

THE WOOL TRADE IN WAR TIME

SELF-DEPRECIATION is a recognised and cherished characteristic of the British nation and one which has undoubtedly assisted in building up the British character as we know it. But there are limits to its usefulness, for it tends to make us overlook some of our most valuable resources. Had we been more disposed to vaunt our assets, we might have started at a much earlier period forging a weapon, the use of which has been forced upon us by circumstances rather than adopted by choice, but which we are gradually realising will be, if not *the one* decisive factor, at any rate *one* of the decisive factors, in determining the issue of the war. For the economic weapon—the control exercised over the best markets of the world, and, what matters still more, over the main sources of raw materials—is more powerful and far-reaching in its effects than it is easy to grasp. Slowly but surely this weapon is being hammered into serviceable form; our plans are being thought out and put into operation, our resources examined and enumerated, our industries organised and directed. This is an even wider and harder task than the production of an adequate supply of munitions, for it involves every important trade in this country, and in addition our commercial relations with the whole of the world. Yet, under the pressure of circumstances, it has been undertaken and is proceeding to an extent hardly yet known to the general public. Sporadically, indeed, and not apparently in pursuance of any systematic plan, one trade, or branch of a trade, after another is being brought into line, now by this department and now by that one, as the urgency of the moment demands, until scarcely an industrial concern is left which has not felt what is sometimes described as the numbing influence of Government control, but what is really the bracing effect of considering each firm, each branch of a trade, each industry, not as an end in itself, but as part of a greater whole existing in order to render service to the community.

This change in outlook and organisation, which amounts in fact to a second industrial revolution, has taken place quietly and unobtrusively, except perhaps in the case of the munition industries; and the methods adopted, the results achieved, and the experience gained, are hardly known beyond the industries

concerned; yet they are of very great importance, not only to the industrial historian, but to the practical administrator attempting to solve similar problems in other trades. It is therefore proposed to describe briefly, for the enlightenment of all whom it may concern, the developments which conditions of war have brought about in one of the oldest and most famous of our industries, namely, that engaged in producing textile materials and knitted goods made wholly or partly of wool.

In order to appreciate the changes which have taken place, it will be useful briefly to describe the main facts about the industry. The many centuries during which woollen cloth has been woven in England have afforded opportunity for the development within the industry of an endless variety of organisation, brought about largely by the many different types of raw material used, and in consequence by the diversity and complexity of the processes for working them up. There are, to begin with, the two main branches of woollen and worsted manufacture, representing a difference in the treatment of the raw material from the initial stages and usually organised in a different way. As a rule the woollen manufacturer who cards the wool buys the raw material and sells the finished cloth, performing all the operations in his own mill, while worsted manufacture, in which wool is combed, is carried out in a large number of mills, each specialising in one particular process, though there are, of course, numerous exceptions in both branches.

Then, again, there is the extraordinary variety of material; nearly all countries contain sheep, and the wool of each possesses distinguishing characteristics, while, as an example of the diversity of wools grown in one country, it may be mentioned that, for the purposes of valuing the wool grown in the continent of Australia, it was necessary to draw up a price list containing 848 separate classes. In addition to working up wool, this trade also works up camel hair, goat hair, mohair, cashmere, alpaca, human hair, and other animal fibres of a similar nature, while the spun yarn is frequently mixed with cotton or silk before weaving or knitting.

Another complication is introduced by the fact that each branch of the trade has its own method of financing the manufacturer, and that here again there are always exceptions. The woollen manufacturer, the worsted spinner, and the worsted weaver usually own the material which they work up; the comber and the dyer do not. Raw wool, tops and yarns are usually paid for in cash after fourteen days, while the trade terms for cloth allow of three or six months' credit.

The main seat of the wool industry is in that small part of the West Riding of Yorkshire lying between the valleys of the Aire and of the Calder with its tributary the Colne, though there are firms, or groups of firms, usually specialising on some particular class of product, in several other parts of the United Kingdom. The flannel industry extends over the Pennines down to Rochdale and Oldham in Lancashire. The old-established and famous West of England cloth is made in scattered factories throughout Somerset and Gloucester, the largest number being perhaps found in and around Stroud, while the industry extends into Devon and Cornwall in the west, and into Wiltshire and Oxfordshire, famous for blankets, in the east. The carpet industry, which is the section of the trade requiring the most skill, brains, and artistic sense, is also mainly situated in this part of England, round Kidderminster; the other carpet mills being in Scotland and in the north of Ireland. There are a considerable number of woollen manufacturers and a few worsted spinners in Scotland, the most marked concentration being found in the border districts of Berwick, Selkirk, Roxburgh, and Dumfries, where there is also a considerable hosiery industry. Scattered over Wales are a large number of small flannel mills, many without any mechanical power and employing only a handful of workers. The hosiery industry is concentrated largely in the Midlands, though over a larger area than the West Riding cloth industry, since it stretches from Derby and Nottingham to Leicester and Wigston. A general idea of the distribution of the industry may be seen from the following table showing the approximate percentage of workers, firms, and machinery in each area:—

Percentage Proportion of Labour, Firms and Machinery in Wool Textile Trade (Dyeing and Finishing not included).

(The figures relate to August 30th, 1917, and are approximate only).

