories reached a high level.

In the royal dockyards the position was again different. Unlike the engineering R.O.Fs, the royal dockyards were situated away from the main engineering and shipbuilding centres; and even during the war the dockyards did not recruit from outside industry to anything like the same extent as the R.O.Fs. The large numbers of shipbuilding and engineering craftsmen employed in them therefore tended to be familiar only with dockyard conditions; they did not necessarily share the views of the main body of organised engineers; thus the dockyard workers had accepted the Whitley system. Moreover, a considerable proportion of dockyard workmen were established; and many had seen service in the Navy. On the management side, also, many of the staff, including the Admiral Superintendent and the Manager of the Engineering Department, were naval officers. This intimate connection with the Navy was an integral part of the dockyards' long history and traditions. Thus the view that the dockyards were in some way special and differed from the rest of industry was shared to some extent by both managements and men. This background inevitably influenced industrial relations

in the dockyards. Worker-management co-operation was on the whole good and there were no stoppages of work in the dockyards throughout the war. An observer likened the feeling of comradeship which existed in the yards to that in family concerns; but the spirit in which negotiations were conducted would perhaps have been strange to a shop steward from outside industry.

The Whitley Machinery and the R.O.Fs

The negotiating machinery in government establishments, and particularly the difficulties which arose in the engineering R.O.Fs, can now be studied in more detail. The recommendations of the Whitley Committee on joint consultation in industry have already been referred to.¹ During 1919-20 machinery was set up on the lines recommended by this Committee to provide for consultation between government departments and their industrial employees.² The system adopted for government departments could not, however, follow precisely the one suggested by the Whitley Committee. The Government was in a special position in that it had a responsibility to Parliament which could not be discharged without some central control, particularly in matters relating to wages.³ Moreover, employees in the various departments had to receive uniform treatment; and the individual departments employed workers in many different trades. For these reasons the Government departed from the usual practice in outside industry of having one Joint Industrial Council empowered to discuss both wages and other questions.⁴ Wages, conditions of employment and recruitment were reserved for discussion on the four trade Joint Councils, the Engineering, Building, Miscellaneous Trades and Shipbuilding Joint Councils. The first three covered workers in establishments belonging to all

¹ See p. 372 above.

² See Ministry of Labour, *Report on the Establishment and Progress of Joint Industrial Councils* (1923), pp. 56 ff.; J. B. Seymour, *The Whitley Councils Scheme* (1932), pp. 24-32; E. C. Shepherd, *The Fixing of Wages in Government Employment* (1933).

³ The status of Whitley Councils and Committees was defined by the Treasury in 1921 as follows:

'The establishment of Whitley Councils cannot relieve the Government of any part of its responsibility to Parliament, and Ministers and Heads of Departments acting under the general or specific authority of Ministers must take such action as may be required in any case in the public interest. This condition is inherent in the constitutional doctrines of parliamentary government and ministerial responsibility, and Ministers can neither waive nor escape it.

It follows from this constitutional principle that, while the acceptance by the Government of the Whitley System as regards the Civil Service implies an intention to make the fullest possible use of Whitley procedure, the Government has not surrendered, and cannot surrender, its liberty of action in the exercise of its authority, and the discharge of its responsibilities in the public interest.'

⁴ At a later date wages were removed from the jurisdiction of Joint Industrial Councils in some industries because it was thought that discussion of wages questions had embittered relations in these Councils.

the employing departments, the last Admiralty employees only.¹ A Joint Co-ordinating Committee was set up to discuss questions, such as holidays with pay, which affected more than one of the trade Councils. In addition to the trade Councils, departmental Joint Councils—e.g. the Admiralty Industrial Council—were established to discuss other matters of interest to individual departments. The existence of a dual series of committees caused less trouble than might have been expected, mainly because membership of the official and trade union sides of the trade and departmental Councils overlapped, so that there was in practice a useful link between the two types of Councils.

In the pre-war years the R.O.Fs were covered by the War Office Joint Industrial Council; when the Ministry of Supply was established in 1939 it did not inherit this Council, for the War Office, of course, still had its own industrial employees. Arrangements were quickly made for the Ministry of Supply to be represented on the Engineering and Miscellaneous Trades Joint Councils; and in December 1939, in reply to enquiries from various trade unions, the Minister of Supply wrote that he hoped the Ministry's Industrial Council would be established early in the new year. As it happened, however, discussions about the setting up of a Joint Council were not begun until April 1941. After some initial difficulties on the trade union side about the apportionment of seats between representatives of the skilled and general workers' unions, the Council was constituted and held its first meeting at the end of July.²

Particularly from 1942 onwards the Ministry of Supply set great store by full consultation with the workers' representatives on the Joint Industrial Council. Comparatively few factory disputes were placed before the Joint Industrial Council for settlement during the war, and its main use was as a forum for discussion of broad issues of interest to the workers. The Council discussed such matters as establishment, apprenticeship, hours of work, annual leave, meal breaks and assisted travel. Although the Council was not the official

¹ Dockyard claims were frequently referred direct to the Shipbuilding Trades Joint Council, but it was the practice for claims to be discussed between the unions and the department concerned before being referred to the Engineering Trades Joint Council. It was partly to secure more effective co-ordination of departmental policies on engineering wages that the interdepartmental Treasury Wages Co-ordinating Committee was established in 1941.

² A conference convened by the General Council of the T.U.C. had allotted six of the twelve seats to the engineering unions, four to general labour, and one each to building and miscellaneous trades. The National Union of General and Municipal Workers and the Transport and General Workers' Union, rejected this proposal since of the 200,000 workers then employed by the Ministry only about ten per cent. were skilled mechanics and craftsmen. The unions eventually reached a settlement amongst themselves by increasing the number of their seats to fifteen. The engineering unions retained six of the seats, but the general labour unions also held six, the miscellaneous unions two seats and building one seat.

channel for dealing with disputes in non-Whitley establishments,¹ it did in fact spend a good deal of time in considering their problems, as distinct from disputes. The general insistence that headquarters agreements had to be honoured in all factories also meant that those arrived at with the unions on the Joint Industrial Council or on the Engineering Trades Joint Council applied to all industrial establishments.

One of the main concerns of the workers clearly lay in the continuity of employment; the Joint Industrial Council frequently discussed impending transfers and redundancies, not only in the Ministry's establishments but in agency, and even sometimes in private, factories which were not represented on the Council nor subject to its rulings. The trade union side did not challenge the right of the Ministry to reduce factory strengths, but wished to be consulted about how the necessary changes should be made. Although it was very difficult to plan ahead in the changing conditions of war-time, the officials did their best to secure the unions' co-operation at headquarters and at local level. There were also lengthy discussions about the use of the R.O.Fs after the war.

The national Joint Councils functioned on the whole satisfactorily. Government departments had, however, the same difficulties as outside industry in coming to agreements satisfactory to both the skilled and the unskilled unions, whose interests by no means always coincided. This problem arose for example in the negotiation of dilution agreements, and in the question of whether works councils of the Whitley type should be established in the factories. As will be seen, the workers in the shops also complained that neither the trade nor departmental Joint Councils dealt expeditiously with matters referred to them.

At the same time as the national Joint Councils were established in 1919-20 arrangements were made to set up in the larger factories a three-tier system of Committees—Shop, Departmental and Works or Yard Committees. The Committees had very wide powers to discuss any complaints made by individuals or groups of workpeople, conditions of work and, before the institution of Joint Production Committees, methods of improving production. Their constitution, however, specifically precluded the discussion of wages and trade questions. Complaints not settled in Works Committees were thus referred to the Departmental Joint Councils, which also had no concern with wages questions.² In factories which followed the orthodox Whitley procedure wages questions had to be taken up

¹ See pp. 411-18 below.

² As in the Departmental Joint Councils, on which there had been no instance of voting for many years, decisions in the Works Committees were normally reached by agreement, but at the discretion of the chairman a vote could be taken on any matter of general importance.

with the management separately by the shop representative, in consultation with the district official, of the union concerned. In the event of failure to agree these questions were referred directly to the headquarters of the union and of the Ministry.