District.	Workers employed.	Firms.	Woollen Spindles.	Worsted Spindles.	Looms.
Yorkshire ...	73.5	72.1	65.8	92.3	73
Lancashire ...	4.6	4.3	9.3	0.1	6.8
Midlands ...	2.5	1.6	1.2	3.4	0.6
West of England ...	2.6	1.8	5.3	0.7	2.4
England Total ...	83.2	79.8	81.6	96.5	82.8
Wales ...	0.5	3.7	1.4	—	0.9
Scotland ...	9.3	11.5	14.4	2.7	9.6
Ireland ...	1.5	3.0	2.1	—	1.1
Carpet Trade ...	5.5	2.0	0.5	0.8	5.6
Total United Kingdom	100	100	100	100	100

It is difficult to say with any exactness how many persons are employed in the wool-using trades in the United Kingdom; there are probably about 400,000 employed in manufacture alone, to which must be added an unknown but considerable number of persons engaged in the collection, handling, and distribution of raw wool and of the semi-manufactured and manufactured products, including shepherds, transport workers, and shop assistants, as well as merchants, clerks, and agents of all kinds. The latest published detailed statistics about the persons employed in the trade are contained in the Census of Occupation of 1911, of which the volume for England and Wales is the only one issued at present. The information which follows, therefore, relates entirely to those countries, but later information affords reason for supposing that the proportions in Scotland are not very different, while the numbers in Ireland are small enough to be negligible. It must, however, be noted that there is no separate information available with regard to persons engaged in the dyeing and finishing of wool as distinct from cotton and other textiles, largely owing to the fact that many firms are engaged in dyeing both cotton and woollen goods; as the work in this trade is heavy a large proportion of adult men is employed, and their addition must tend somewhat to alter the proportion of adults and juveniles and of men and women. Of the 350,000 persons employed in the wool-using trades in England and Wales, three-quarters are in the woollen and worsted trades proper and about four-fifths of the remainder are in the hosiery trade. Dividing up the woollen and worsted trades again into their main processes, we find that weaving and its subsidiary processes occupy nearly one-half of all the workers and more than half of the women and girls; about one-third of all the workers and the same proportion of the women and girls are engaged in spinning and kindred occupations; the remainder are to be found in wool-sorting, carding and combing, and other subsidiary processes. Taken as a whole the wool-using trades must be considered largely a woman's trade, since 60 per cent. of the total number occupied in it are women, as compared with 30 per cent. of the total occupied population. The proportions vary, however, enormously in the different sections, from 73·5 per cent. in weaving and in the hosiery trade as a whole, and 64 per cent. in spinning, to 34 per cent. in carding and combing, and only 4 per cent. in wool-sorting. The nature of the work, which renders possible the employment of so large a number of women, is also favourable to the employment of young persons, and consequently we find

that ten years ago more than one-fifth of all the workers were under 18 and that the proportion has increased, especially since the war. Sixty per cent. of the juvenile workers are employed in spinning where nearly half the workers are under 18. Although the half-time system does not prevail in Yorkshire as in Lancashire, many children enter the mills at 13; Bradford, however, in spite of the large number of worsted spinning mills which depend largely on juvenile labour has insisted on children remaining in school up to the age of 14, a provision which has however been relaxed during the war owing to the shortage of juvenile labour.

Some associations both of employers and workers existed before the war, but they could not be compared either in size or strength to those in the sister industry of cotton. The variety of organisation already described led naturally to a sectionalism which magnified the opposing interests near at hand and failed to recognise the common interests which lay below the surface. Thus one of the most marked features of the Wool Textile Trade was the suspicion and even the hostility, with which the different sections regarded each other, and consequently employers and workers alike were, and still are, to be found in a large number of independent societies, while many prefer to remain outside any form of organisation at all. For example, to an "Agreement made the 4th day of February, 1916, between the representatives of employers and workpeople engaged in the Worsted and Woollen Industries of the West Riding of Yorkshire for the purpose of dealing with the exceptional conditions arising out of the war," the signatures of 13 employers' and 18 workpeople's representatives are attached; at a meeting held with Trade Unionists in October, 1916, 41 organisations in the West Riding were represented; an agreement relating to dyeing and finishing only was made in April, 1914, between four employers' associations and three trade unions, while a considerable number of dyers belonged to a fourth union which was not included.

In order fully to understand the measures taken to meet the war situation, it is necessary to realise also the position with regard to the raw material of the trade. The annual consumption in the United Kingdom of raw sheep's wool alone amounted to about 550 million pounds weight on an average in the five years preceding the war, to which there must be added about 75 million pounds weight of mohair, alpaca, etc., and of wool from imported sheep skins, and an estimated weight of 225 million pounds of woollen rags, shoddy, etc., in order to give an

idea of the total weight of raw material used. About 530 million pounds weight of wool and 120 million pounds weight of shoddy and rags are imported, while 90 million pounds weight of wool and the remainder of the shoddy and rags are home produced. Thus the industry is dependent on overseas supplies for more than three-quarters of its raw material; of this again, about one-half comes from the Antipodes, and the remainder chiefly from countries as far distant as South Africa, India, the River Plate, Chile and the Falkland Islands. It must also be noted in this connection that the British Empire produced before the war about 40 per cent. of the wool of the world, and normally requires less than half of this quantity for its own use.

Thus we see the Wool-using Industry before the war, a highly intricate organism deriving its infinite variety of supplies from the furthest corner of the world, working them up in an infinite variety of ways, into an infinite variety of finished products, of which one-half are sent out again to be worn in every country of the world. In order to achieve this result there are at work shepherds and shearers, carmen, dockers, sailors and every other kind of transport worker, combers, spinners, weavers, knitters, dyers and all other workers engaged in the process of manufacture, warehousemen, clerks, cashiers and shop assistants; while everywhere and at every stage there are merchants, agents, and brokers of every kind, usually assisting but sometimes also clogging the working of this huge and complicated machine. It is small wonder that in the past the separate parts of this organisation have failed to realise their unity, and that their conflicting interests have loomed far larger and absorbed far more energy than their common ones. A reduced clip and the resulting increase in the value of wool represents sheer loss to the grower whose flocks have died, sheer gain to the merchant whose warehouses now contain more wealth, and between these two extremes the laws of cause and effect, of supply and demand, apportion profit or loss to everyone engaged in the trade according to his own individual circumstances. What is meat for one merchant or manufacturer may be poison for his competitor, and the different sections of the trade seem to thrive at each other's expense. The weather in Australia, a presidential election in the United States, or even in the Argentine, a change in freights or in the rate of exchange, in fact, whatever happens in the world, is reflected in some way or other in the wool trade, and may make or mar the individuals engaged in it.

Now, what has been the effect of the war conditions on this

fascinating trade? It was at once obvious that the effect would be far-reaching and unprecedented, but it was some time before the main tendencies disentangled themselves from the mass of attendant circumstances. By now, however, it is possible to discern the direction of the chief currents which are setting in this as in other industries, and the fresh developments which will occur are not likely to alter the fundamental lines which have been already laid down. In every trade the stern logic of events has forced two fundamental facts upon the attention of even the most self-absorbed or dull-minded member of it; first, that his trade is one organisation whose many members are interdependent and cannot fight each other without injury to every one of them, and, second, that even his trade as a whole is not an end in itself, but exists in order to perform an essential service to the community. In the wool trade this new point of view has been driven home by the fact that the fortunes of the trade, instead of being directed by thousands of firms, each pursuing whatever course seemed best in its own interest, are now controlled by one Government Department, deciding each question with reference to the common interest. In what follows an attempt will be made to describe by what process this has been brought about.

When the thunderbolt of war fell out of a blue sky on to the wool trade at the opening of the 1914-15 season, its first effect was a sudden drop in all prices; for it seemed as though there must be a glut of wool, when neither German, Belgian, nor Northern French merchants and manufacturers could assist as usual in "lifting" the clip; but the more far-seeing members of the trade soon realised that soldiers require far more wool than civilians—some say four times as much—while, even before the war, a stimulating competition from the United States had been felt, as a result of the tariff revision which came into force in December, 1913 and placed raw wool upon the free list. A serious drought in Australia, resulting in the loss of one-fifth of the flocks, had a marked effect on the amount of wool produced in the world, and reduced the supply just when the demand was beginning to increase on a large scale. Consequently, from the early months of 1915 onwards wool prices began that startling climb which they have pursued almost without interruption ever since.

Meanwhile there was great activity in the West Riding and other woollen manufacturing districts. Clothing had to be provided not only for Kitchener's army, but for a large part of the

French forces as well, since almost the whole French wool manufacturing districts in the North-east of France were overrun by the enemy. We sent to France in 1915 eight times the quantity of woollen and worsted tissues normally sent there before the war, while our own army orders for clothing were between thirty and fifty times their pre-war size. There was a considerable demand, too, from that portion of the civilian population which was making war profits or earning a war bonus, and from other countries which could no longer obtain woollen goods from Germany and Austria. Consequently, the amount of raw wool retained in England during 1915 was two-thirds higher than the normal consumption; this huge quantity of wool was only available owing to the possibility of diverting to the United Kingdom the supplies usually sold to the Continent. It was indeed a golden time for the West Riding.

This trade boom, which was accentuated by a growing shortage of labour and by the rising prices of raw materials, began to make it difficult for the British and Allied Governments to satisfy their needs; for in order to induce sufficient manufacturers to accept contracts, they had to compete with the higher prices which the civilian trade was ready to pay. Thus patriotic firms, already on the contracts list, were willing to do the work at pre-war rates of profit, but they found it difficult to prevent their workpeople from going to more remunerative employment; other firms who were inexperienced in making this class of goods had a higher cost of production, and therefore appeared entitled to better prices, while the more unscrupulous ones either exacted war profits or devoted themselves entirely to the highly-remunerative civilian production. The old method of tendering was, in fact, out of date, since its advantages disappeared when the orders to be placed were larger than the tenders offered and competition among manufacturers had ceased to exist.

In order therefore to obtain sufficient supplies and to distribute both the burdens and the profits more equally, powers were obtained by the War Office to requisition the whole or any part of the output of a firm, and by this means to lay under equal contribution all firms able to supply Government needs. These powers were first used mainly in the hosiery trade, in which the supply question has always been acute owing to the specialisation of machinery and the unusually heavy type of garment required for army purposes.

The method of requisitioning, however, raises as many problems as it solves, and the Contracts Department was immediately

faced with the question of the price to be paid for the requisitioned goods. It was decided to adopt the principle, obviously fair and simple in theory, though very complex in its application, that the manufacturer should receive as the price of his goods the amount of his actual outlay together with a reasonable rate of profit based on pre-war standards. This principle is such an important one owing to the developments which it renders possible, that the form in which it is now enshrined in the Defence of the Realm Regulations deserves quotation in full :—

Regulation 2 B. It shall be lawful for the Admiralty or Army Council, or the Minister of Munitions, to take possession of any war material, food, forage, and stores of any description, and of any articles required for or in connection with the production thereof.