Local machinery on Whitley lines was established in the royal dockyards and in other Admiralty establishments in the early 1920's and still continues to function. The workers in Woolwich Arsenal, on the other hand, never accepted the Whitley system and in 1930 the Whitley Works Committees established at the other two R.O.Fs in production between the wars ceased to exist.¹ After the establishment of the Ministry of Supply Joint Industrial Council, however, Works Committees were established under its supervision in the great majority of filling and explosives factories which did not already possess them.² By January 1943 thirty-one local Industrial Whitley Committees had been set up in Ministry of Supply establishments, including twenty of the R.O.Fs. By that date all the explosives and filling factories, with the exception of Waltham and Hereford, had Whitley Committees.

A difficulty which arose in the working of these Committees was to secure proper co-operation between the shop representatives of the trade unions and their local officials. It was left open for the representative of any trade union to arrange for the attendance of his district official at any meeting of the Works Committee while business particularly affecting the union concerned was under discussion; but in spite of this provision factory representatives did not call in their district officials at a sufficiently early stage in disputes, and unnecessary friction arose. In 1944, at the request of the trade union side of the Joint Industrial Council, superintendents were themselves made responsible for giving the district officers of the trade unions an opportunity of attending joint meetings with shop stewards or meetings of Whitley Works Committees when local aspects of headquarters agreements were under discussion. In July 1944 superintendents were also reminded that shop stewards should not be recognised without written confirmation of their appointment from their respective trade unions.

In contrast to the majority of filling and explosives factories, little headway was made in the setting up of Industrial Whitley Committees in the engineering R.O.Fs, because the workers refused

¹ See pp. 412-13 below.

² Those R.O.Fs that were already operating a Whitley system were requested to submit the composition of their Committees for ratification. At a later date constitutions had also to be ratified and the Council kept a careful watch to see that Works Committees operated with due regard to the Whitley constitution and to trade union principles. At Chorley, for example, the nomination of an electrician by another union was disallowed on the grounds that such practices weakened the control of unions over their members. Later, Chorley had to be stopped from allowing non-unionists to vote in the elections.

to accept them. At the beginning of 1943 only four of the twenty-four engineering factories had such Committees. The opposition of the engineering workers to the Whitley system was of long standing; here it is necessary to glance at the historical development of the negotiating machinery in the old-established R.O.Fs, Woolwich, Enfield and Waltham Abbey.

The arrangements at Woolwich were unique. Established machinery of negotiation in which the shop stewards played an important part had existed there before the Whitley reports were published. The disarmament policy pursued by the Liberal Government of 1906 caused much unrest at the Arsenal. There were heavy redundancies among the staff and a sharp fall in piece workers' earnings. In these circumstances the workers were anxious to place their grievances before the authorities, who were not at first disposed to concede them a hearing. After considerable agitation, however, they secured an interview with the Prime Minister, Sir Henry Campbell-Bannerman, and were granted the so-called 'Woolwich Charter'; this gave them the (unwritten) right to take up any grievances concerning their wages and conditions of work direct with the War Office. The Charter did not, however, recognise shop stewards as such, and a request for their recognition was flatly refused in 1913. Relations between the trade unions and the Government became much closer, however, during the 1914-18 war, and on a national level wages and conditions in government establishments were frequently discussed with trade union officials. On the shop level, shop stewards were recognised at the Arsenal in 1914, and recognition followed in the other factories. The shop stewards system was particularly strong at the Arsenal, where one steward represented about fifty work-people, and separate factory committees for the skilled and unskilled unions were set up. In July 1917 Dr. C. Addison, then Minister of Munitions, confirmed that 'in the future, as in the past, the Chief Superintendent of Ordnance Factories should confer direct with the shop stewards on matters relating to employment at Woolwich'. After July 1921 the skilled and unskilled organisations united in the Combined Shop Stewards' Committee to discuss matters of common concern.

This centralised system of negotiation grew partly out of the fact that there was no district organisation on the Ministry of Munitions and War Office side corresponding to that of the employers in private industry. The stewards frequently invited the district officers of their unions to accompany them on visits to the War Office and thus kept in touch with union policies. But the absence of any district negotiating machinery partly accounted for insufficient liaison between shop stewards and Whitley Works Committee representatives and the district trade union officials. This tendency towards

independent action was increased at Woolwich because the shop stewards had acquired, and were anxious to maintain, a certain independence *vis-à-vis* the A.E.U. executive. Nevertheless between the wars, when the men employed at Woolwich formed a high proportion of the total employment in the R.O.Fs, it was not unreasonable that wages should be negotiated directly with the Woolwich shop stewards. When many new R.O.Fs were built and Woolwich lost its dominant position it became the custom to apply to Woolwich the central agreements reached in the Engineering Trades Joint Council and elsewhere. Nevertheless the reluctance of the stewards to abandon the privileged position they had acquired under the Addison Minute gave rise to certain problems in the Second World War.¹

Whitley procedure was introduced at the two other 'old' R.O.Fs, Enfield and Waltham Abbey, but in 1930 the trade union sides withdrew and the system ceased to work. No specific reasons for the withdrawals were given, but contemporary papers suggest that there was general dissatisfaction with the Whitley system. The fact that, owing to disarmament, piece work was suspended at Enfield, while at Woolwich normal working conditions had been restored after a brief period of short time, may have created the erroneous impression that a shop steward system obtained better results. In 1931 the workers at both factories asked that their shop stewards should be recognised by the managements for negotiating purposes in the same way as in the private engineering industry.

Before accepting this proposal the War Office consulted the Ministry of Labour, which did not view the proposal favourably. The Ministry of Labour was afraid that the setting up of a different procedure in these factories might jeopardise the whole Whitley system; with the Woolwich precedent in mind, it also suspected that the intention of the shop stewards was to weaken the authority of their union executives. In fact, however, the workers at Enfield and Waltham wanted only a shop stewards' organisation whose activities would be limited to local questions capable of local settlement. In the event of disagreement the question in dispute would be referred to the headquarters of the trade unions concerned, who alone would be competent to take matters up with the department. Since there was thus no question of circumventing union headquarters and going direct to Ministers, the Ministry of Labour withdrew its opposition to the scheme; shop stewards' committees were established at both factories and continued to function without change throughout the 1939-45 war. The decisions of the trade Councils on wages matters were of course binding on both factories.

¹ See p. 417 below.

In 1937 the War Office proposed to set up Shop Stewards' Committees on the lines of those operating at Enfield and Waltham in the newly opened R.O.Fs at Hereford, Nottingham and Birtley in County Durham. The Ministry of Labour opposed this further departure from the procedure that the Government had recognised. The trade union executives concurred in this decision, but could not persuade their members in the factories to co-operate in setting up Whitley Committees. In consequence Hereford, Nottingham and Birtley had no officially constituted negotiating machinery when they were transferred to the Ministry of Supply in 1939.

In these factories, and in the majority of the new engineering factories as they came into production, wages and all other problems arising were discussed between the shop stewards and the management; in some factories, but not in all, there were joint Works Committees. Disputes which could not be settled locally were referred not to the Joint Industrial Council but to the headquarters of the Ministry and of the trade unions. In most of the factories these arrangements worked satisfactorily once some kind of consultative machinery had been established,¹ but except at Woolwich, Enfield and Waltham the system of consultation with shop stewards, involving as it did a departure from the normal Whitley procedure, was not officially recognised by the Ministry of Supply.

The Ministry was anxious to see properly constituted and uniform negotiating machinery in all engineering factories; the question was whether this should follow the Whitley pattern or be modelled on existing arrangements. It was difficult to impose the Whitley system on the factories in the face of the workers' opposition. Some of the skilled engineers' objections to the system have already been mentioned.² Many workers, for example, were unwilling to discuss matters which might concern them alone on Works Committees representative of both skilled and unskilled workers. Thus until 1944 the A.E.U. members at R.O.F. Nottingham refused to co-operate with the other workers in forming a joint Shop Stewards' Committee. In addition, the skilled men criticised the Whitley Committees because these were not allowed to discuss wages questions; but it is most unlikely that the workers would have accepted Whitley Committees even if the desired constitutional amendments had been made.

The men also regarded the three-tier system of Shop, Departmental and Works Committees as cumbersome; and they complained that the procedure both in the factories and when reference was made to headquarters was too slow. Indeed the A.E.U. protested

¹ There was considerable unrest at R.O.F. Hereford in the early stages of its existence and it was agreed that this was due to lack of proper consultative machinery.