Where any goods, possession of which has been so taken, are required by the Admiralty or Army Council or the Minister of Munitions, the price to be paid in respect thereof shall, in default of agreement, be determined by the tribunal by which claims for compensation under these regulations are, in the absence of any express provision to the contrary, determined.

In determining such price regard need not be had to the market price, but shall be had :—

(a) If the goods are acquired from the grower or producer thereof, to the cost of production and to the rate of profit usually earned by him in respect of similar goods before the war, and to whether such rate of profit was unreasonable or excessive, and to any other circumstances of the case.

(b) If the goods are acquired from any person other than the grower or producer thereof, to the price paid by such person for the goods, and to whether such price was unreasonable or excessive, and to the rate of profit usually earned in respect of the sale of similar goods before the war, and to whether such rate or profit was unreasonable or excessive, and to any other circumstances of the case; so, however, that if the person from whom the goods are acquired himself acquired the goods otherwise than in the usual course of his business, no allowance, or an allowance at a reduced rate, on account of profit shall be made :

Provided that where by these regulations or any order made thereunder the sale of the goods at a price above any price fixed thereunder is prohibited, the price assessed under this regulation shall not exceed the price so fixed.

When applied to the wool textile trade this means that for each process and quality there has to be fixed a "conversion cost," ascertained in the first instance by an examination of the books of typical firms by expert accountants, and varied, if necessary, to meet the case of similar qualities and processes. But as soon as steps were taken to put this system into operation the absence of any firm basis on which to build up the conversion costs was found to be a serious difficulty. In the case of hosiery yarn, which was the first article to be dealt with in a comprehensive manner, it was agreed between the Department and the hosiery manufacturers to add a flat rate to the price of the combed wool

(tops) from which it was made in order to cover the cost of the spinning and the subsidiary processes; the different qualities of tops were divided into six price groups and the flat rate was slightly increased with the increasing price of tops. In this way the price paid for the finished article depended directly on the price of tops. Now, for practical purposes, it was obviously necessary in a changing market to take as the price of tops the fair price of the day on which the hosiery manufacturer placed his order with the spinner; but, since prices were always rising and never falling, the necessity of taking the market price of the day always resulted in giving the manufacturer an opportunity for making a further profit, by using tops purchased before that date. It was quite clear that the costing system could never be completely satisfactory until it could be built up on a fixed price for the raw material.

This need for controlling the raw material was further emphasised by the growing shortage of raw material already mentioned. In fact, difficulties had already arisen in obtaining sufficient supplies of the qualities of wool particularly needed for army requirements, especially colonial cross-bred and British wools. It was therefore decided in June, 1916, to purchase the whole of the British clip which was then beginning to be shorn. The price basis at which the wool was bought was fixed, after negotiations with the farmers, at 35 per cent. above the level of prices in July, 1914, equivalent to about a 60 per cent. increase on the decade before the war, but which resulted in most cases in a rather lower value than the farmers would probably have obtained had there been a free market. The wool was distributed direct to spinners and manufacturers to use for Government requirements, so far as it was suitable, at fixed rates based on the price paid for the wool; the remainder was sold for civilian use at a somewhat higher price level.

The purchase of the British clip was successful in achieving the two objects in view, namely, the safeguarding of supplies and the establishment of a firm price basis, so far as was possible in view of the size of the clip, which, however, provided less than half the Government requirements. In order completely to attain these objects, it was obviously necessary for the Government to own all essential supplies, and with this end in view a proposal was made to the Governments of Australia and New Zealand in the autumn of 1916 to purchase the cross-bred clips of the 1916-17 season. Owing, however, to the difficulty of discrimination in Australia between the growers of cross-bred and

merino wool, a counter-proposal was made by the Colonial Governments that the Imperial Government should purchase the whole of the Australasian clips which had not at that time (*i.e.*, November, 1916) passed the hammer at public auction. The Imperial Government agreed to purchase the wool at a price level 55 per cent. above that ruling in the season before the war through the agency of the Colonial Governments, who undertook the whole work of collection and valuation, etc. It was agreed that the wool should be paid for on appraisalment and should be kept in the Colonies to be shipped under arrangements made by the Admiralty. Any profits which might be made on the sale of the wool not required for Government purposes was to be shared with the Colonial Governments. In order to complete its control over the stocks of cross-bred and merino wool in the United Kingdom the War Office took possession, during the spring of 1917, of all stocks of such wool and of all cross-bred tops except those which were already "held by users for the purpose of manufacture by the holder." As a result of these measures the proportion of Government-owned cross-bred and merino wool in the United Kingdom rose from 22 per cent. on December 31st, 1916, and 29 per cent. on March 31st, 1917, to 60 per cent. on June 30th, 1917, and to 80 per cent. on December 31st, 1917.

The great need for army blankets was causing an exceptional demand for East Indian wool, particularly for the coloured sorts which had to be used in all cases where the specifications did not permit the wool to be dyed. The prices of these coarser wools rose by 100 per cent. to 250 per cent., and it became essential to control their distribution so as to secure the necessary supplies for army contracts. Accordingly, a scheme was prepared by a joint committee, on which the East Indian Wool Importers' Association, the Liverpool Wool Brokers' Association, and the Northern Wool Buyers' Association were represented, to take over the distribution of East Indian wool on its arrival in this country and to distribute it to approved users on a fixed price basis; a member of the trade was appointed as East Indian Wool Distribution Officer to supervise its operation. At the same time the Indian Government undertook to stimulate the collection of wool in India and to arrange for the whole quantity to be shipped to the United Kingdom. It is a point of contrast between this scheme and that dealing with British and Colonial wool that the East Indian wool is at no stage in the actual possession of the Government.

In the autumn of 1916 it became necessary to devote special attention to the question of the labour supply. Recruiting had been heavy, and, moreover, fell unevenly on different sections of the trade owing to the fact that the proportion of men of military age to the total number of persons in the industry varied considerably in the different processes, and consequently the finely-adjusted balance of the trade became upset. In wool-sorting, carding and combing, and mule-spinning, in which men are largely employed, the proportion of men of military age was about three times as high as in spinning and weaving, where women and juveniles preponderate. If we consider the trade as a whole and compare the net loss of enlistment in this trade with that in all industry, we find that the proportion is about half as high as the average. In spite, however, of this comparatively low percentage of enlistment, men had become very scarce, particularly in some of the skilled processes, and in order to keep pace with the military orders it was necessary to employ women on some classes of work which had hitherto been reserved for men. Already in February, 1916, an agreement to facilitate dilution and to prevent the exploitation of cheap female labour, on similar lines to the munition agreement, was concluded between the most important manufacturing employers' associations and trade unions, and later also in the dyeing section of the trade, and most of the pivotal occupations were placed upon the Reserved Occupations Lists. At the same time neighbouring munition works exerted a powerful attraction on the engineers in the trade and also on many of the other workers, whose normally low wages compared very unfavourably with the far higher standard of pay in the engineering trades. The trade was certainly by this time depleted of many essential men, whose loss hampered production, and was in general short of suitable labour, while within the trade itself the higher wages which firms on civilian work were able to offer were a constant factor in reducing still further the workers in the employment of Government contractors. If the delivery of army goods was not to suffer through shortage of labour, it was necessary to review the whole position from the different and sometimes conflicting points of view of the contracts and the recruiting departments of the War Office itself, of the employers and of the trade unions concerned; for all were interested parties and all possessed special and peculiar knowledge, without which it was impossible to form a right judgment either on general questions or on individual cases. In order,

therefore, to ensure complete co-operation between all the interests, joint industrial advisory committees on man-power and production, consisting of representatives of the recruiting and the contracts departments, of the employers and the trade unions, were set up in the woollen and worsted trades of the West Riding, in the flannel trade, the Midlands hosiery trade, and the Scottish woollen and hosiery trade. These committees, after reviewing the whole position in the light of the need both for men and for production, laid down certain principles of action, and advised the military representatives of the tribunals, or the tribunals themselves, with regard to the applications for exemption for individual men in accordance with these general principles and with their special knowledge of the particular circumstances. These committees, whose influence is based entirely on the goodwill and co-operation of all parties, have been most successful, and may be considered to have paved the way for the co-operation on a larger scale between the State, the employers, and the employed.

The problem of securing that all firms able to undertake Government orders should take their fair share of the work on the costings basis was also solved by voluntary agreement. It has already been mentioned that those firms who were used to making army clothes had a considerably lower cost of production than those who were new to the work; further, some districts accustomed to the manufacture of similar cloth were able to produce more cheaply than others, whose machines could indeed make the goods required, but who were accustomed to a different standard of work. In other words, the actual "conversion cost," as ascertained in the approved manner by accountants, varied considerably from firm to firm and from district to district. It was obvious that when once the demand for army goods began to slacken, the need for economy would be a strong incentive to the Government to terminate first those contracts based on a high conversion cost. This fear created a reluctance to accept army contracts, both on the part of firms who could only make the goods after re-arranging their mill with a resulting high conversion cost and who wished to be sure of a prolonged run of contracts to compensate for the changes made, and also on the part of those who were able to produce the goods cheaply, but wished to be released from army orders as soon as possible in order to resume their normal trade. To meet these difficulties firms were grouped in districts corresponding roughly to the prevailing methods of production; equitable conversion costs for

each district were agreed upon with representatives of the local manufacturers, and an undertaking was given that when the time arrived to reduce or terminate Government contracts the change should operate over all districts in proportion to the contracts which they held.

The intimate local knowledge of the group representatives was also extremely valuable in advising the department with regard to their area as to the best means of obtaining the highest and most economical production and of distributing to the best advantage the Government contracts assigned to them by the Central (Allocation of Contracts) Advisory Committee, which is composed of the chairmen of the local groups. In the event of a temporary breakdown in the deliveries of one member of a group, owing to a fire or some other cause, the other members are expected to do their best to make up the deficiency. As a result of the willing and invaluable assistance obtained from manufacturers by means of this system, it has been possible to place Government contracts over a much larger area than before and to secure the very large output which is now required.

Efforts were also made to stimulate production for the export trade, the value of which constitutes as much as 11 per cent. of the total value of our manufactured exports, and which was therefore of great importance in maintaining the rate of exchange, particularly with the United States. An export priority scheme was devised, by means of which woollen goods destined for export were to receive from manufacturers a priority second only to that of Government contracts. However, before the scheme was able to come into effective operation, two events occurred which changed the whole situation. The declaration of unrestricted submarine warfare made it imperative to husband with the greatest care a raw material which is not only essential for carrying on the war, but is bulky and produced mainly on the opposite side of the globe, while the resulting entry into the war of the United States caused the urgency of the export problem largely to disappear. In consequence, the export priority scheme and the machinery set up to carry it into effect became transformed into a rationing scheme, with the object of restricting the consumption of wool to a safe quantity and of distributing the available supplies in a fair and judicious manner.