² See p. 373 above.

that it was slower than the procedure in private industry, slow as that was.¹

The main complaint of the engineering workers, however, was directed not so much against the Whitley system as against the fact that R.O.F. superintendents had not the same discretion to make decisions as the managers in private industry. Nor, of course, was there any stage in negotiation analogous to Local Conference in the private engineering industry; any question which could not be settled in the factory had to be referred to headquarters. This arrangement was indeed inevitable if the Ministry was to retain centralised control of wages; it was very important, for example, that headquarters should keep a careful watch on the development of incentive bonus schemes. But it seemed to the workers that the most trivial matters had to be referred to headquarters with consequent delays. Delays increased in war-time because of the vast growth in the size of the R.O.F. labour force: headquarters officials in the trade unions as well as in the Ministry were overburdened by the increasing volume of business referred to them from the factories.

It was among the workers in the shops that the dislike of the Whitley system was strongest. The views of the A.E.U. executive on the matter were less decided. Like the government departments concerned it had an eye to the independent attitude of the shop stewards at Woolwich and was in general not anxious to see the prestige of the shop stewards increased. In 1937 the A.E.U. representatives on the Engineering Trades Joint Council were in favour of the adoption of Whitley Committees in the new R.O.Fs; but the union was not prepared to, and indeed it could not, enforce this view on unwilling workers. By 1942 the executive was asking for the recognition of a shop stewards system in the factories, but even so it did not press the matter very vigorously.

Government departments for their part had some misgivings about according official recognition to any but the Whitley system. On political and industrial grounds they too hesitated to strengthen the position of the shop stewards. Moreover, the Whitley system had been for many years the accepted method of negotiation in government departments.

Most important, there was a very real difficulty in accepting the A.E.U.'s proposal that the shop stewards' system should be officially recognised, in that the general workers' unions, who also had many members in the engineering R.O.Fs, on the whole preferred the Whitley procedure. This was because the shop stewards' movement tended to be dominated by the A.E.U. The history of joint consultation at R.O.F. Cardonald, near Glasgow, provided an example of the

¹ See pp. 397-9 above.

difficulties which arose. At this factory a temporary shop stewards' committee had been set up in 1941 pending the establishment of permanent negotiating machinery. As the committee was empowered to discuss wages and trade questions the workers were reluctant to abandon it in favour of a Works Committee of the Whitley type and it continued to function uneasily until 1942. Unfortunately the chairman, who was the convenor of the A.E.U. shop stewards, claimed, and in practice exercised, an overriding position in all discussions or negotiations on any question in dispute. Because of this the Transport and General Workers' Union, which represented about 150 men and 950 women in the factory, withdrew from the shop committee. In 1943, however, when a Joint Factory Committee was established at Cardonald,¹ the convenor of the A.E.U. stewards lost his special position.

Among government departments the objections to the formal recognition of an alternative system to Whitley were strongest on the Treasury and, earlier, on the Ministry of Labour side. The War Office and the Ministry of Supply, faced with the shop stewards' system as a *fait accompli*, had always been inclined to give it their official blessing. It was, after all, the accepted practice in the private engineering industry and functioned satisfactorily enough in the R.O.Fs; and the existence of the shop stewards as workers' representatives was officially recognised in the constitution of Whitley Works Committees. Above all the Ministry of Supply and the Ministry of Labour believed in 1942 that there was more danger of the shop stewards acting independently under the existing informal arrangements than under a properly constituted, officially recognised system of shop stewards' committees and joint committees representative of the shop stewards and the management. There were already signs of the appearance of an unofficial R.O.F. shop stewards' organisation based on R.O.F. Nottingham.

In the end the Ministry of Supply and the Ministry of Labour's views prevailed, but it was several years before the system of negotiation through joint committees representative of the shop stewards and the management was officially recognised by the Ministry of Supply. In February 1943 the departments met the A.E.U. to discuss the unions' request for such recognition. At the meeting, however, the A.E.U. representatives seemed chiefly concerned about delays in the negotiating machinery; and the only immediate result of the discussion was the holding of an *ad hoc* conference between the union and the Ministry of Supply to speed up the settlement of outstanding questions. A monthly conference was mooted but did not become a regular practice. In December 1942, however, the Ministry of

¹ See p. 417.

Supply had established an internal committee, the R.O.F. Industrial Committee, which speeded up the settlement of wages questions on the Ministry's side. This Committee met weekly until 1945 and served a very useful purpose.

It was not until 1946 that the Ministry of Supply decided to give formal recognition to the shop stewards' system in the engineering R.O.Fs generally—and not only that but to adopt the system in place of the existing Whitley arrangements in all the other R.O.Fs. Already at the beginning of 1943, however, an agreement was made to establish a Joint Factory Committee representative of the shop stewards and the management at R.O.F. Cardonald. In June 1945 a similar Committee was established at R.O.F. Nottingham and by mid-1946 Joint Factory Committee constitutions had also been agreed or were under discussion for several other R.O.Fs.

Meanwhile the A.E.U. shop stewards in the R.O.Fs continued to ignore the official policies of their union. At Woolwich, which was indeed a special case, the refusal of the stewards in 1943 to accept the agreement reached between the Ministry of Supply and the unions about the application of Award No. 326¹ to R.O.F. employees led to a prolonged dispute. After the war the newly established Royal Ordnance Factories' National Joint Shop Stewards' Committee, which apparently consisted entirely of A.E.U. stewards, was active in lobbying members of Parliament and in other ways pressing forward its policies for the post-war use of the R.O.Fs; it acted quite independently of the A.E.U. executive and while the matter was under discussion on the Joint Industrial Council. In these circumstances, therefore, the Ministry of Supply and the unions agreed to extend the system of Joint Factory Committees to all the R.O.Fs; they hoped that if the shop stewards were given an important place in the official negotiating machinery the influence of the unofficial body would decline. In subsequent years Joint Factory Committees were established in all the factories.²

In contrast to the Whitley Works Committees the Joint Factory Committees were empowered to discuss the local aspects of headquarters agreements between the Ministry of Supply and the trade unions on wages and conditions of work. Care was taken, however, to ensure that the superintendent should give the district officials of the unions an opportunity to attend such discussions. In practice, of course, there was less scope for shop level negotiations about wages matters in the R.O.Fs than in private industry.³ The main distinction between the Joint Factory Committees and the Whitley

¹ See pp. 348–9 above.

² In 1947, when a Joint Factory Committee was set up at Woolwich, the Addison minute was officially withdrawn.

³ See p. 408 above.

Committees was that the Joint Factory Committees gave greater prestige to the shop stewards; one very real advantage to the workers' side was that the stewards were paid at time rates for their own meetings, usually up to a maximum of four hours a month—a privilege which had not been granted to the workers' side of the Whitley Works Committees.

CHAPTER XIII

TECHNICAL UTILISATION PROBLEMS

THERE WERE FEW ASPECTS of design or of production planning and organisation which did not have some effect on the productivity of labour: the extent of standardisation, the number of modifications, the provision of plant and materials, the organisation of stores, the progressing of production—all these were of fundamental importance to the proper utilisation of labour; but discussion of them falls outside the scope of this volume.¹ There was, however, another group of problems more specifically concerned with the efficiency of labour itself, such as incentive bonus schemes, training or motion study, which are more appropriate to this volume. Some of them have already been discussed; this chapter does not attempt to deal comprehensively with the remainder but only to touch by way of illustration on some of the problems.

(i)

Shift Working

The problem of making the fullest possible use of existing machine tools by a system of shift working fell somewhat between these two categories, being closely connected with both capital and labour matters. From the point of view of conservation of resources it was usually more important to work additional shifts in the machine than in the assembly shops. Sir Alfred Herbert, a leading machine tool maker, speaking at the annual meeting of the Institution of Production Engineers in October 1940, put the question thus:

Surely it is all wrong to buy a machine and equip it at great expense, with its tools and fixtures and the like, when similar machines fully equipped are standing idle at night. If it is possible to find labour for a new machine why cannot that labour be applied to existing machines which are waiting for it?²

¹ See M. M. Postan, *op. cit.*, and other volumes in this series.

² *The Journal of the Institution of Production Engineers*, November 1940, p. 432.