The advice and co-operation of the trade was obtained first by means of committees selected from an advisory panel, and later through the Central Wool Advisory Committee, which contained representatives of all sections of the trade, from the wool

merchants who import the raw material to the woollen merchants who export the finished cloth, and included all branches of wool-using manufacture.

After full discussion in the light of all available information, it was decided to effect a reduction in the wool used by two methods concurrently, namely, a reduction in the hours worked and a restriction in the amount of wool or tops allowed to be taken into consumption. By an Army Council Order issued on May 24th, 1917, working hours in weaving and worsted spinning were reduced from the beginning of June to forty-five hours per week in place of the normal fifty-five and a half hours, or to a lower figure in cases where less than the normal hours had been worked on the average during March, 1917, and a proportionate reduction of hours was arranged for woollen spinning; later, after a census of wool stocks had been taken, the working week was altered from September 1st to fifty hours or the equivalent in all sections of the industry. There were several reasons for adopting the plan of short time in preference to the alternative method of stopping altogether an equivalent proportion of machinery, as in the cotton trade. It was in accordance with the usual practice of the trade; it effected an economy in running expenses, such as heating and lighting; it prevented any disturbance in the balance of machinery in the mill, and, most cogent of all, it avoided labour difficulties, for a substantial increase of wages happened to coincide in time with the shortening of the hours, thus obviating a diminution of the actual money earned. The closing down of machinery would necessarily cause the unemployment of a considerable number of operatives, mainly women and young persons, for whom there was not sufficient work in the districts where they lived; while comparatively few men would be released, since most of them were employed in positions of responsibility from which they could not be spared so long as the mill was running at all. At the same time there are several obvious reasons against this method. The idleness of some of the machinery would undoubtedly set free additional men, such as mule-spinners, for the army; further, it would enable the labour which was rendered superfluous to be absorbed into other essential work and would thus prevent the enormous waste of labour power involved in the loss of ten working hours weekly by about 300,000 persons. This time, which is roughly equivalent to the normal working hours of 54,000 persons each week, cannot be considered an unimportant consideration at a time when all resources must be husbanded to the utmost and when man-power

is one of the decisive factors in the struggle. A further objection to the reduction of working hours as a means of economising wool-consumption is to be found in the fact that in many processes a diminution in the number of hours worked by no means results in a corresponding diminution of output; this is particularly noticeable in the case of piece-workers, who wish to maintain their earnings and are able to work during the shorter period at somewhat higher pressure. Little information showing to what extent output is affected by short time has been collected, although many firms have gained very interesting experiences bearing on this question which will no doubt bear fruit in a more economical organisation of their work. One result of the shortening of hours was at once felt by the Contracts Department itself in the difficulty of maintaining the full quantity of cloth due for delivery each week. The spreading of contracts had already made unnecessary much of the overtime by means of which alone adequate supplies were produced in the early days, but it could not be carried much further, and in the case of some articles, such as blankets, all the machinery which could be used for Government work was already fully employed; in consequence a reduction of hours could only result in these cases in a dangerous reduction of output. It was therefore necessary in particular instances to grant permits to exceed the reduced hours, with the result that complete equality of treatment between firm and firm could not be maintained.

In hosiery manufacture a different principle was adopted, and the consumption of yarn for purposes other than Government contracts was reduced to a quantity 70 per cent. or less of the average consumption for civil purposes during January, February, and March, 1917.

The other method of reducing wool consumption adopted concurrently with the shortening of hours was more complicated in operation, but if satisfactorily carried out, more successful in its results. After careful consideration of available stocks, past consumption, future Government requirements, and expected supplies, the quantity of clean scoured wool which might be consumed by each firm for civilian purposes during the rationing period was determined. Committees possessing the confidence of the trade were established in each area as District Rationing Committees and sent representatives to a Joint Rationing Committee whose task it was to distribute the total quantity available for civil consumption equitably between the districts. All firms wishing to consume wool or tops during the period had to apply to their

District Committee for a rationing certificate and to give particulars of their requirements of wool and tops, their stocks, their running machinery, their consumption in 1916, and their Government contracts, as required by the application form. All applications were carefully scrutinised by a committee of experts in the light of all the information available, and in each case a "permissible" amount was fixed in accordance with a definite formula. The sum of these "permissible" amounts was compared with the total available for civil consumption in the area, and a "dividend" was declared by a simple sum in division. The "dividend" was then calculated for each firm on the basis of its "permissible" amount, and no firm was allowed to put into work during the rationing period more wool or tops than the quantity stated on its rationing certificate. The amount of yarn which it was calculated would be spun from the ration of wool and tops was distributed among manufacturers by a similar method and on the same principle. It must be noted that this ration must not be exceeded, even if the firm possesses, and has on its premises, stocks exceeding its allowance. On the other hand a firm may purchase supplies for the whole or any part of its ration if its own stocks are insufficient or unsuitable in quality. Obviously the weak spot of this scheme, which is watertight in theory, is the difficulty of its enforcement, especially in the case of firms holding large private stocks. During the first rationing period, from June 1st to August 31st, 1917, this difficulty was increased by the fact that no legal control was exercised over consumption until June 11th, in the case of cross-bred, and July 2nd, in the case of merino. Moreover, it was assumed by the spinners and manufacturers that no further restriction of consumption was required beyond that effected by short time, and that in consequence the civil ration, together with the supplies allotted for Government contracts, would be sufficient to keep all machinery running as usual for forty-five hours a week. Unfortunately, too, the scheme came into force before the arrangements for putting it into practical operation were completed, with the result that the rationing certificates informing the trade of the amount of wool, tops, and yarn which they were allowed to put into work were only issued two or three weeks after the beginning of the period to which they applied. Some firms fearing the coming restrictions put as much wool as possible through their machines while they were still free to do so, and then found that they had used up all, or almost all, their ration for the next months. When, therefore, the allotment became

known, it was anticipated that much machinery would be rendered idle. A great outcry was raised and doubts were expressed as to whether the official statistics on which these drastic steps were based really justified so large a curtailment of consumption. It is easy to understand the discontent which these severe restrictions created, particularly as it was not possible to make public all the reasons which necessitated this action. The trade saw large stocks of wool lying in mills, warehouses, and docks, and did not yet sufficiently realise the serious effect which the depletion of merchant shipping would have in the coming months on wool imports. Much angry comment took place both on the Bradford Exchange and in the local Press, and, in order to clear the air and to give an opportunity for an interchange of views, Mr. H. W. Forster, the Financial Secretary of the War Office, addressed representatives of the employers and of the workpeople at two meetings held for the purpose in Bradford towards the end of June. It was clear that the time had now arrived for entrusting to the industry itself the responsibility for adjusting many of the technical questions which were raised both by the size of the Government requirements and by the shortage of wool supplies, a responsibility which the trade were indeed anxious to assume. At the same time a reorganisation was necessary within the rapidly expanding department itself. All the arrangements for the purchase and transport of wool and the making of tops were centralised in London in the hands of the Controller of Wool Supplies and under the immediate supervision of the Director of Raw Materials, since it was obviously impossible for the War Office to divest itself of the responsibility for the large stocks of wool and tops which it owned. The Raw Wool Section was assisted by a Raw Wool Advisory Committee, which took over some of the functions of the Central Wool Advisory Committee, and contained representatives of all the interests concerned with the importation and handling of wool up to and including the stage of top-making. The controversy over the statistical position was laid by giving full opportunity for its investigation and by the appointment of a permanent Wool Statistical Committee containing representatives of the trade. The investigations and discussions showed that no wide difference existed between the estimates made within and without the department. The discrepancies on which so many attacks on the department had been based were found to resolve themselves into a difference of opinion as to the yield of the different qualities of wool which made up the stocks in the

country, a subject on which complete agreement cannot be expected. Steps are now being taken to ascertain, by careful tests, the actual yield of wool which is being imported, and the controversy has thus led to experiments which will result in far more accurate knowledge of this important subject, and will be of permanent value to the trade. Up to date, however, satisfactory results have not been obtained.

At the same time additional powers were delegated to the War Department Cloth Office, in Bradford, which had been making arrangements for the placing of contracts during the past year, and whose head became the Director of Wool Textile Production, with an independent Department responsible for the supply of all cloth and hosiery required by the British and Allied Governments. In addition to providing for the military and naval needs of the British and Allied Governments, it also provides the wool textiles requirements of all other Government departments and over 2,000 public services, such as the railways and corporations, Egypt, India, and the Crown Colonies. A Board of Control of Wool Textile Production was set up to control the civilian production of the trade and to assist the Director of Wool Textile Production in his work. The composition of the Board of Control is extremely interesting as an experiment in industrial democracy; for it represents an equal partnership between the State, the employers, and the workpeople. The chairman is the Director of Wool Textile Production, and the ten other official members are heads of branches in the department, including representatives of the Raw Wool Department, so as to secure co-ordination between the raw wool and the production branches. The most important employers' associations were invited to elect representatives, distributed as follows: three worsted spinners, three manufacturers representing the West Riding, and one of the West of England and Scotland respectively, one representative each from the carpet and felt, the hosiery, and the shoddy trades; the National Association of Trade Unions in the textile trades chose eleven members to represent the whole Association. The Board of Control thus commands the confidence of the whole trade, and its recommendations are recognised and accepted as necessary.

The first subject to which the Board of Control turned its attention was the urgent question of the rationing scheme. A committee was appointed to consider the whole subject in the light of past experience and to draft a scheme acceptable to all the interests concerned. After considerable discussion and

negotiation it agreed in recommending the continuance of rationing certificates for wool, tops, and yarn, and the method of allocating the rations already described. At the same time it devised a system of monthly returns of yarns delivered during the previous months to be furnished by manufacturers through spinners to the department, in order to ensure that each individual manufacturer who buys all or part of his yarns obtains his fair share of the yarn made from wool or tops allocated to spinners. Priority in supplies for any particular class of civil trade was abolished, as well as the key certificates given by cloth merchants to manufacturers. Thus all trace of the original idea of export priority disappeared. A special procedure was also elaborated for bringing into the scheme yarn merchants both in the export and home trade.