It was not, however, the custom to work double or treble shifts in the munitions industries except in those sections like steel and chemical production where the continuous nature of the process made shift working essential. Pre-war practice in the engineering industry—including the machine tool industry—was to use the bulk of machine tools on one shift only. Such customs, once established, were very difficult to break; and there was a very strong reluctance on the part of both managements and men in the engineering industry to work second shifts.¹ On the workers' side this was increased because shift working—particularly treble shift working—sometimes involved loss of earnings.²

Not only was there reluctance to work additional shifts but there were many practical difficulties. The general problem of double shifting was an extremely complicated one. Sir Alfred Herbert, in the passage quoted above, was speaking of the alternative of buying, or working extra shifts on, similar machines; but the issue was not always so straightforward. From a production point of view, it was, for example, more efficient to build or order from overseas an automatic screw-making machine and to leave idle on a second or third shift a row of centre lathes, than to utilise these lathes with the labour which could be put to work making new automatics.

Secondly, labour available for night shifts was more limited than labour for day shifts. Women and young persons were, with the exception of boys over sixteen in certain industries, forbidden to work night shifts under the Factories Act of 1937. During the war the Factory Inspectorate was empowered to allow relaxations of the Act and many factories received permission to employ women and young persons at night; but it was usually impossible for women with children to work night shifts; and in practice there were often many workers of both sexes in a factory who for domestic or health reasons could not be expected to work at night. A further consideration was that it was probably more efficient to build additional capacity in areas where labour was available than to transfer labour to increase shift working in areas like the Midlands where capacity was relatively plentiful but labour in short supply. Finally, double shift working greatly increased the strain on the managerial staff, and the additional supervisory and maintenance staff, toolroom workers, setters and inspectors required for it were very difficult to find.

¹ By contrast, steel workers who were transferred to gun production in Sheffield continued to work three shifts because that was the custom of the steel trade.

² In some factories, including the filling R.O.Fs, special adjustments were made to avoid this loss. Local dissatisfaction with the rates agreed nationally was, however, one of the rocks on which the proposal to introduce a double day shift in the Clyde shipyards in 1941 foundered; see pp. 309-10 above.

Shift working, therefore, was both unaccustomed and unpopular among managements and men; and there were many practical obstacles in the way of its extension. To achieve full double or treble shift working throughout the munitions industry was therefore quite out of the question. The difficulties were such that the greatest possible utilisation of existing capacity could only be secured by careful planning. It was necessary for the government departments concerned to draw up at an early date long term plans to persuade and assist—and if need be compel—industry to establish shift working. It cannot be said that this was ever done. The pre-war planners of war potential in the Air Ministry, for example, proposed that the aircraft industry should work a double shift in the event of war;¹ but though managements were indeed encouraged to increase shift working no really systematic attempt was made to put the proposal into practice.

Perhaps one of the reasons why the problem of shift working was never tackled thoroughly outside a few sections of production was that it was never properly linked with the supply of machine tools.² There was certainly no policy in the early war years of making the supply of tools to contractors dependent upon their being used all round the clock, or even on the establishment of a second shift of a limited, but defined, extent. In spite of pressure from production directorates and general exhortations from the headquarters of the supply Ministries to various sections of industry the initiative rested ultimately with managements. The difficulties with which these were faced varied, as did their efforts to overcome them.

The results of this policy were seen when in mid-1941 the Prime Minister asked the Production Executive what was preventing the extension of double shift working in the munitions factories. A special enquiry was then made by the Industrial Capacity Committee³ into the extent of shift working. The results showed clearly that though the great majority of firms were working a second shift the number employed on the second shift in proportion to that employed on the first was small. In April 1941 the position in 108 important firms working for the Ministry of Supply was that while 85 firms were working two shifts and 13 of them three shifts, the second shift was manned to only 22 per cent. of the first and the third to only 1·2 per cent. The machine tool industry was working a second shift manned to 15 per cent. of the first, firms on gun production 26 per cent. and on tank production 17 per cent. It was, however, true that machine

¹ See p. 36 fn. 3 above.

² M. M. Postan, *op. cit.*, p. 94. The history of the control of the allocation of machine tools by the supply departments and by the Machine Tool Control, will be told in the forthcoming volume in this series on *Factories and Plant* by William Hornby.

³ A Committee of the Production Executive of the War Cabinet.

tool utilisation was only then recovering from setbacks resulting from enemy action in the winter of 1940-41.

In the main aircraft firms in June 1941 the night shift was manned to 14.6 per cent. of the day, but there was a considerable variation between firms. A more comprehensive analysis of the extent of shift working in the aircraft industry was available from a sample study made in March 1942 covering the more important factories employing forty-three per cent. of the total labour force working for M.A.P. This showed that, while for production workers as a whole the night shift was manned on an average to eighteen per cent. of the day, the percentage was twenty-eight per cent. for machine operators compared with fourteen per cent. for other workers. As is shown in Table 24 the position varied somewhat between different products. Double shifting in the shipyards was rare, but was also less necessary than in the engineering firms.¹

Table 24: Extent of Shift Working in Important M.A.P. Firms

| Product Group | Percentage of Production Workers working on Night Shifts | | |
|----------------------------------|--|-------------------|--------|
| | Production Workers as a Whole | Machine Operators | Others |
| Airframes | 14 | 30 | 12 |
| Engines and Propellers | 23 | 28 | 18 |
| Light Alloys | 25 | 34 | 25 |
| Others | 21 | 25 | 19 |

The extent of shift working was greater in the R.O.Fs. This was partly because of the nature of the work and partly because the Ministry of Supply was able to enforce its policy about shift working on the limited number of factories concerned. Even in the rearmament period there was a considerable amount of shift working in the R.O.Fs in operation at that time, and the custom of working a single shift was not firmly entrenched as it was in the private engineering industry.

Production in the explosives factories was a continuous process and, like the private firms engaged on similar work, these factories therefore worked a treble shift. The new filling factories were built and planned to operate on two shifts for one hundred hours a week and as they came into production this system was put into operation. But owing to the difficulty of building new factories to meet the increased demand for filling capacity it was decided in January 1941 to operate the existing factories on a three shift basis. Hours of work

¹ See p. 309 fn. 1 above.

under the two shift system had in any case been undesirably long and this had added to the difficulty of attracting workers to the factories. Before the factories could go over to three shift working a considerable amount of work had to be done—for example additional storage space had to be provided; but within six months the filling factories were operating on a three shift basis and continued to do so throughout the war.

A considerably greater degree of double shift working was achieved in the engineering R.O.Fs than in most private engineering firms. Under pressure of production demands, a second shift was introduced at Woolwich and Enfield in the pre-war period; and double shift working was adopted in the new engineering factories as they came into production. In June 1941 the engineering R.O.Fs were working a second shift manned to fifty-four per cent. of the first. The position in these factories was better than in private industry because the Ministry of Supply had impressed a consistent policy on the superintendents who had on the whole been able to secure the co-operation of the workers concerned.

Table 25 shows approximately the number of production workers employed on shift working at various dates from January 1941 to June 1943 in the engineering and boilermaking and the motor vehicle, cycle and aircraft industries.¹ It will be seen that the number of workers shown as employed on three shift working doubled between January and September 1941 and approximately doubled again between September 1941 and September 1942. Those engaged on a two shift system were, at the start, about nine times as numerous as those working on a three shift system but increased rather less rapidly in proportion, being only between five and six times as numerous from March 1942 onwards. The vast majority of workers remained on a single shift.

Many firms used double shifting chiefly to overcome bottlenecks, for example, in the supply of special machine tools. A census taken by the Machine Tool Control in July 1940 showed that highly specialised armament tools such as gun boring, gun lapping and rifling machines were all operating for more than one hundred hours a week, compared with an average for all tools of only sixty hours. When in 1941 an attempt was made by the Admiralty to introduce general double shift working in the marine engineering firms it was found to be impossible because of shortages of certain heavy machine tools on which a double shift was already being worked.²

¹ The figures are not strictly comparable from one date to another as they cover varying numbers of firms. The tabulation of the data presented many difficulties, arising from the numerous varieties of shift working systems, absence of information as to the length of the Saturday or Sunday shift, lack of uniformity in deciding which were production workers, etc.

² See p. 100 above.