The control of so large a quantity of raw wool has naturally placed upon the British Government the responsibility for securing an equitable distribution of wool, tops, yarn, etc., not only to her own manufacturers, but also to her Allies. It was natural to use for this purpose the Commission Internationale de Ravitaillement, an organisation set up to enable each Allied Government to obtain without competition from the others the supplies of manufactured goods it needed from the United Kingdom. A regular procedure has grown up governing the wool distribution, as one Allied country after another has come to realise the military importance of this essential raw material and taken steps to control its use in its own country. An estimate of requirements for six months or a year ahead is obtained from each Ally using raw wool or its semi-manufactured products, the needs for civil and military purposes being distinguished, and arrangements are made for satisfying the demands as far as supplies permit. Military requirements are, of course, given precedence in the same way as they are for Government contractors in the United Kingdom, while their civil needs have to be curtailed to the same extent as those of British manufacturers. In addition to the advantages of a reasoned distribution of, instead of a scramble for, wool, this procedure has also enabled the Allies to tighten up the blockade so far as wool is concerned, since the South African and South American markets, which now remain the only source of free wool, are almost entirely dominated by the United States. Neutral countries are therefore mainly dependent on the British Empire for wool supplies, and it is possible to negotiate with them for a fixed ration not only of raw wool, but also of tops, noils, yarns, waste, etc., which is only sanctioned in

consideration of favourable reciprocal treatment. The War Trade Department issues the export licences for all wool supplies, after recommendation by the Commission Internationale de Ravitaillement with regard to requirements of the Allies and after consultation with the Raw Wool and the Wool Textiles Production Departments as to available supplies, with the Foreign Office as to the different destinations and the Treasury as to finance. When the ration to be exported to each country has been decided after consultation with all the departments concerned, it is handed over to the Trade Committees of the Board of Control to allocate the quantity fairly between the individual exporting firms, who have to furnish monthly returns in order that control may be exercised over them in the same way as over other users.

It will thus be seen that when the problem of rationing supplies was thrown on to the trade, it found itself obliged to continue a control as stringent as that exercised solely by the department, and, indeed, that it went further, in requiring further returns to ensure that it was carried out. The necessity of withholding information from the enemy prevented the publication of figures which would have helped the trade to realise earlier the seriousness of the position. But the increasing shipping losses and the decreasing arrivals of wool is proving an irresistible argument in favour of the measures which had been taken by the department before the shortage became apparent to the outside public.

The Board of Control also considered at an early stage proposals for preventing a further rise in the cost of woollen clothing for civilian wear. It was decided to try the experiment of putting on the market at fixed prices in competition with "free" goods a range of serviceable cloths made up into suits for men and boys, produced and distributed through the normal trade channels on the "conversion cost" system. The public would thus have the opportunity of obtaining clothing of a sound quality at a reasonable price, and would also have a standard with which to compare the charges for other clothing made without restrictions. Arrangements have also been made for the supply of standard flannel, hosiery, and blankets on the same system. It is expected that the existence of fixed prices for these standard articles will keep other similar goods at approximately the same price level.

Another interesting development of the system of conversion costs is seen in the scheme for the supply of officers' cloths. Up till recently these cloths were produced and sold in the same way as ordinary civilian requirements, with the result that the prices

had enormously increased, while the quality was no longer maintained. In consultation with the cloth manufacturers, the woollen merchants, and the tailors, arrangements have been made for the manufacture and distribution on a commission basis of special cloths to be sold to officers at fixed prices, according to quality, and it is estimated that the cost has been reduced in this way by about 30s. per uniform.

There remain two other classes of wool products used as raw material in the wool textile trade, both of which are influenced by Government action, but in different ways. The wool waste produced in the course of manufacture was controlled by an Army Council Order in the summer of 1917; a census of all stocks was taken, and after July 31st, 1917, no sales might take place except at fixed prices and under a permit from the department, contracts made before the date of the Order being exempted for a period of five months. Thus, at the end of 1917, rags, and the shoddy made out of them, remained the only uncontrolled raw material of the wool-textile trade, although here also the department is able to exercise considerable influence through the large supplies of shoddy, of which it is itself the owner, and which it is estimated amounts to about one-third of all the shoddy produced in the United Kingdom. By means of a careful salvage system, old uniforms, hosiery articles, etc., are collected from all the theatres of war and sent to the Government Rag Depôt at Dewsbury, where they are torn up into shoddy and issued to contractors for making army cloths, for which it is particularly suitable. The problem of rags and shoddy has still, however, to be solved.

We have completed our survey; we have watched the effects of the war as it has gripped in turn each branch and each firm in the wool trade, forcing all, as they struggle to live amid the ever-changing and unprecedented turmoil, to ask themselves, individually and collectively, as an elementary condition of their existence, what service they are rendering to the national life, and when the answer to this question has been found, to organise themselves so as to perform this service in the best possible way. The services required from the industry for the support of the national life in general, and of the war in particular, have been easy to recognise, although the individual members have not all rendered an equal contribution towards their performance. The best method of achieving the desired results has been found to be co-ordination and co-operation: co-ordination imposed at first by the pressure of external circumstances and later recognised as

necessary and developed by voluntary agreement; co-operation suggested at first by the need for combined action and later embodied in permanent forms and applied to a growing range of objects. Thus the wool textile trade has moved along in the same direction as other trades, and has gained experiences enabling it to take a leading part in the various experiments in industrial organisation which are being made. The joint partnership of State, employers, and workers in the Board of Control has already been described. Active minds are looking beyond the needs of the moment to a time when military demands will abate, and the successful resumption of civil trade will require the joint energies and devotion of all those engaged in the industry.

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