Table 25: Numbers and Percentages of Workers and Establishments, Engineering and Allied Industries, Great Britain, employed on One, Two and Three Shifts

| Date | 1 Shift | | 2 Shifts | | 3 Shifts | | TOTAL | |
|-------------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|--------|
| | Pro-duction Workers | Firms | Pro-duction Workers | Firms | Pro-duction Workers | Firms | Pro-duction Workers | Firms |
| 1941 | | | | | | | | |
| Jan. No. | 1,038,571 | 7,373 | 135,901 | 1,484 | 15,085 | 207 | 1,189,557 | 9,064 |
| % | 87.3 | 81.3 | 11.4 | 16.4 | 1.3 | 2.3 | 100 | 100 |
| Apr. No. | 1,149,161 | 7,325 | 157,814 | 1,821 | 19,369 | 238 | 1,326,344 | 9,384 |
| % | 86.6 | 78.1 | 11.9 | 19.4 | 1.5 | 2.5 | 100 | 100 |
| Sept. No. | 1,330,898 | 7,779 | 223,892 | 2,288 | 30,624 | 436 | 1,585,414 | 10,503 |
| % | 84.0 | 74.1 | 14.1 | 21.8 | 1.9 | 4.1 | 100 | 100 |
| Dec. No. | 1,419,028 | 7,812 | 249,636 | 2,746 | 42,874 | 497 | 1,711,538 | 11,055 |
| % | 82.9 | 70.7 | 14.6 | 24.8 | 2.5 | 4.5 | 100 | 100 |
| 1942 | | | | | | | | |
| Mar. No. | 1,358,636 | 7,808 | 270,624 | 3,035 | 44,291 | 535 | 1,673,551 | 11,378 |
| % | 81.2 | 68.6 | 16.2 | 26.7 | 2.6 | 4.7 | 100 | 100 |
| June No. | 1,455,912 | 7,689 | 309,180 | 3,350 | 52,671 | 681 | 1,817,763 | 11,720 |
| % | 80.1 | 65.6 | 17.0 | 28.6 | 2.9 | 5.8 | 100 | 100 |
| Sept. No. | 1,477,650 | 7,515 | 311,346 | 3,516 | 61,017 | 697 | 1,850,013 | 11,728 |
| % | 79.9 | 64.1 | 16.8 | 29.9 | 3.3 | 6.0 | 100 | 100 |
| Dec. No. | 1,575,918 | 7,555 | 348,473 | 3,992 | 61,415 | 709 | 1,985,806 | 12,256 |
| % | 79.4 | 61.6 | 17.5 | 32.6 | 3.1 | 5.8 | 100 | 100 |
| 1943 | | | | | | | | |
| Mar. No. | 1,678,134 | 8,016 | 351,923 | 4,109 | 56,090 | 724 | 2,086,147 | 12,849 |
| % | 80.4 | 62.4 | 16.9 | 32.0 | 2.7 | 5.6 | 100 | 100 |
| June No. | 1,673,616 | 8,578 | 351,927 | 4,164 | 60,539 | 734 | 2,086,082 | 13,476 |
| % | 80.2 | 63.7 | 16.9 | 30.9 | 2.9 | 5.4 | 100 | 100 |

Source: Ministry of Labour and National Service

Thus in 1942 the extent of shift working in the munitions industries was limited. Machine tool utilisation fell far short of the figure of 65 per cent. above their full utilisation on a single shift which M.A.P. at one stage put forward as a realistic one for measuring the utilisation of tools.¹ When therefore in the later years of the war greater attention was paid by the Machine Tool Control² and the supply

¹ M. M. Postan, *op. cit.*, pp. 209-10.

² In February 1944 a report to the Munitions Management and Labour Efficiency Committee (see p. 231 above) described the Machine Tool Control's work in the following terms: 'The Machine Tool Control in allocating a supply of machine tools which has usually been less than the demand has had to study closely all new requirements. Inevitably this involves a study of the utilisation of existing equipment. Its aim has been to ensure as a minimum a full two shift utilisation of existing machinery before supplying new. This policy has been applied to private purchase under licence as well as to government and assisted schemes of provision. The Control has a well-adapted Regional Organisation and systematic utilisation surveys are continuously proceeding in all Regions . . .

departments to securing more intensive shift working it was not surprising to find that capacity had already been provided in relation to the labour available on such a generous scale that general two or three shift working was by then unnecessary, even if, with increasing labour shortages, it could have been achieved. This was illustrated by the experience of the aircraft industry in 1942-43.

In mid-1942 the M.A.P. was concerned because the industry's machine tool requirements were not being met and output was in consequence suffering.¹ The Ministry therefore decided to press for greater utilisation of existing capital equipment. It was suggested that as double shifting would only yield at the most 120 hours machine tool utilisation a week, that is two shifts of 60 hours each, it was better to concentrate on rota schemes, which would make it possible to utilise equipment up to 168 hours a week.

Already in July 1940, in a pamphlet on hours of work, the Ministry of Labour had drawn attention to the value of shift rota schemes.² Such schemes had not, however, been widely adopted in the aircraft industry, although individual firms had introduced them.³ The rota scheme which received the greatest attention, though it was not the only one, was the scheme known, after its originator Mr. P. E. F. Clay of Nottingham, as the 'C' Plan. The idea of this plan was, fundamentally, to allocate four workers to three machines by day and another four to the same three machines by night. One out of each of these four would always be on holiday on both day and night shift and both groups of four would interchange at regular intervals between day and night shift. Thus it would be possible to keep the machines working seven days a week for 150 hours per week out of a possible 168—the extra 18 hours were taken up in meal breaks, etc.—but each operator would work on an average over the 'cycle', which was 32 weeks, only 56½ hours per week, and would have time off on varying days of the week, when shops, hairdressers, cinemas, etc., were open.

In February 1942 the Director of Aeroplane Production had asked his outstation staff to investigate the possibility of introducing

A wide range of industry . . . has been covered by the Utilisation Division of the Control. Very large requirements—e.g. at new factories—have of course received special attention and machine tool planning engineers have been sent to plan lay-out from the beginning so as to ensure optimum flow of work and utilisation of plant. The Control believes that a systematic and fundamental review of utilisation in existing factories on these lines would yield great economies in production, but it is severely limited in this direction by lack of staff.'

¹ The Machine Tool Control did not in fact accept that the shortfall was as serious as M.A.P. suggested. See M. M. Postan, *op. cit.*, pp. 208-9.

² *Hours of Work and Maximum Output* with a foreword by Mr. Ernest Bevin, M.P., Ministry of Labour and National Service, 25th July 1940.

³ British Thomson-Houston, for example, had for some considerable time been working on a rota system and the Standard Telephone and Cables had introduced such a system in its training department to meet a shortage of machine tools.

the scheme in the firms with which they were associated. In August the Controller-General set up a Committee known as the Fullest Employment of Resources Committee to further the adoption of rota schemes, and the Minister (Colonel J. J. Llewellyn) wrote to the Ministry of Labour asking for assistance in the operation of the 'C' Plan in the aircraft industry. In December Mr. Clay was invited to join the Ministry on a part-time basis, in order to give expert advice on the introduction of the scheme;¹ and the new Minister (Sir Stafford Cripps) declared that it was the policy of the M.A.P. to introduce the rota scheme into all factories for which it was responsible and where it was applicable.

As the months passed the M.A.P. in fact changed its view as to the scale on which the 'C' Plan should be introduced. The Ministry originally intended the Plan to be applied throughout the industry, but later developed a narrower 'where possible' approach; until finally in March 1943 the Production Efficiency Board described rota schemes as 'abnormal shifts' and 'special hours of work which it was the custom or practice of the industry to develop to meet special production requirements'. By then the aim was to use the 'C' Plan in 'bottleneck' shops or factories where it would be in operation for a limited period rather than to introduce it on a widespread scale throughout the industry. This change in plan was not surprising, for by the end of 1942 the shortage of machine tools was confined to certain key machines.

To encourage the introduction of rota schemes production directorates were invited to submit the names of firms which were behind in their production and the Directorate of Machine Tools was similarly asked to provide the names of firms which required additional tools; staff of the Directorate of Labour or of the P.E.B. then visited the firms and explained the rota schemes and tried to convince both managements and workers that such schemes would help to overcome bottlenecks.²

If a firm refused to adopt the rota scheme the Ministry could in appropriate cases have withheld the supply of additional machine tools or withdrawn those which a rota scheme made 'unnecessary'. Such a step was envisaged by the Minister in December 1942 when he stated that factories demanding further machine tools should be told that they must first use adequately those they had, by intro-

¹ In February 1943 it was agreed that the main responsibility for instituting shift rota schemes in the industry should be transferred from the Directorate of Labour to the Production Efficiency Board and Mr. Clay was attached part-time to the Board.

² Between March and May 1943 conversations were held with a number of firms, including Vickers-Armstrong, Weybridge, Handley Page, Cricklewood, Express Motor and Body Works Ltd., Saunders Roe, Sperry Gyroscope and L.A.P., Chiswick. Several attempts were made to issue a pamphlet on rota schemes to the whole industry; two were drafted but none was published, although circulars were issued to Ministry staffs and diagrams and charts were distributed in works where the rota plan was being discussed.

ducing a rota scheme. But the decision on this question did not rest only with managements; the sanction proposed by the Minister would not necessarily have overcome opposition from the workers and, strictly enforced, might have resulted in loss of essential production.

The efforts of the Ministry to introduce the 'C' Plan into the industry in fact met with failure. In April 1943 disappointment at the lack of progress being made in the application of rota schemes was recorded, and it was reported in November 1943 that efforts to introduce the 'C' Plan into many factories, including Rolls-Royce, Hillington, the Bristol Aeroplane Company, Filton and the Dowty Equipment Company, Cheltenham, had been unsuccessful. Not only were there a number of difficulties in the way of the introduction of the 'C' Plan, but it is open to doubt whether the scheme was necessary in the industry at all.

There were three main difficulties. Firstly, there were differences of opinion as to whether the equipment and plant could stand 150-168 hours a week for long periods without suffering serious breakdowns. The Shadow Engine Committee was approached in August 1942 about the adoption of the scheme and after careful consideration rejected it. It quoted several instances of serious breakdowns which had occurred when, to overcome bottlenecks, plant had been continually operated for some 140 hours a week. It was further emphasised that a good deal of the plant had already been in operation day and night for over four years, and that it was showing signs of considerable wear and demanding frequent maintenance.

The second difficulty was that rota schemes created a demand for additional labour in general, and particularly for labour which was able to work varying day and night shifts. Labour was becoming scarce. The Ministry of Labour agreed that all available labour would be provided to get rota schemes going in a limited number of bottleneck firms. But it pointed out that even this would be difficult because of the shortage of women free to work nights; it would not therefore wish to encourage the introduction of rota schemes into factories, except where it was essential for the M.A.P. to get additional production in this way. The shortage of labour able to work varying shifts thus restricted the introduction of the 'C' Plan, although in view of the offer of assistance by the Ministry of Labour this obstacle alone would not have been insurmountable. Another difficulty on the labour supply side was the shortage of supervisory staff, setters and other key workers, already referred to.

The third difficulty was the attitude of the workers to the introduction of such schemes. It was found that after full explanation of the necessity of a rota scheme the workers still had many objections. Some wished to have the same day off as their girl friends or boy

friends or their wives and husbands, others disliked the changes from machine to machine and job to job which the 'C' Plan involved.¹ There were also objections on the grounds that in some weeks in the cycle operators had to work over sixty-six hours and that in any case such schemes involved Sunday working, which was opposed in principle by the Ministry and in practice by some, though not most, trade unionists.

These difficulties could perhaps have been overcome if rota schemes had indeed been an absolute necessity in the industry. However, the shortage of machine tools which existed in 1942 was no longer a major problem in 1943 and 1944. Labour in these years was much scarcer than capital equipment. This fact placed the emphasis on the utilisation of man and woman power in the factories rather than on the utilisation of capital equipment.² In such a situation therefore there was little to be gained, except in very particular circumstances, by introducing rota schemes which would completely disturb the normal life of the workers—and a lot to be lost. It was not only out of conservatism, but also because they were intimately in touch with the day to day problems of the industry, that managements and workers did not accept the 'C' Plan, or any other rota scheme, to an important extent.

(ii)

The Organisations concerned with Labour Utilisation Problems

It is now necessary to turn from the discussion of plans made to adjust the employment of labour to the supply of capital equipment to consider the measures taken to improve the efficiency of workers on the job. A comprehensive study is impossible but some indication of what was done can be given by describing the various official agencies concerned with labour utilisation problems and the kind of work they did. Many were in fact concerned with the larger production problems referred to above, but in the following paragraphs stress is laid on their handling of specifically labour problems. In the Admiralty and in the Ministry of Supply the main responsibility for the efficient utilisation of labour rested with the production

¹ The difficulties of the 'spare operator' were to some extent recognised and as he or she would suffer financially by changing from machine to machine a special bonus of 5s. a week was proposed.

² In a discussion at the Institution of Production Engineers in November 1942, one engineer posed this problem: 'Is it machines or is it personnel? Personally I am convinced it is not the machines but the personnel and that we should increase the number of effective hours per operator rather than try and utilise plant to maximum efficiency.' *Journal of the Institution of Production Engineers*, February 1943, p. 514.

directorates and their local representatives, except in so far as the labour management departments at headquarters and in the factories were concerned with these problems in Ministry of Supply establishments. These departments co-operated, for example, in the introduction of incentive payment schemes, the importance of which in increasing output per man in the R.O.Fs and in the shipyards has been described above.¹ The work of production directorates in improving labour utilisation can be illustrated by reference to the study of methods of insulation work undertaken by the Directorate of Merchant Shipbuilding in 1940, which led to a considerable saving in the time taken on this work.

(a) THE PRODUCTION EFFICIENCY BOARD

The production directorates in the Ministry of Aircraft Production were assisted in dealing with labour utilisation by the Production Efficiency Board, or P.E.B.² On account of the standing and authority of its members, the P.E.B. played a leading part in securing improved methods of production. The subjects discussed by the Board with contractors covered a wide range, from methods of machining to the organisation of stores and from quality control to methods of salvage of scrapped work. Two problems were investigated in great detail and efforts were made to apply the results of the enquiries to a number of firms; these subjects were the fabrication of sheet metal details and motion study.

The P.E.B. set up a Sheet Metal Detail Committee, consisting of experts in this work from various firms, in order to make modern methods of production more generally known. Hand work on the fabrication of sheet metal details required for modern aircraft had been replaced in some advanced firms by press work and the activities of this Committee and the publication by them of the *Handbook on Sheet Metal Details* led to greater mechanisation of this work in the industry.

The P.E.B. also believed there was scope for the improvement of production methods in the aircraft industry, particularly on the assembly side, by the use of motion study—the investigation of movements performed in doing work with a view to improving them. For example, it was important to use natural movements which could be followed without muscular strain, avoiding abrupt changes of direction. Tools and parts had to be arranged to make this possible and the lifting of heavy weights eliminated. By re-designing jigs and fixtures and reducing handling and lifting to a minimum it was sometimes possible for one operator to perform an operation previously requiring two or even three operators. By the provision of a

¹ See Chapter XI.

² See pp. 229-30 above.

fixture the left hand could be freed from holding the work and both hands could be used on the actual operation; the symmetrical use of the two hands reduced mental strain. Contrary to some popular opinion in industry the changes brought about by motion study would not necessarily occur to anybody of experience and intelligence; they followed from the use of precise methods of measuring and recording movements.

Motion study, though employed in the United States, had been little used in Great Britain except by Metropolitan Vickers and a few other firms. Miss Shaw, of the P.E.B., had been employed by Metropolitan Vickers and was an expert in motion study. With the help of this firm, who lent their training staff and other facilities, the P.E.B. established a Motion Study Training Centre where courses of eight weeks' duration were given to some fifteen to twenty students at a time. These were selected chiefly from firms on the electrical side but one or two airframe firms also sent representatives. Firms were asked to send one of their staff with a particular job which they wished to be motion studied. On his return the trainee introduced the new methods suggested and a follow-up system ensured that help would be given if difficulties arose. The study was therefore very practical and had an immediate effect on efficiency of production. To ensure that the trainee received the backing of the higher management in applying motion study methods in the factory senior members of the managements concerned were invited to visit the Training Centre and to see and discuss its work. The P.E.B. also issued a pamphlet on motion study¹ and prepared films on the subject.

Motion study could not be introduced in the factories without the co-operation of the workers. In their minds it was often connected with the time study methods used in certain piece work systems, which engineering workers, in particular, had always regarded with suspicion. As the Minister of Aircraft Production emphasised, therefore, it was essential that motion study should not be regarded as a way to reduce earnings. Indeed the exact opposite should result from it, for motion study aimed at lightening the task of the worker, so enabling him or her to produce more without greater effort.² The P.E.B. took care to ensure that managements consulted workers at every stage in the introduction of motion study and in practice its introduction met with little opposition from the workers. The greatest opposition came from shop foremen, who felt they were being taught their job anew after having practised it for many years.

¹ A. G. Shaw, *An Introduction to the Theory and Application of Motion Study*, 1944.

² Cf. Sir Stafford Cripps' introduction to the P.E.B. pamphlet and the speech he made as President of the Board of Trade in opening an Exhibition of Motion Study Methods held in October 1945.

In the limited number of M.A.P. contractors in which motion study was introduced during the war production increases of up to 100 per cent. and occasionally even more were recorded on the jobs concerned.¹ Soon after the war these firms gave demonstrations at an exhibition of motion study methods which was attended by representatives from many branches of industry. M.A.P.'s pioneering effort thus served to make these methods more widely known and adopted in British industry.

It should, however, be interpolated here that careful attention was given in the R.O.Fs, particularly in the filling factories, to the rational arrangement of operations. Where possible this was done in the filling R.O.Fs before time studies were made to fix prices under the incentive bonus schemes. It was found that the workers were very ready to co-operate. Particular attention was given to the question of handling, a very important one in the filling factories where large tonnages of material were passed through at a rapid rate. Interest was stimulated by competition and the exchange of information between factories employed on similar types of work.

The results achieved by the P.E.B. in improving efficiency generally are difficult to gauge. In some cases they are measurable. At one firm, for example, a visit by members of the Board and the advice given resulted in a cancellation of an outstanding demand for 900 workers, which may well, however, have been exaggerated under any circumstances. The value set on the Board's work was indicated by the number of requests made to it by production directorates and by individual contractors within a few months of its establishment.

(b) THE TECHNICAL COSTS BRANCH

Working closely with the P.E.B. was the Technical Costs Branch which, while mainly concerned with the accurate fixing of prices, was inevitably also concerned with efficiency.² The Technical Costs Branch originated in the Admiralty, and though early in 1944 more than half its work was done for the M.A.P. it still did a considerable amount of work for the Admiralty and some for the Ministry of Supply. The Branch had a staff of cost accountants, rate-fixers, planning engineers and time and motion study experts, but never sufficient for the work which needed doing. Production costs were estimated on a man-hour basis in the factories and by comparing time taken with time allowed and times and methods in different

¹ Detailed descriptions, with illustrations, of the alterations in methods introduced on these jobs were published in the *Production and Engineering Bulletin* between December 1944 and January 1946.

² The work of this Branch is discussed in W. Ashworth, *Contracts and Finance*, in this series (H.M.S.O., 1953).

factories the Branch was able to advise managements on the fixing of piece rates and methods of production. It was also called in by the P.E.B. to assist in its investigations.

(c) **QUALITY CONTROL**

It was because Miss Shaw was employed by the M.A.P. that the department interested itself in extending the use of motion study among its contractors. Another measure to increase production efficiency was quality control, and in this field the initiative was taken by the Ministry of Supply; quality control was particularly applicable to certain sections of the Ministry's production.

Quality control was a method of maintaining a continuous statistical record of the quality of parts produced; in this way any tendency to produce rejects could be immediately detected and the cause discovered and remedied before a large quantity of rejects accumulated. By the adoption of quality control inspection could be reduced to a minimum and the results of inspection made to yield the maximum amount of information.¹

In April 1942 the Councils of the Institutions of Civil, Mechanical and Electrical Engineers arranged a conference on quality control which was attended by 750 representatives from industry and the Services. As a result of this meeting the Ministry of Labour Training Department, which had already introduced in some of its Centres elementary instruction on the practical application of quality control to shop floor inspection, extended this type of instruction. The Department also encouraged Technical Colleges to introduce training in the mathematical and statistical work required for the setting up of a quality control scheme.²

So far as the supply Ministries were concerned the Ministry of Supply already employed in April 1942 a small group of statisticians who were developing the use of quality control within the Ministry's own factories and inspectorates. With the growing demand for its services this group was expanded into a headquarters branch of the Directorate of Scientific Research and its members were made available to assist not only Ministry of Supply contractors but those of the other supply departments as well.

Among Admiralty contractors quality control could only be used in the armaments field. The M.A.P. was initially somewhat sceptical of the value of quality control in aircraft production, but quality control methods were adopted in a number of aircraft firms. In general, the Ministry of Production reported in February 1944 that, although the system had not in practice proved to be so widely

¹ See *Production and Engineering Bulletin*, September 1942, pp. 200-14, and April 1943, pp. 265-8.

² *Ibid.*, September 1942.

applicable as some of its sponsors expected, it had undoubtedly proved to be very useful to numbers of producers.

(d) THE LABOUR SUPPLY INSPECTORATE

A common service to the munitions industries—although not always so regarded—was also provided by the labour supply inspectorate of the Ministry of Labour. The inspectors had the sanction of withdrawing labour or of refusing to meet additional demands if existing labour were not properly utilised. Their work was chiefly concerned with forwarding dilution.¹ Particularly in the earlier years of the war they were more concerned to secure the simple substitution of one type of labour by another than to alter production methods to increase the possibility of substitution. There was in fact considerable scope for substitution without radical changes in methods. Much of their work also consisted in short *ad hoc* visits to vet demands for labour, though more thoroughgoing investigations were undertaken, particularly in co-operation with representatives of the supply Ministries. As the war progressed the inspectors became increasingly concerned with wider aspects of labour utilisation and were encouraged by the Ministry of Labour to spend as much time as possible on complete inspections, either alone or jointly with the supply departments. The work of the inspectorate in dealing with the wider production aspects of labour utilisation questions was, however, limited both by its size and by the fact that some inspectors lacked the necessary technical qualifications.

(e) THE MINISTRY OF PRODUCTION

The Ministry of Production was also concerned in furthering the efficient utilisation of labour. Apart from the work of the Machine Tool Control described above, it developed a regional scheme known as Mutual Aid by Technical Experts or M.A.T.E. Under this scheme panels of experts, whose knowledge covered many subjects, were recruited from the larger firms and were available to give specialised advice, often on rather obscure problems, to other firms. This scheme was closely linked with the work of the District Committees, representative of employers and workers together with the manager of the Ministry of Production District Office, set up in the 55 districts where such an office existed. Many District Committees arranged regular meetings of firms for lectures and discussions out of which requests for advice arose. The Committees worked in liaison with the regional directors of machine tools and the labour supply inspectorate.

At headquarters, the Ministry of Production had its Industrial

¹ See p. 50.

Panel, consisting of leading industrialists and trade unionists, who were available to make investigations, chiefly into firms where difficulties had arisen in management and administration.¹ The Chairman of the Industrial Panel, Mr. Robert Barlow, did, however, make specific investigations into the use of labour both in the shipyards and in the R.O.Fs. Moreover poor labour utilisation was a common symptom of bad management. Members of the Panel drew attention in their reports of investigations in a number of factories to inadequate personnel management, lack of training facilities, poor worker-management co-operation and the non-existence or inadequacy of piece work schemes. In certain cases large scale economies in labour resulted when the Panel's recommendations were put into effect. It was reported of one factory that in the course of a year the productive labour force had been reduced by about twenty per cent. and week-end overtime largely eliminated, but that production over the same period had increased by some twenty-nine per cent.

(f) JOINT PRODUCTION COMMITTEES

Some of the Industrial Panel's enquiries arose partly from complaints by the shop stewards and the workers' side of Joint Production Committees of inefficiencies; and the Panel always consulted fully with the workers', as well as with the management's, representatives during its investigations. The workers' interest in technical utilisation questions was stimulated, and opportunity for joint discussion of them provided, by the institution of Joint Production Committees.² Over sixty per cent. of the items discussed by a sample of these Committees were production and technical problems as distinct from welfare and miscellaneous subjects. This sample can be taken as roughly representative of all Committees.

Moreover, it appears that many of these technical items were concerned with constructive suggestions rather than with unconstructive complaints. The problems discussed were of two main types: on the one hand problems of general organisation such as co-operation between day and night shifts, between inspectors and operators, the causes of, and methods of reducing, scrap, improvements in the progressing systems, fuel economy, etc.; and on the other hand technical problems of improved machining or assembly methods, better use of equipment, etc. The former problems were normally discussed on the Committee whereas the latter suggestions were usually made through the channel of a suggestion scheme organised or sponsored by the Joint Production Committee. Suggestion schemes

¹ For the setting up of the Panel and of the Munitions Management and Labour Efficiency Committee and their membership, see pp. 231-2 above.

² See pp. 376-83 above.

had existed in a number of engineering firms before the war, but they had not been the success which the originators had anticipated.

The frequency and practicability of the suggestions made were bound to differ from factory to factory and from time to time; but with the formation of Joint Production Committees and attractive publicity through the *Production and Engineering Bulletin*, an increase in both the number and usefulness of suggestions was reported by most factories. For example, British Thomson-Houston, Willesden, could report an increase in the number of suggestions made from 153 in 1941 to 371 in 1942 and 583 in 1943; at the same time the number of suggestions put into operation increased from 63 in 1941, to 178 in 1942 and 279 in 1943. Similar increases occurred in other factories and reflected both a marked development of the workers' interest in the problems of production and of the value of the suggestions made.

The total effect of these various war-time agencies on the use of labour in the factories is not, however, easy to assess. Managements for their part were faced in war-time with approximately the same problems in increasing the efficiency of their undertakings as they faced in peace. Nor were the changed circumstances wholly to their disadvantage; dilution of managements, the scarcity of production and planning engineers and frequent changes of type increased the difficulties, but these were offset, for example, by government assistance in obtaining capital equipment. The Government could, through various investigations, check on the methods used in the factories and assist in the introduction of better ones, and the workers could add their quota of suggestions and active assistance; but these measures were not an alternative to the peace-time profit incentive to greater efficiency. A similar incentive could only be supplied in war-time by the operation of contracts and price fixing. How far this was attempted and the extent to which it succeeded or failed is not part of this narrative.¹

¹ See W. Ashworth, *op. cit.*

Appendix

APPENDIX

(i)

Memorandum of Agreement between Engineering and Allied Employers' National Federation and Amalgamated Engineering Union

Temporary Relaxation of Existing Customs as to Employment of Skilled Men Members of the A.E.U. to provide for Peace-time Emergency Conditions

IT IS HEREBY MUTUALLY AGREED:

1. In order to supplement skilled manpower in the Industry, where it can be shown that skilled men are not available and production is prejudiced, it is agreed that an alternative class of worker may be employed on jobs hitherto done by such skilled men under reservations to be mutually agreed.

2. Supplementary to this, semi-skilled labour may be utilised for the purpose of working with skilled men or under their direction, or performing such duties as may supplement the work of the skilled men.

3. In the case of machining, the employer shall be allowed to put men of a semi-skilled character on to machines previously operated by skilled men under reservations previously referred to.

4. These reservations shall include that a register of standard type shall be kept of changes made under this agreement and an undertaking given by the Company that as and when skilled labour becomes available restoration to the pre-agreement practice shall be made.

5. The procedure for operating this agreement shall be as follows:

- (a) An application for a change of practice shall be referred to a local joint Committee representative of the local Employers' Association and local representatives of the A.E.U., whose agreement shall be subject to confirmation by the executive bodies.
- (b) Failing agreement by the local joint Committee, or confirmation by either executive, the matter shall be referred for consideration by the executive bodies, i.e. representatives of the Federation and the Executive Council of the A.E.U.
- (c) Changes made under this agreement shall be registered by the employer on a standard form and a copy of such registration supplied to the worker or workers affected and to the local representative of the Union and the Executive Council of the A.E.U.

Signed on behalf of

Engineering and Allied Employers' National Federation:

CHARLES CRAVEN, *President*
ALEXANDER RAMSAY, *Director*
ALEX. C. LOW, *Secretary*

Amalgamated Engineering Union:

JACK TANNER, *Chairman*
FRED. A. SMITH, *General Secretary*

28th August, 1939

(ii)

**Memorandum of Agreement between Engineering and
Allied Employers' National Federation and
Amalgamated Engineering Union**

*Temporary Relaxation of Existing Customs as to Employment of Skilled
Men Members of the Amalgamated Engineering Union*

IT IS ACCEPTED by the parties thereto that the Agreement dated August 28th 1939, relating to relaxation of established custom in respect of skilled men, members of the A.E.U., shall be taken as applying to war-time conditions, and for the period thereof.

It being the spirit and intention of the said Agreement that steps shall be taken where found necessary to ensure that production is not restricted, the parties undertake to review the operation of the Agreement at necessary intervals for the purpose of ensuring that the intention of the Agreement is fulfilled.

It is further agreed that the utmost expedition should be employed by all parties in dealing with applications made.

In connection therewith, under clause 5 (a) of the main Agreement it shall be understood that if any local Joint Committee approve a change, such change may be put into operation subject to confirmation by the Executive bodies at a later stage.

Signed on behalf of

Engineering and Allied Employers' National Federation:

CHARLES CRAVEN, *President*
ALEXANDER RAMSAY, *Director*
ALEX. C. LOW, *Secretary*

Amalgamated Engineering Union:

JACK TANNER, *Chairman*
B. GARDNER, *Assistant Secretary*

11th September, 1939

(iii)

Memorandum of Agreement between Engineering and Allied Employers' National Federation and Amalgamated Engineering Union

To Provide for the Temporary Relaxation of Existing Customs so as to Permit, for the Period of the War, the Extended Employment of Women in the Engineering Industry

WHEREBY IT IS AGREED that additional women may be drafted into the Industry for the purpose of manufacturing engineering products, with special regard for increasing output and to meet war-time emergencies:

1. Women drafted into the Industry under the provisions of this Agreement shall be regarded as temporarily employed.
2. An agreed record shall be kept of all changes made under this Agreement.
3. (a) The provisions of this Agreement will not affect the employment of women workers engaged on work commonly performed by women in the Industry.
(b) There shall be no objection to the extension of employment of women in establishments where women have not hitherto been employed on work commonly performed by women in the Industry, subject to the general undertaking contained in Clauses 1 and 2.
4. Women workers may be employed on suitable work hitherto performed by boys and youths under 21 years of age.
5. In the case of the extension of employment under Clauses 3 (b) and 4, the National agreed scale of wages of women workers shall apply or the boys' and youths' schedule of wages shall be applied, whichever is the greater.
6. Women workers may be employed on work of a suitable character hitherto performed by adult male labour, subject to the following conditions:
 - (a) Such women workers shall serve a probationary period of eight weeks at the women's national schedule of time rate and bonus.
 - (b) At the end of the probationary period and for a further period of twelve weeks the women workers shall receive an increase as follows:
 - (i) The basic rate shall be increased by one-third of the difference between the national women's schedule basic rate and the basic rate of the men they replace.
 - (ii) The national women's schedule bonus shall be increased in the same way by one-third of the difference between that bonus and the national bonus appropriate to the men they replace.

- (c) At the end of the 20 weeks and for a further period of twelve weeks the women shall be paid:
- (i) A basic rate equal to 75 per cent. of the basic rate of the men replaced.
 - (ii) A national bonus equal to 75 per cent. of the national bonus appropriate to the men replaced.
- (d) Thereafter:
- (i) In respect of women who are unable to carry out their work without additional supervision or assistance, the rate and bonus shall be negotiable and arranged according to the nature of the work and the ability displayed.
 - (ii) Women, however, who are able to carry out the work of the men they replace without additional supervision or assistance shall, at the end of the 32 weeks, receive the basic rate and national bonus appropriate to the men they replace.
- (e) On payment by results the base rate and bonus paid shall be in accordance with Sub-Sections (a) to (d) of this Clause. When the work is carried out without additional supervision or assistance, the male workers' piece work price shall be given. When additional supervision or assistance is provided, the piece prices will be negotiable under the principles of Sub-Section (d) (i).
7. Notwithstanding anything herein provided, women who might enter employment fully qualified to perform without further training and without additional supervision or assistance work heretofore recognised as work done by male labour, shall be paid the rate and national bonus appropriate to the male labour they replace.
8. In the event of a question being raised in relation to the provision of this Agreement it shall be dealt with through the ordinary procedure for avoiding disputes, except that in the event of failure to agree locally the matter shall be dealt with expeditiously by a special central conference held in London.

Signed on behalf of

Engineering and Allied Employers' National Federation:

G. E. BAILEY, *Vice-President*
 ALEXANDER RAMSAY, *Director*
 ALEX. C. LOW, *Secretary*

Amalgamated Engineering Union:

JACK TANNER, *President*
 B. GARDNER, *Assistant General Secretary*

22nd May, 1940

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